

DEPARTMENT OF COMMERCE  
BUREAU OF THE CENSUS  
WASHINGTON

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THE  
GROWTH OF MANUFACTURES  
1899 TO 1923

A STUDY OF INDEXES OF INCREASE IN  
THE VOLUME OF MANUFACTURED PRODUCTS

BY  
EDMUND E. DAY  
AND  
WOODLIEF THOMAS



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## NOTE BY THE DIRECTOR OF THE CENSUS

This monograph was originally prepared in 1923 by Professor Day, then of Harvard University, now dean of the school of business administration, University of Michigan, to cover the period from 1899 to 1919, but owing to delays incidental to compilation of tables and preparation of text, the records of one of the newly instituted biennial censuses of manufactures (1921) were completely published and those for the census of 1923 were ready for publication before the monograph was ready for the printer. It was therefore considered advisable to revise the monograph to include later figures before final publication. In making the necessary revisions Professor Day was assisted by Woodlief Thomas, of the division of research and statistics of the Federal Reserve Board, which consented to allow him to devote a part of his time to this work.

The organization of the monograph and the main ideas presented were conceived by Professor Day and incorporated in the original draft, and in the revised draft the early chapters were rewritten by him. Mr. Thomas inserted necessary revisions in the later chapters of the monograph dealing with specific industries and geographic divisions, and assisted in compiling the index of production of manufactures for the years from 1914 to 1925 and in preparing the description of the index published in Appendix A. He also prepared Appendix C giving information for 1925.

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## FOREWORD

There can be no doubt respecting the importance of the topic which Professor Day and Mr. Thomas discuss in this compact monograph. To most people census statistics have interest primarily or only because they furnish a measure of our national progress. Change and growth have been dominant characteristics of the economic life of the country. It is natural that numerical measures of growth should attract general attention. Here, very likely, is the basis of that peculiar interest in statistical facts which Europeans sometimes say they find in Americans.

The quantitative measure of population increase presents no especial difficulties. Each individual counts for one. The population census gives a direct and unequivocal measure of growth. This is not true, however, of the census of manufactures. The contrast takes on a touch of paradox when it is remembered that while the Constitution requires population to be counted periodically for the purpose of reapportioning Representatives in Congress the census of manufactures was instituted primarily in order that there might be a record of our industrial growth. In short, the present monograph is concerned with what appears to be the most important single question to which the census of manufactures might be expected to supply an answer.

The difficulty is not that the census of manufactures affords no answer or no measure of growth. On the contrary, it furnishes an embarrassing variety of measures. Which among them shall be used: Number of establishments? Capital invested? Gross value of output? Net value of output? Raw materials consumed? Physical quantity (not value) of product? Wage earners employed? Horsepower installed?

That changes in the number of manufacturing establishments have little significance for the purpose in hand is shown by the fact that in a number of rapidly growing industries the number of establishments has sometimes decreased, rather than increased, between one census and another. The amount of capital invested, even if it were known accurately, would bear an uncertain and variable relation to the general progress of manufacturing industry; and, in fact, the census statistics of capital invested are notoriously unreliable<sup>1</sup>. In the total money value of manufacturing output there is much double counting of the products of different manufacturing industries, and there are important elements which must be attributed

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<sup>1</sup> The Bureau of the Census has collected no data on capital invested in manufacturing industries since the census for 1919.

to agriculture, mining, and transportation rather than to manufacturing. Moreover, the gross money value of manufacturing output, like the net money value added by manufacturing, is affected and, one might say, distorted by general changes of the purchasing power of money.

Of the other possible measures suggested above, none runs in terms of money values. All of them—physical product, materials consumed, wage earners, and horsepower—are utilized by Professor Day and Mr. Thomas in one way or another. But the measure they seek, the one with which they would be contented if the figures for it were at all complete, is the volume of the output of the country's manufacturing establishments, measured not in money values but in tons, bushels, yards, etc. The measure upon which they center their attention is, in other words, the *physical product* of manufacturing industry.

Three separate considerations justify the choice of this particular measure. In the first place, it gives probably a more satisfactory and unequivocal answer than any other single measure does to the particular question that would best express the widespread general interest in the growth of our industries. Second, indexes of physical production have proved to be indispensable instruments in the scientific analysis of the processes of economic change. Third, other measures of manufacturing growth, whatever their value, are, one might say, given ready-made in the reports of the successive censuses of manufactures. Number of establishments, value added in manufacture, wage earners, and horsepower are stated in full. There are few stumbling blocks which need trip even the inexperienced user of statistics. The figures for physical production, on the other hand, are incomplete, unsystematic, and, because they run in terms of heterogeneous units, are not additive. The inexperienced user of statistics can do little or nothing with them. They have to be studied and manipulated with the utmost care if they are to be made to tell their story. This third consideration, alone, is sufficient to justify the authors in occupying themselves primarily with the measuring of the variations of physical production.

Any general index of physical production must of necessity lack precision. This is a consequence in part of lack of completeness and of other defects in the available data. In part, however, it is a consequence of the fact that the notion of just what an increase of physical product means is not and can not be precise. In the first place, as Professor Day and Mr. Thomas are careful to warn the reader, production, in the sense of fabrication, even within a given industry, is a matter of kind and of degree, of quality as well as quantity. Standardization of products, after all, has not gone very far, and there are substantial changes from year to year. In the



second place, even without changes in the nature of particular products, the aggregate manufacturing output changes qualitatively as well as quantitatively through changes in the relative importance of different products. By no system of weighting can the effects of these qualitative changes be taken fully into account. Rigidly speaking, the physical product of one year and the physical product of another year are incommensurable. In carefully constructed indexes, however, the margin of uncertainty due to changes in the proportionate importance of different products is generally very much less than the margin of error attributable to deficiencies in the available data. For practical purposes, and over periods of time not unduly long, the effect of these qualitative variations is taken care of by precautions such as the authors observe in the weighting of their indexes.

The difficulties which make a production index, at its best, a somewhat imperfect instrument are likewise encountered in constructing indexes of the movements of groups or aggregates of other types of variables, such, for example, as prices. Indexes do not express precise scientific concepts. They are merely useful practical tools. Essentially averages, their chief advantage is that they compress and summarize a complex mass of facts in such a way that "general" or "net" movements are brought into clear relief.

The "Harvard" index, which the authors revise and use as an important factor in their estimates, rests on census statistics of the physical product of manufactures, eked out by census statistics of materials consumed in manufactures. Census statistics of value added in the process of manufacture also figure in the index, but only as affording a basis for weighting the different series according to what is taken to be their relative importance as representative of general classes of manufactured products. Using money values in this manner, merely to determine relative or proportional weighting, does not inject a "dollar element" into the index.

In making some of their estimates the authors also draw upon the census figures for wage earners and for primary horsepower. Wage earners have, in general, increased less rapidly than product, while horsepower has increased more rapidly. That is, product per wage earner has increased, while product per unit of power has decreased. This illustrates and confirms an elementary economic principle, and is in accord with what is known about the general trend of our changing industrial organization. It is to be hoped that the authors' findings along these lines will prompt others to undertake further studies of the general relations of the use of labor and of mechanical energy to the output of different industries. The problem has fundamental economic importance, but up to the present no trustworthy studies have been made of it.

Using all the available census data, the authors construct some interesting indexes of the growth of a number of carefully classified groups of manufacturing industries. These indexes offer food for reflection. For example, over the whole period from 1899 to 1923, the percentage increase for the combined groups in physical production was 161, in number of wage earners 88, and in primary horsepower 230. Of the different groups, the following had grown by more than the average for all industries: Vehicles for land transportation, miscellaneous products, chemicals, nonferrous metals and their products, and iron and steel and their products. The rate of growth of the following groups was less than the average: Liquors and beverages, lumber and its remanufactures, leather and leather products, textiles and textile products, food products, stone, clay, and glass products, and tobacco manufactures. The general character of the change is clearly apparent. Industry as a whole is depending relatively less upon our farms and forests for its raw materials, and more upon our mines. Food products constitute an exception. The demand for food products is relatively inelastic, and manufacturing plays an increasing part in preparing them. As the authors suggest, "the factory is displacing in part the work of the housewife." In respect of the marked increase of miscellaneous manufactures, the authors note that "the lines of manufacture which have shown the most rapid rates of growth have been lines concerned with the production of goods primarily devoted to recreation and diversion of one kind and another." We depend more and more upon organized industry not only for our food but also for the devices with which we while away our leisure.

The period which this study covers happens to be one of unusual interest. By 1899 industry had pretty completely shaken off the long-continued depression which followed the crisis of 1893. Its further progress up to and through the war was persistently upward, even though halted from time to time by major or minor periods of depression. For the period as a whole, the authors find, the average annual rate of increase of the output of the manufacturing establishments of the United States was just under 4 per cent.

During the 24 years covered by this study, in the authors' opinion, the growth of manufactures was more than three times as great, relatively, as the increase of population. The increasing output of producers' goods accounted for a substantial part of this extraordinary growth. "But upon the whole," the authors find, "the evidence seems to justify the conclusion that the increase in the production of consumers' goods from 1899 to 1923 was considerably in excess of the growth of population during the same period."

The authors conclude with suggestions respecting possible developments in census methods and practice that would give more complete

and more accurate knowledge of the character of our general industrial growth. Studies such as theirs, which focus upon a definite problem such information as the census now yields, have a critical as well as a constructive value. The more precise and definite the questions to which we seek answers in the information given by the census, the more of point and purpose we shall put into the census itself. The surest way to get better statistics is to make the best possible use of what we have.

**ALYN A. YOUNG.**

## I

### THE SIGNIFICANCE OF THE VOLUME OF MANUFACTURE

Manufacture, in the sense of factory production, is one of the most significant phases of modern economic life. This fact follows from the extraordinary inclusiveness of modern factory processes. Not so long ago the household spinning wheel and hand loom were important instruments of production; and the local cobbler, with his modest outfit, made such footwear as the community required. But in progressive countries, hand spinning and weaving to-day are lost arts, and the village shoemaker has disappeared. The foundry has displaced the blacksmith and the furniture factory the local cabinet-maker. Even the farmer's butter churn is threatened by the community creamery, and the country housewife depends increasingly upon the village store for her supplies. Fresh milk and fresh vegetables are about the only staple articles of food which now, in general, reach the consumer without being fashioned in some measure in the factory. As for the other goods we consume—our meat, sugar, flour, our clothing, our household conveniences, our means of recreation, not to mention the more complex instruments of communication and transportation upon which our modern life depends so vitally—all are in some measure factory products. It is clear, consequently, that in current manufacture there is afforded a most comprehensive record of the total flow of material goods upon which our economic existence so largely depends.

But it would be a mistake to think that changes in the volume of manufacture invariably reflect corresponding changes in the established flow of economic goods. Changes in the volume of manufacture have their origin in no single underlying factor. On the contrary, a variety of forces are involved. Some of these forces are intermittent or transitory; others sustained or permanent. The nature and importance of all the forces must be carefully considered in any attempt to explain the significance of changes in the volume of manufacture from one period to another.

Changes in industrial output, in the first place, may come about through changes in society's productive capacity. Human and natural resources, industrial technique, political policies, and social institutions combine to give any society a certain capacity for producing economic goods. Owing to the present extraordinary reach of factory processes, the exercise of productive capacity by any

economic society is almost inevitably reflected sooner or later in industrial output. Over substantial periods of time changes in the volume of manufacture, therefore, may safely be ascribed, at least in part, to changes in the underlying productive capacity of society.

At the same time, it should be recognized that some part of an increase of industrial output may represent no enlargement of total capacity, or even of current production, but rather a transfer of productive processes from household or shop to factory. It is customary in these days to think of manufacture in terms of factory production; the farmer's domestic production of butter is not termed "manufacture," though the near-by creamery's production of the same article is. Periods of increasing industrialization, therefore, will show increases of manufacture which do not reflect corresponding increases of productive capacity or of current production, but merely an increasing resort to factory methods.

Furthermore, the volume of manufacture may be affected at times by social projects which for the time being divert large bodies of the workers from manufacturing enterprise. Great wars inevitably have this effect. Not that manufacture is necessarily, or even probably, diminished at such times; on the contrary, extraordinary efforts may fully maintain industrial output. But the primary objectives of war lie on the fighting front. Millions of men in arms means millions of men away from customary occupations in commerce and industry. The volume of manufacture is almost certain to be affected in some measure by such radical redistributions of the Nation's available man power. At times of great national undertakings, therefore, correlative changes in industrial output may reasonably be expected.

Still another type of influence may account for changes in the volume of manufacture. Such changes frequently occur in response to changing general business conditions. Few elements of the business cycle are more characteristic than the ups and downs of factory output. A decline in the volume of manufacture from one year to the next may represent for the most part cyclical slackening of industrial pace; a rapid rise in factory production from one period to another may reflect little more than the acceleration of manufacturing which is characteristic of one phase of the cycle. Changes in the volume of manufacture, therefore, must always be interpreted with due regard to the periodic ups and downs which mark the course of the present competitive order.

From what has been said, it is clear that changes in the volume of manufacture have a significance which is commonly of a highly complex character. Numerous underlying influences may account for the change which occurs in any given period. Fundamentally, however, the general significance of changes in industrial output is clear.

Such changes indicate relative alterations of the total flow of material goods from producer toward consumer.<sup>1</sup>

The fundamental significance of this flow of goods inheres in its physical volume. Measurement of changes in money values will not disclose what are, after all, the basic facts. In other analyses, pecuniary mensuration is commonly indicated. The incentives of competitive enterprise are primarily pecuniary in character; economic motivating forces and other directly correlated factors may properly be measured in money values. But in the examination of the total flow of material goods, incentives to competition are not immediately involved. Rather, material sources of satisfaction are concerned. These sources, in general, are not pecuniary in character. The same things do not give more satisfaction simply because they cost more. We get no more benefit from a loaf of bread when its price is raised. Except for things consumed for purposes of social distinction or prestige, utility is not dependent upon money value. For the bulk of consumers and of consumption, real income is to be measured not in terms of dollars and cents but in terms of goods and services. It is important to know whether consumers are getting more goods and services, not whether they are handling more dollars and cents. The task in the present instance is to measure changes in the physical, not in the pecuniary, volume of manufacture.

Such measurement requires manufacturing records expressed in physical units. Relative changes in industrial output could be traced, it is true, even if the original observations were in monetary terms, provided the value of money were constant, or at most subject to slight or measurable changes. But the value of money never stays precisely the same for any considerable period—at times is subject to radical alteration, even to convulsion—and always is measured with difficulty. The price movements of recent years—unprecedented in range and violence—have made the monetary unit a most uncertain compass with which to chart the economic seas. Over the physical elements which lie at the foundation of our economic life, the widely fluctuating value of money has, in fact, cast a thick pecuniary fog. It has been virtually impossible to translate aggregate values into aggregate quantities. At least for the time being, changes in the values of farm products throw little or no light on changes in the physical size of the crops; changes in the value of imports or exports tell little or nothing about the movement of the physical

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<sup>1</sup> This conclusion is not intended to ignore the contributions of other major lines of productive endeavor—agriculture, animal husbandry, forestry, fishing, mining. Clearly, agricultural results may vary from season to season more or less independently of manufacturing activity; and the exploitation of the country's natural resources may proceed at widely varying rates from year to year. But before the raw materials from any source reach the consumer they are almost certain to be fabricated. In manufacture, therefore, the "effective" rate of total material production—that is, the rate which bears fairly directly upon consumer's wants—is made evident.

volume of foreign trade; changes in the value of manufactured products afford practically no information regarding alterations in the physical flow of goods from producer to consumer—that is, regarding society's real income. What is needed at the present time, therefore, is a measurement in physical units of changes in the volume of manufacture.

Fortunately, in factory output there is an exceptional opportunity to observe the total flow of economic goods. To trace the goods in their cruder stages would be much more difficult. The raw materials of manufacture come from an infinite range of sources. The farm and the forest, the quarry and the mine, the lake and the open sea, the pasture and the prairie range—all contribute their share. To catalogue the full run of raw materials from this great diversity of sources would be an almost impossible task. Equal difficulties would be encountered in any attempt to picture the vast stream of finished products as it reaches the ultimate consumer. The forms assumed by the goods, the uses to which they are put, the places to which they are transported, defy complete enumeration. Only in the intermediate stages, between crude material and highly fabricated products, does the flow of goods narrow to measurable limits. Modern industry tends toward physical concentration. In the factory—in other words, in the records of manufacture—is the opportunity to measure changes in the volume of goods flowing continuously into human use.

Such measurement should not be undertaken, however, without recognition at the outset of certain limitations inherently imposed upon the analysis. In the first place, the very concept of changes in the volume of manufacture is illusive. For example, suppose 100,000 pairs of men's shoes are turned out in a certain factory in 1910, and 150,000 in the same factory in 1920. It might appear perfectly obvious that there has been an increase of 50 per cent in the volume of manufacture so far as this particular establishment is concerned. But suppose the 150,000 pairs made in 1920 are essentially higher grade shoes than those produced in 1910. Suppose the shoes of the later year are fashioned from better material; are not as simple in style; are made with better workmanship; are in every respect more highly finished shoes, representing the use of better machinery, the application of more highly skilled labor, and the outlay of more time. Are we still to think of the volume of manufacture in the supposed instance as having increased only 50 per cent?

Probably no other conclusion is practicable. Measurement of the volume of manufacture is at best a crude process. Inevitably it has to deal with the grosser aspects of production. Distinctions which are marked enough to form differences in kind may be recognized; those which are no more than distinctions of quality or grade have to be ignored. It is feasible, for example, to measure separately

changes in the volume of manufacture of book paper and fine paper, but changes in the volume of production of the different grades of each of these varieties of paper can hardly be considered.<sup>2</sup> In general, any measurement of the volume of manufacture is bound to ignore many changes in the degree of fabrication to which materials are subjected. It is certain to rest largely upon notions of bulk; to deal in terms of gross quantities, not in terms of fine qualities. The very illusiveness of the concept of a general rate of growth of manufacture imposes serious limitations upon the analysis.

In the second place, direct measurement of the volume of manufacture is obstructed by lack of statistical data. The multiplicity of manufactured products lies beyond statistical reach. Of necessity, attention is focused upon the limited number of products for which quantity figures are obtainable. The commodities for which production data are at hand are, for the most part, of a simple and staple character. The extent to which they are representative of the full variety of manufactured products is somewhat uncertain. Furthermore, even for these more easily reported articles, the data are by no means as full as they ought to be for satisfactory statistical analysis. It is only recently that the value of statistical records in the industrial field has come to be recognized. Many production records were not begun until governmental supervision during the World War compelled the collection of data. Though an increasing number of production figures are being gathered and published, it will be years before comparable data on manufacturing output are available for a satisfactory proportion of the total possible list.

Determination of the rate of growth of manufactures is made difficult in the third place by a troublesome logical problem in the combination of the varying rates of growth shown by different lines of manufacture. Suppose it is found that during the decade 1909 to 1919 cotton manufacture increased 20 per cent, flour milling 10 per cent, steel production 40 per cent, and automobile production 100 per cent. How are these different rates of growth to be combined in a single figure representing significantly the growth of manufacture for these industries as a whole? It is manifestly impossible to merge the four different kinds of goods into a single aggregate—

<sup>2</sup> In this connection a passage from the introduction to the 1909 report of the census of manufactures may well be quoted:

"The difficulty lies primarily in the fact that the number of different commodities and grades of commodities produced by manufacturing industries is enormous, and in the fact that many of the commodities are not standardized. In some cases there is no uniformity in products at all; each individual article made is unique. Even in industries where articles of similar character are produced in considerable numbers, to obtain quantities for each grade of each commodity would necessitate an immense expenditure of time and money. In fact, entire accuracy and completeness could not be secured with any expenditure, because, in many industries, it would be impossible to obtain a description of each grade of each commodity made by a given establishment sufficiently precise to permit identification thereof with the corresponding product of another establishment, and thus to permit the totalization of articles by grades. It would be still further from the range of possibility to make sure that the descriptions of articles and grades given at one census corresponded exactly with those given at another census." (Thirteenth Census of the United States, Vol. VIII, p. 26.)



yards of cotton cloth, barrels of flour, tons of steel, and thousands of automobiles can not be added. The most natural solution of the problem lies in an averaging of the rates of increase. But if these are to be averaged, are all to be treated as of equal importance? If not—and that they should not be seems in the present stage of analysis to be the only possible conclusion—upon what basis are the different rates of increase to be weighted in obtaining the average rate of increase for all combined?

In general, it may be said that there are two possible bases for weighting the individual rates of increase in obtaining a general rate of increase for manufacture as a whole. These two possible bases are: (1) The value added by manufacture in the industry in question compared with the value added in all industry; and (2) the number of wage earners employed in the industry in question compared with the number employed in all manufacture. Upon the whole, the first of these two possible bases seems preferable in the measurement of the growth of manufacture. As between different industries, the number of wage earners employed is by no means a dependable index of the relative importance of the products turned out. In one line of manufacture, labor may be the principal element in fashioning the product; in a different line of manufacture, machinery may do by far the greater part of the work. Value added in manufacture, upon the other hand, reflects definitely the relative economic significance of the different manufacturing industries. Thus, the fact that the value added in textile manufacture is five times that added in the manufacture of leather justifies the treatment of changes in the volume of textile manufacture as five times as important as changes in the volume of leather manufacture. It should be recognized, however, that any method of weighting the different rates of increase of the several divisions of manufacture in the estimate of the general rate of growth of manufacture is in a sense arbitrary. Weighting the individual rates of increase constitutes one of the most serious difficulties encountered in measuring changes in the physical volume of manufacture.

In the introduction to the report on manufactures in the Thirteenth Census, the following statement appears:

It would be exceedingly desirable, if practicable, to measure the increase in the output of manufacturing industries, individually and collectively, on the basis of quantities of things produced rather than by values. Were it possible to obtain comparable statistics from census to census as to the quantity of every commodity produced by manufacturing establishments, a general expression of the average quantitative increase in the production of manufactured articles, could be computed. \* \* \* It is quite impossible, however, to obtain complete and comparable statistics of the quantities of manufactured articles produced in different census years so as to furnish a basis for the calculation of the average percentage of increase. In fact, for a large proportion of manufactured

products, the Census Bureau has never found it practicable to call for quantities. \* \* \* It might be possible at future censuses to compute the average increase in quantities for a sufficient number of important manufactured products to give some clew to the general quantitative movement of production, but the data at present available are not sufficient for such a computation even of a rough character.

This conclusion of the census authorities in 1909 constitutes a fair warning against the risks which encompass the task of measuring the physical volume of manufacture. As stated earlier, the difficulties are to be recognized at the outset. They can not be altogether surmounted and will inevitably impair somewhat the significance of the statistical results obtained. In the light of these facts, the present study is to be regarded as a reconnaissance into relatively undeveloped country. No precise final results are to be expected. Nevertheless, in view of the importance of the problem, an explorative study seems worth while. Certainly, on the strength of the provisional results that may be forthcoming, the paths of later development in the field may be traced, and the requirements of additional information definitely indicated.

## II

### THE SERVICEABLE MEANS OF MEASUREMENT

The difficulties inevitably involved in measurement of the growth of manufacture call for the utilization of every available line of information. The most significant raw data for the purpose come, however, from a single source—the periodic censuses of manufactures taken by the Federal Government. It is upon this census material that the present analysis will depend.

Not all of the census data on manufactures are applicable to this particular inquiry. The Federal censuses cover a large number of different aspects of industrial enterprise in the United States. Data are collected regarding the number of establishments, the character of ownership, the number and classes of persons engaged in manufacturing, prevailing hours of labor, power installed and fuel consumed, value of product and value added to materials by processes of manufacture, materials consumed and goods produced, and expenses incurred. Most of this information casts little light upon the physical volume of production. Items such as expenses incurred, value of products, and value added to materials by processes of manufacture are inapplicable for reasons in part already indicated—primarily on account of extraordinary changes in the value of money, but partly because of duplication among industries in the reporting. Items such as number of establishments, character of ownership, and prevailing hours of labor are essentially irrelevant in an investigation of the general growth of manufacture. Only three lines of census information may be made to serve effectively in the measurement of general industrial expansion. These are (1) data regarding physical quantities of materials consumed or products fabricated in manufacturing establishments, (2) the number of wage earners employed in manufacturing industries, and (3) primary horsepower installed in manufacturing establishments. Information regarding all three of these is expressed in physical terms and is not directly affected by changes in the value of money. It is from these three lines of information, then, that we must seek to ascertain the growth of manufacturing industry in the United States.

Ideally, measurement of the volume of manufacture would rest upon records of the output of a large number of manufactured products, output being measured in each instance in physical terms. Thus, the inquiry would start with records of the production of cotton cloth, suits of men's clothing, loaves of bread, passenger automobiles,

and numerous other articles of widespread use. Combination of a sufficient number of series of this sort would afford the desired measurement of changes in the volume of manufacture.

But the incompleteness of production records suggests resort to other related data. Records of production in physical units may be supplemented with reports of materials consumed in manufacture. Thus the number of bales of raw cotton consumed may be taken to measure the volume of cotton manufacture; and the number of animals slaughtered, the volume of meat production. Of course, combinations of data dealing with products manufactured and materials consumed must be made with careful regard to the underlying relationships. These relationships are not always simple and clear. Obviously, raw-material consumption fails to reflect changes in the degree of fabrication to which the materials are subsequently subjected. Increases in the amount of materials consumed undoubtedly sometimes understate—probably rarely, if ever, overstate—the growth of manufacture. Nevertheless, the records of raw-material consumption are sometimes to be used in combination with the data on products in the measurement of changes in the volume of manufacture.

The data on products and materials are most satisfactorily used if summarized in index numbers. In general, an index number is a number expressing the relative change of a group of related variables. In the present instance, the related variables consist of the different amounts of products fabricated or of materials consumed in manufacture in the several census years. An index of the volume of manufacture must combine these related variables so as to provide a measure of the relative change of the group of variables as a whole.

Fortunately, an index number of precisely this sort has already been set up for the volume of manufacture of the census years 1899, 1904, 1909, and 1914. This index was constructed in 1920 by Prof. Warren M. Persons, with the assistance of Miss Eunice S. Coyle.<sup>1</sup> The index makes exhaustive use of the available census data from 1899 to 1914. It is to be carefully examined in connection with the present study of the growth of manufactures in the United States as disclosed by the census returns.

A quotation from the original explanation of the Harvard census index will serve to indicate the nature of the statistical material employed in constructing the index:

The series utilized in the construction of our index of physical production for manufacture in 1899, 1904, 1914 consist in the main of data compiled by the Bureau of the Census and published in the Abstract of the Census of Manufactures for 1914. They relate to calendar years, or, in the case of some individual

<sup>1</sup> The index appeared in the Review of Economic Statistics for November, 1920, as a part of Professor Day's more general study of indexes of the physical volume of production. The index will be hereafter referred to as the Harvard census index.

firms, to the "twelve-month periods" ending within the calendar years. The figures which we have selected cover returns only for establishments whose chief business was the industry named. By restricting the data to such establishments it is possible to secure comparability between industries. To secure data comparable from year to year, the census has retained "as far as possible the same form of schedule" throughout, and has also revised its figures for 1899 by excluding neighborhood, household, and hand industries. These industries have not been canvassed since 1904, in which year the inquiry was first limited to establishments operated under the factory system. In view of the precautions taken by the Bureau of the Census, the series relating to manufacture from census to census may be considered fairly homogeneous.

From the various series published in the Abstract of Manufactures two sets were taken—(1) quantities of materials used and (2) quantities of products, having, respectively, a cost or value of not less than \$10,000,000 in 1914. A few industries measuring up to this standard under the miscellaneous group, however—ice, musical instruments, etc.—were omitted as too small and heterogeneous a sample. The products transcribed relate to articles manufactured during the year, not to articles sold; and materials refer to amounts used, not to amounts purchased. The nomenclature and classification of the census has been followed in this study.

Where figures on quantity were not reported by the census, but were available elsewhere, the other sources were used. Thus, for metals other than iron and steel, data were taken from Geological Survey and mint reports; for liquors and tobacco, from the Annual Report of the Commissioner of Internal Revenue; and for cane sugar, from the Statistical Abstract.

The methods employed in obtaining the index for each census year from these original data are not difficult to follow. In general, they consisted of reducing each series of items registering output of some product or consumption of some material to percentages of the quantities produced or consumed in the base year, 1909. These relatives were then averaged for each census year, each relative being assigned a weight proportionate to its relative importance in the total list of manufactures. In general, for both industries and groups of industries, these weights were based upon values added by manufacture as reported in the census of 1909.

One of the most difficult phases of this method of constructing the index number has to do with the weighting of the individual series. Specifically, the question in each case is, how far may the particular product turned out, or material consumed, be regarded as more generally representative of the volume of manufacture? To take a concrete case, how far may changes in the production of pig iron be regarded as accurately indicative of changes in the production of iron and steel products in general. Doubtless there are wide variations among the very large number of products of iron and steel, but the question is, how far pig iron is reasonably representative of the group of iron and steel products *as a whole*. The question is fundamental in the construction of any index number of the volume of manufacture.

The question of representativeness arises both in connection with individual industries and entire groups of industries. The Bureau of

the Census always reports its returns from the manufacturing census on a broad classification of manufacturing industries. A natural and significant grouping of industries is to be recognized in the construction of the index of the volume of manufacture. So far as the data permit, an index may be set up for each group of manufacturing industries, as well as for manufacture as a whole.

The Harvard census index "was built up by a process of integration—an orderly development of successively larger elements from smaller components." The exact nature of the process will be clear from extracts taken from the explanation originally accompanying the index:<sup>2</sup>

\* \* \* That manufacture exhibits important subdivisions is generally recognized. The Bureau of the Census presents, as the basis of its classification of manufacturing industries, the following groups of industrial products:

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|---|--|
| I. Food and kindred products.           | VIII. Chemicals and allied products.                     |
| II. Textiles and their products.        | IX. Stone, clay, and glass products.                     |
| III. Iron and steel and their products. | X. Metals and metal products, other than iron and steel. |
| IV. Lumber and its remanufactures.      | XI. Tobacco manufactures.                                |
| V. Leather and its finished products.   | XII. Vehicles for land transportation.                   |
| VI. Paper and printing.                 | XIII. Railroad repair shops.                             |
| VII. Liquors and beverages.             | XIV. Miscellaneous industries.                           |

This classification is adopted in the present study. So far as the data permit, an index is set up for each group of manufacturing industries.

Just as manufacture in general is a combination of major groups, so each group is a combination of important individual industries. Thus, in the textile group, we find industries devoted to the manufacture of cotton goods, hosiery and knit goods, woolen and worsted goods, silk goods, carpets and rugs, fur-felt hats, and cordage and twine. An attempt is made to secure indices for all the more important individual industries. The group indices are built up from these.

Still further down the scale, below the indices for individual industries, stand the relatives for particular lines in such industries. Thus, for census years, the industry of "Slaughtering and meat packing," under the group of "Food and kindred products," is represented by four series showing the dressed weight of beeves, calves, sheep, and hogs used in the industry. The index for the "Slaughtering and meat packing" industry in 1899, 1904, 1909, and 1914, rests upon these four lesser series. \* \* \* In a considerable proportion of cases, the indices for individual industries rest upon single commodity series assumed to reflect the course of the industry as a whole. In many cases, however, the indices for individual industries combine, as described, the relatives of particular materials important in the industry.

The manufacturing index thus is built up step by step from smaller elements. Single industry indices are secured from single commodity, or combinations of single commodity, relatives. Indices for important groups of industries are obtained by combining single industry indices. Finally, the index for manufacture as a whole is developed by consolidating the several group indices.

<sup>2</sup> See Edmund E. Day, *An Index of the Physical Volume of Production*, *The Review of Economic Statistics*, Vol. II, p. 310.

The Harvard census index covers satisfactorily the census years 1899 to 1914, but is not available for the later period. It has seemed desirable, therefore, to construct an index number of the same general character for the census years 1919, 1921, and 1923. This has been done. For the later years census data on products fabricated have been used exclusively. The method followed in constructing the index from these data differs from that employed in the construction of the Harvard census index in only one important particular—the weights used in the new index instead of being based upon value added in manufacture in a single base year (1909) are in each case based on a compromise of the weights derived from values added by manufacture in the two terminal years of the intercensal period for which the index is computed. Thus, in measuring the increase in the volume of manufacture from 1914 to 1919 the weights attached to the different constituent series are made proportionate to *an average* of the values added by manufacture in both 1914 and 1919. This compromising of the weights effects an improvement in the method of developing index numbers of this general form. Aside from this one modification, the methods employed in obtaining the census index for the later years is identical with that employed in obtaining the Harvard census index for the period 1899 to 1914.<sup>3</sup>

An index of the volume of manufacture based upon records of products fabricated—supplemented where necessary by data on materials consumed—is the best single measure of the growth of manufacture in the United States for the period since 1899. The original Harvard census index combined with the new census index for more recent years seems to afford a satisfactory record of the changing volume of manufacture for various intercensal periods. The major results of the present study rest essentially upon the course traced by the production indexes.

But conclusions drawn from the production indexes are not to be accepted without careful regard for results obtained from other lines of evidence. After all, the indexes of the volume of manufacture rest upon a comparatively small sample of the total list of manufactured products. The use of such incomplete data raises questions regarding the representativeness of the figures. Thus, it is not easy to tell how accurately the production of finished articles of personal wear made from textile fabrics—of which we have practically no records—correspond to the manufacture of textile fabrics, for which fairly satisfactory data are available. Similarly, it is almost impossible to say how closely the output of products made primarily from iron and steel follows the production of these basic materials. There is considerable play between manufacturing enterprise in its different stages, and the correlation of one production series with another is

<sup>3</sup> For a fuller explanation of methods and a detailed description of data used in the index, see Appendix A.

frequently uncertain. Production indexes, resting as they do upon the theory that certain available series are fairly representative of broad divisions of manufacture, are bound to be received with reservations, and must be supported wherever possible by all the supplementary lines of evidence that can be brought to bear.

Of these supplementary lines of evidence, the most important are the reported (1) average number of wage earners employed and (2) amount of primary horsepower installed in manufacturing establishments. Both wage earners and horsepower are presumably only roughly related to physical output. In measurements of the volume of manufacture, they constitute only indirect evidences; but as contrasted with available production data they possess the marked advantage of being approximately complete and general in character. They cover all industry instead of a relatively small sample of the whole. The number of wage earners and amount of primary horsepower are therefore both to be considered in the study of the growth of manufacture.

The nature of the census returns regarding wage earners and primary horsepower must be clearly understood. Consider first the average number of wage earners. The census of manufactures reports the total number of persons engaged in manufacturing establishments. They are classified according to industrial status as employers, salaried employees, and wage earners.<sup>4</sup> The latter class is the only one of substantial significance in connection with the present study. The average number of wage earners employed during each month is reported for each of the 12 months of the census year. In 1899 and 1904 manufacturing concerns were required to estimate the average number employed in each month. Beginning with 1909, however, the forms have provided for the report of the number actually employed on the 15th day of each month or on the nearest representative working-day. In either case the average number employed during the year, determined by taking the average of the results of the 12 months of the year, may be viewed as a fairly dependable measurement of the laboring force actually employed in the establishment during the year.<sup>5</sup>

Undoubtedly, among different industries at the same time and in the same industry at different times, the average number of wage earners may be no criterion of differences in the physical volume of the product. Obviously, some industries make much more extended use of machinery. Labor counts for much more in the manufacture

<sup>4</sup> The classification by which wage earners are separated from other employees has remained unchanged since 1899, so that the data are presumably comparable in this respect for the full period of the present study.

<sup>5</sup> Periods of relative idleness are averaged in with periods of full employment. Thus, if during the first 6 months of the year 100 wage earners are employed regularly and during the remaining 6 months of the year none at all is employed, the average number of wage earners for the year is 50.



of a shoe than in the manufacture of a steel rail. Furthermore, the importance of labor as compared with machinery in any given line may undergo revolutionary changes. Labor-saving devices may be introduced, largely displacing particular types of workmen. It is hardly necessary to urge that caution must be employed in reasoning from changes in the number of wage earners to changes in the physical volume of production. Nevertheless, it seems reasonable to suppose that for broad groups of industries and for most single industries for shorter periods of time, there is a high degree of correlation between the number of wage earners employed and the physical volume of production. In the average number of wage earners, as reported regularly in the census of manufactures, we have, then, a possible basis for estimating the increase or decrease of manufacturing output.

Primary power reported by manufacturing establishments is another index of industrial output. The returns include all primary power, reduced to terms of horsepower. Primary power includes for each establishment not only the power developed on the premises but any power purchased or rented from other concerns. It is to be noted, however, that if power is transformed on the premises, as, for example, in the development of electric current from a water wheel, the horsepower developed is counted only once. The power reported is *primary* in the sense that it is its first appearance in the establishment making the return. Total primary horsepower reported thus represents the full installation of power in manufacturing industry.

It may be reasonably supposed that changes in primary horsepower correspond in some measure to changes in manufacturing output. Presumably, the horsepower is installed for the purpose of operating machinery, which machinery in turn has no purpose but the production of manufactured goods. Any increase in mechanical equipment would tend to be accompanied by an increase in installed power. The two would reflect an expansion of manufacturing capacity which when in normal use would show a corresponding increase in physical output. It should be noted, of course, that reported horsepower is more indicative of productive capacity than of actual production. Furthermore, an increase in primary power may represent factors only indirectly related to output; such as increasing displacement of labor by machinery or more liberal installation of power for a relatively fixed amount of machinery. Nevertheless, in primary horsepower we have another possible basis for estimating changes in the physical volume of manufacture.

In employing these different lines of information regarding manufacturing output—products manufactured or materials consumed, wage earners employed, and primary power installed—the merits and defects of each should be clearly recognized and conclusions from one checked against conclusions from the others, that any differences in

the record may be harmonized as far as possible. In this connection certain points are to be carefully noted.

Data regarding products manufactured or materials consumed presumably understate somewhat the growth of manufacture. Undoubtedly, there is in modern production a tendency toward higher manufacture of the basic materials; in other words, there is a tendency toward increasing fabrication. In an important sense, this is an element in the growth of manufacture. True, it is an element that is hardly subject to accurate statistical measurement, an element that can not be given any substantial recognition in estimates of the growth of manufacture. It is proper, nevertheless, to recognize at the outset that data showing the volume of products manufactured or materials consumed in manufacture are more likely to understate than to overstate the growth of manufacturing output.

Records of the average number of wage earners may similarly be regarded as more likely to understate than to overstate changes in the volume of manufacture. After all, the tendency of modern industry is toward greater efficiency, toward increasing use of machinery and labor-saving devices of every sort, toward increasing production per wage earner. Doubtless this tendency is offset at times by opposition to labor-saving devices, by attempts to standardize output; by concerted effort to "make work." Such movements, however, certainly have not prevented during recent years a general increase in the output per worker. Pressure of competitive enterprise guarantees in the present state of the industrial arts a steady increase of technical efficiency. We may safely conclude that the growth of manufacture has probably exceeded during recent years the increase in the average number of wage earners.<sup>6</sup>

Records of primary horsepower installed, upon the other hand, in many instances probably exaggerate considerably the increase in manufacturing output. Resort to machinery has been relatively more rapid than expansion of output. Even if labor-saving devices are introduced as rapidly as seems practicable, labor remains in the majority of industries a potent factor limiting output. Furthermore, there has probably been a disposition in some industrial establishments to provide power more generously, thus increasing the installation of power for a given body of machinery. Of course, these arguments apply with varying force to different lines of industry, much depending upon the extent to which machinery is employed in the industry and the speed with which manufacturing processes in the particular trade have become increasingly mechanical in nature. Particularly where the technology of the industry has undergone revolution on the engineering side, horsepower is probably most

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<sup>6</sup> As will be shown later, the period during and immediately following the World War may have been an exception to this general proposition.

likely to overstate the increase of output. Though we must recognize, then, the wide diversity of prevailing conditions, we may reasonably conclude that increases in primary horsepower considerably overstate the growth of manufacture.

In utilizing data on wage earners and horsepower as indexes of industrial output, certain further points are to be noted. The reported average number of wage earners is the number actually employed during the year. This number is influenced by general business conditions. Periods of depression witness widespread unemployment, the discharge of thousands of employees; boom periods bring employment to all who care to work, to many who, in ordinary times, are only spasmodically employed. Fluctuations in the average number of wage earners on account of the business cycle, however, are probably not as great as the corresponding fluctuations of production; for many concerns, in times of depression, follow the practice of keeping numerous wage earners on the pay roll on a part-time basis, and in periods of industrial activity secure increases of output by running overtime rather than by adding to the number of workers employed. The net effect of these practices is to confine fluctuations in number of wage earners within narrower limits than govern the ups and downs of physical production. It is none the less true that the average number of wage earners is influenced substantially by the ebb and flow of industrial activity. If the census returns are made in a year of depression, the average number of wage earners will not show the full growth of manufacture during the preceding intercensal period.

Primary horsepower obviously does not fluctuate as largely with the business cycle. Once installed, it is reported whether in use or not. If the census returns are made in a year of depression, the amount of primary horsepower will be reduced only to the extent to which new installations, which otherwise would have been made, will have been postponed. Thus, changes in primary horsepower may be influenced somewhat by the industrial conditions at the time of the manufacturing census but are doubtless influenced much less than are changes in the average number of wage earners.

If data on both wage earners and horsepower are to be considered in estimating the growth of manufacture, some method of compounding these indirect lines of evidence may perhaps be adopted. It has already been suggested that recorded changes in the number of wage earners probably understate, and in primary horsepower overstate, the growth of manufacture. An average of the two, then, should more accurately measure growth than either alone. But if the two are to be averaged, number of wage earners is clearly to be assigned greater weight than primary horsepower; for all things considered, changes in the number of wage earners are the most

important indirect evidence regarding changes in the volume of manufacture. Comparisons made of the indirect and direct evidences of growth in a number of individual industries would indicate that changes in physical output in most instances closely approximate an average of the changes in wage earners and horsepower, wage earners being given a weight of three in the average, horsepower a weight of one. In estimating industrial expansion from the indirect evidences, therefore, this weighted average may at times be profitably employed.<sup>7</sup>

Measurement of the growth of manufacture is to be undertaken, then, in the light of all available quantitative data on products and materials, the reported average number of wage earners, and installed primary horsepower. When adequate data are available, measurement may best take the form of an index number of volume, based upon the reports of physical quantities of products actually manufactured during the period of record. Reports of quantities of materials consumed in manufacture may be used as supplementary data for such an index. When the available data are so inadequate as to render inconclusive any index number based directly on production, or when for any other reason it is not feasible to set up directly an index of physical volume, use is to be made of the indirect evidence afforded by the returns of average number of wage earners and of primary horsepower. Together the direct and indirect evidences afforded by the periodic censuses of manufactures make possible certain reasonably dependable estimates of changes in the volume of manufacture in the United States during recent decades. These estimates will be considered in the chapters that follow.

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<sup>7</sup> As will appear later, this weighted average is clearly inapplicable to the postwar period.

### III

#### THE GROWTH OF MANUFACTURE—ALL INDUSTRIES COMBINED

Measurement of the growth of manufacture may best be undertaken first for all industries combined. The data to be employed for this purpose are essentially comparable for the seven censuses from 1899 to 1923, inclusive. It is practicable, therefore, to analyze the growth of manufacture for each of the six intercensal periods, 1899-1904, 1904-1909, 1909-1914, 1914-1919, 1919-1921, and 1921-1923, and to follow this by a study of the rate of growth in the full 24-year period 1899-1923. Once this general rate of growth for all manufacture has been ascertained, estimates may be made of differences in the rate of industrial expansion among the various more important lines of manufacturing enterprise. From the entire analysis, ideas may be obtained concerning the cyclical condition of industry in the several census years.

The first task, then, is to measure the change of industrial output from one census year to the next. A uniform mode of statement may wisely be adopted in this connection. If any given census year is regarded as a base, the volume of manufacture in any other census year may be conveniently expressed as a percentage of the volume in the base year. When each census year in turn is made the base, the percentage figure for the next census year states the relative change in the volume of manufacture for the intercensal period. It is these percentage figures, as given by the index of physical production, and shown in Table 2 and on Chart II, that we are now to examine.

Turning to the earliest of the periods under investigation—that from 1899 to 1904—we find manufacturing enterprise expanding in the period of activity which followed the long depression of the middle nineties. Conditions in 1899 were reasonably normal, and they continued so throughout most of the intercensal period 1899 to 1904. The five-year period as a whole might be expected to show a substantial increase in the volume of manufacture. It was the beginning of the period of rapid industrial expansion occurring in this country at the opening of the present century.

The actual increase in the volume of manufacture from 1899 to 1904, as given by the index of the physical volume of production, was 22 per cent. When it is recalled that in 1904 some of the after-effects of the minor reactions of 1903—the so-called dry panic of

that year—were still in evidence, it is clear that the underlying rate of industrial expansion for this period from 1899 to 1904 was probably not less than 4 per cent per annum.

The next intercensal period—that from 1904 to 1909—opened with a year in which conditions were not altogether favorable and closed with a year of marked industrial activity. The relative increase of output for the period as a whole might be expected, therefore, to exceed the relative increase of the period from 1899 to 1904. The index of the volume of manufacture actually shows a rise of 30 per cent. The difference is not so great as to suggest any considerable change in the underlying rate of industrial expansion. But that there was no slackening of the rate is clear enough.

The third intercensal period—that from 1909 to 1914—presents a different situation. As already stated, 1909 was a year of general industrial activity. Nineteen hundred and fourteen, on the other hand, was a year of marked industrial depression. It is not surprising, therefore, to find the relative increase of output for this period much smaller than in either of the two preceding periods. The production index actually reveals an increase of only 6 per cent. There could be no clearer demonstration of the fact that records of the volume of manufacture in different years must be interpreted in the light of the cyclical conditions prevailing at the time returns are secured.

Similar complications affect the records of the quinquennial period from 1914 to 1919. Starting from conditions of marked depression, manufacturing enterprise during this period experienced the phenomenal stimulation of the war period, and in 1919, despite the difficulties of early postwar readjustment, was still maintaining an extraordinary pace. At the same time, labor difficulties were chronic throughout much of the war period and became acute in 1918 and 1919. After the armistice employers complained generally of the inefficiency of the workers. Shortages of raw material also were said to impede production. The period was thus one in which extraordinary influences were at work, some tending toward maximum output, others making such output exceedingly difficult.

The combined effect of this complex of factors is reflected in the production index which for the full five-year period shows an increase of 26 per cent. In view of the fact that the period started in marked depression, the increase is not as great as might have been expected. Certainly there is ample proof that the expansion of industrial output in the United States during the war did not exceed expansions which had previously occurred in times of uninterrupted peace.

Since the war, the census of manufactures has been taken every two years instead of every five years, as previously. The intercensal

periods thereafter are now of only two years duration. It might naturally be thought that the changes in the volume of manufacture from one census to another would have been on this account substantially less than in the earlier quinquennial periods. In reality they have at times been greater.

It has already been stated that 1919 was a year of extended manufacturing effort. Nineteen hundred and twenty-one, in contrast, was a year of acute depression. The tremendous decline of commodity prices in 1920-21 left business temporarily stunned. Production schedules for the time being were reduced to the lowest possible levels. The volume of manufacture in 1921 compared with 1919 showed an actual decrease of 21 per cent. Industrial expansion clearly came to a complete halt under the influence of extraordinary cyclical forces.

But the next biennial period—that from 1921 to 1923—exhibited just as strikingly the force of the underlying tendencies toward expansion. The increase in output from 1921 to 1923, as registered by the production index, was nearly 54 per cent. Much of this increase represented nothing more than the return to normal activity after the terrific slump of 1920-21; the record of 1921 to 1923, like that of 1919 to 1921, is predominantly a record of cyclical change. But the recovery in 1923 from the depression of 1921 carried output to levels not previously attained. The industrial expansion characteristic of the earlier years was again in evidence.

The strength of this underlying tendency toward expansion is best observed for the years since 1919 if the collapse of 1921 is removed from the record and 1923 is compared directly with 1919. Industrial output, as measured by the production index, showed an increase of 22 per cent in 1923 over 1919. The normal rate of industrial expansion characteristic of the pre-war periods thus appears to have been still effective in the years from 1919 to 1923.

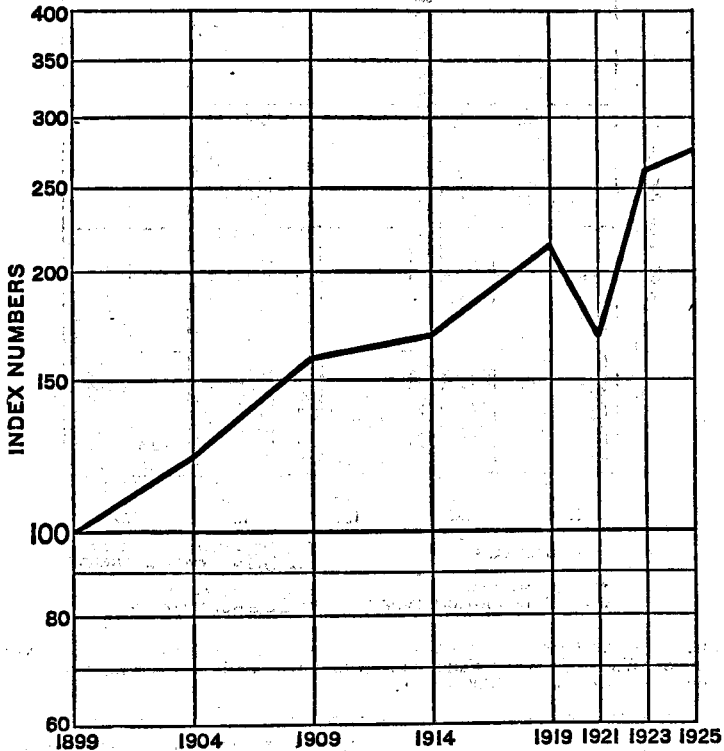
Long-time tendencies toward expansion may be brought out even more clearly if the records of all the censuses from 1899 to 1923 are brought together and considered as a whole. The data may be reduced to simplest form if the output of 1899 is made a base of reference equal to 100 per cent, and the output of all later census years expressed as a percentage of the output of this base year. Again measurement may be best effected through the production index. Results given by the index are shown in Table 1 and on Chart I.

TABLE 1.—VOLUME OF MANUFACTURE IN THE UNITED STATES: 1899 TO 1923

| CENSUS YEAR | Production index (1899=100) | CENSUS YEAR | Production index (1899=100) |
|-------------|-----------------------------|-------------|-----------------------------|
| 1899.....   | 100                         | 1919.....   | 214                         |
| 1904.....   | 122                         | 1921.....   | 170                         |
| 1909.....   | 159                         | 1923.....   | 261                         |
| 1914.....   | 169                         |             |                             |

The most striking feature of this record of the 24-year period as a whole is the persistent upward movement. Business depression, war restriction, and monetary deflation have held the underlying tendencies at times in check. But as soon as these temporary restraints have been removed, marked expansion has again occurred. For the 24-year period as a whole, the rate of expansion has been

CHART I.—VOLUME OF MANUFACTURE IN THE UNITED STATES: 1899 TO 1925  
(1919=100)



almost exactly 4 per cent per annum. When it is recalled that the rate of increase of population in the United States during this same period was only about 1.7 per cent per annum, the record of industrial expansion becomes truly impressive.

The conclusions as to the general growth of manufacture have been based up to this point on the index of physical production. For all industries combined, this index appears to be reasonably dependable and conclusive. But, as previously indicated, attention may be profitably given, nevertheless, to certain indirect evidences—



## GROWTH OF MANUFACTURES

to the average number of wage earners employed and to the total horsepower of prime movers installed in manufacturing establishments. To what extent does the record afforded by these indirect lines of evidence accord with that given by the production index?

The data are set forth in full in Table 2, and in part on Chart II.

CHART II.—GROWTH OF MANUFACTURE IN THE UNITED STATES,  
BY CENSUS PERIODS: 1899 TO 1923

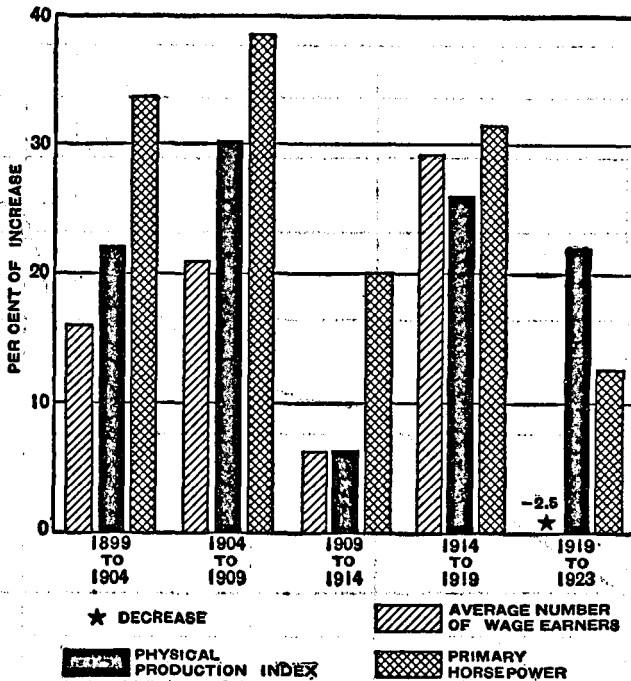


TABLE 2.—PER CENT OF INCREASE IN PHYSICAL PRODUCTION, AVERAGE NUMBER OF WAGE EARNERS EMPLOYED, AND PRIMARY HORSEPOWER INSTALLED, FOR CENSUS PERIODS: 1899 TO 1923

| INTERCENSAL PERIOD | PER CENT OF INCREASE OF DECREASE (—) IN— |   |                        |  |
|--------------------|--|---|------------------------|--|
|                    | Physical production index (A)            | Average number of wage earners (B) <sup>1</sup> | Primary horsepower (C) | Weighted average of (B) and (C) <sup>1</sup> |
| 1899-1923          | 160.7                                    | 88.2  | 229.6                  | 116.5  |
| 1899-1919          | 113.7                                    | 93.0  | 192.2                  | 114.1  |
| 1919-1923          | 22.0                                     | -2.5  | 12.8                   | 1.1  |
| 1921-1923          | 53.7                                     | 26.4  |                        |  |
| 1919-1921          | -20.6                                    | -22.8   |                        |  |
| 1914-1919          | 26.1                                     | 29.6  | 31.5                   | 29.8   |
| 1909-1914          | 6.4                                      | 6.4   | 29.1                   | 9.7  |
| 1904-1909          | 20.2                                     | 21.0  | 33.5                   | 25.1   |
| 1899-1904          | 22.2                                     | 16.0  | 33.6                   | 20.2   |

<sup>1</sup> Geometric average with weight of (B)=3, and weight of (C)=1.

The details of this table suggest two important conclusions. In the first place it is clear that during the period from 1899 to 1919 the differences exhibited between the results from the direct and the indirect evidences are so slight as to be readily accounted for in the cyclical conditions prevailing in the various census years. Upon the whole, direct and indirect evidences for the 20-year period are in substantial agreement. In the second place, it is obvious that the situation since 1919 has been radically different. Restrictive immigration laws have created a new employment situation. Increases of output since 1919 have been secured without those increases of the working force which were typical of the pre-war years. Clearly, output per worker must have risen markedly. The matter is of fundamental significance and invites further and more intensive analysis. There are no grounds for believing, however, that the record of the production index since 1919 should be seriously questioned. For all industries combined, the index is a dependable register even for the postwar period. Industrial expansion at a rapid rate is a fundamental feature of the full 24-year period from 1899 to 1923.

But it is not to be supposed that this expansion has occurred in all lines. Some industries have grown much more rapidly than others; some have actually declined. It is important to supplement the record for all industries combined, by an account of the differences which appear in the records of particular divisions and trades. Analysis along this line is undertaken in the chapters that follow.

## IV

### DIFFERENTIATION OF MANUFACTURING INDUSTRIES

The analysis made in the preceding chapter dealt altogether with manufacturing as a whole. No attempt was made to distinguish industries, nor even broad groups of industries. Presumably behind the general results thus obtained are differences of wide-ranging character. While some industries, long established and fully stabilized, follow closely the course of manufacturing as a whole, other industries are in process of rapid development to normal stature, and still others are in various states of decadence under the influence of fundamental changes in industrial organization or in consumers' demand. It is desirable that the more important differences of this sort be examined.

Analysis along this line requires classification of manufacturing industries—a clear recognition of the various distinct lines of manufacture. The extent to which differentiation had best be carried involves a number of considerations. Conceivably every important product might be separately examined. But any such procedure is precluded by at least two considerations: (1) The great complexity which this would give to the study—for, obviously, the variety of products turned out by modern industry is almost limitless; (2) the impossibility of distinguishing certain products in the customary census returns. The returns from a single manufacturing establishment have ordinarily to be assigned to a single industry. This has a definite bearing upon what shall be considered a single industry. If several different products are commonly made by the same establishment, it is impracticable to think of these several products as involving more than one industry. The Bureau of the Census strives constantly to maintain distinctions between one well-defined and commonly recognized industry and another.<sup>1</sup>

Upon the whole, the bureau has succeeded in determining and in following highly significant industrial classifications. Grouping of industries into general classes was first made in the census of 1899, and the classification adopted at that time was kept practically uniform in all censuses until 1923. In the census of 1923, however, the grouping was somewhat revised in order to reduce in size the

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<sup>1</sup> If a single plant runs into more than one industry, it is ordinarily classified according to its product of chief value. This has the effect of swelling unduly the returns for some industries and contracting unduly the returns for others. While these inaccuracies in reporting do not seriously impair the value of census data as a whole, they should be clearly recognized in any analysis of details for individual industries.

miscellaneous group and to give recognition to important changes which have occurred in our industrial structure since the beginning of the century. In this monograph, however, the old grouping has been retained for the following reasons: (1) Data for censuses prior to that of 1914 have not been regrouped in accordance with the new scheme, and therefore it can not be followed in making comparisons with earlier periods; (2) the chief merit of the new grouping is a recognition of changes which have been taking place slowly and therefore, although it is more useful than the former classification for recent and possible future comparisons, it is not necessarily so for a study stretching back into an earlier period of somewhat different industrial arrangements; (3) since this study was originally made to end with the 1919 census and all tables were arranged in accordance with the previous classification, the change to the new forms, even though possible for all years, would involve a vast amount of detailed work without appreciably improving the nature of the presentation. Classification and grouping according to the scheme observed by the Bureau of the Census merit careful examination. Their general character is evident from the major headings and subheadings. These are as follows:

| <i>Former Classification</i>  | <i>1923 Classification</i>  |
|---|---|
| <b>FOOD AND KINDRED PRODUCTS:</b><br>Animal products.<br>Vegetable products.  | <b>FOOD AND KINDRED PRODUCTS:</b><br>Animal products.<br>Vegetable and mineral products.  |
| <b>TEXTILES AND THEIR PRODUCTS:</b><br>Textile fabrics and materials.<br>Articles from textile fabrics for personal wear.<br>Other textile fabrics.   | <b>TEXTILES AND THEIR PRODUCTS:</b><br>Textile-mill products.<br>Wearing apparel made from purchased fabrics.<br>Other articles; made from purchased fabrics.   |
| <b>IRON AND STEEL AND THEIR PRODUCTS:</b><br>Crude iron and steel and rolled products.<br>Other iron and steel products.  | <b>IRON AND STEEL AND THEIR PRODUCTS:</b><br>Crude iron and steel and rolled products.<br>Other iron and steel products.  |
| <b>LUMBER AND ITS REMANUFACTURES.</b>   | <b>LUMBER AND ALLIED PRODUCTS.</b>  |
| <b>LEATHER AND ITS FINISHED PRODUCTS.</b>   | <b>LEATHER AND ITS MANUFACTURES.</b>  |
| <b>PAPER AND PRINTING:</b><br>Paper and wood pulp.<br>Manufactures of paper.<br>Printing and publishing.<br>Industries relating to printing and publishing.<br>Wall paper, not made in paper mills. | <b>RUBBER PRODUCTS.</b><br><b>PAPER AND PRINTING:</b><br>Paper and wood pulp.<br>Manufactures of paper.<br>Printing and publishing and allied industries.<br>Other allied industries relating to printing and publishing. |
| <b>LIQUORS AND BEVERAGES.</b>   |   |
| <b>CHEMICALS AND ALLIED PRODUCTS.</b>   | <b>CHEMICALS AND ALLIED PRODUCTS.</b>   |

| <i>Former Classification—Continued</i>   | <i>1923 Classification—Continued</i>   |
|--|--|
| <b>STONE, CLAY, AND GLASS PRODUCTS:</b><br>Industries using stone as material.<br>Industries using clay as material.<br>Glass and manufactures of glass. | <b>STONE, CLAY, AND GLASS PRODUCTS:</b><br>Industries using stone as material.<br>Industries using clay as material.<br>Glass and manufactures of glass. |
| <b>METALS AND METAL PRODUCTS, OTHER THAN IRON AND STEEL:</b><br>Metals.<br>Metal products.<br>Related industries.  | <b>METALS AND METAL PRODUCTS, OTHER THAN IRON AND STEEL:</b><br>Metals.<br>Smelting and refining.<br>Metal products.<br>Electroplating.                  |
| <b>TOBACCO MANUFACTURES.</b>   | <b>TOBACCO MANUFACTURES.</b>   |
|  | <b>MACHINERY (NOT INCLUDING TRANSPORTATION EQUIPMENT).</b>   |
|  | <b>MUSICAL INSTRUMENTS AND PHONOGRAPHS.</b>  |
| <b>VEHICLES FOR LAND TRANSPORTATION.</b>   | <b>TRANSPORTATION EQUIPMENT, AIR, LAND, AND WATER.</b>   |
| <b>RAILROAD REPAIR SHOPS.</b>  | <b>RAILROAD REPAIR SHOPS.</b>  |
| <b>MISCELLANEOUS INDUSTRIES.</b>   | <b>MISCELLANEOUS INDUSTRIES.</b>   |

Examination of the designations in this classification discloses at once the dual nature of the basis upon which the classification rests. Predominantly the classification has regard for the materials from which the industries in question fashion their products. Textile fabrics, hides and leather, wood pulp and paper, iron and steel, stone, clay, and glass, rubber, and lumber—these are important basic materials for subsequent manufacture. But this is not the sole basis of classification. The character of the use to which the product is put is a second. Thus we have the food group, the liquor and beverage group, the vehicle group, the subgroup (under the textile heading) of "articles from textile fabrics for personal wear," and in the new classification the machinery and musical instruments groups. Neither the basis of "character of basic materials" nor that of "character of use of product" is used to the exclusion of the other. Furthermore, neither seems to govern; the two are employed in combination, now one being dominant, now the other. Apparently that basis has been adopted in each line of manufacture which has led to the simpler classification. As a whole, nevertheless, the classification may be said to be based on "nature of basic material," supplemented by "nature of use of product."

The more detailed analysis in the present study will observe the census classification of industries. It will do this, however, with a modification of the order in which the groups are ordinarily presented in census publications. Apparently the groups were originally arranged for publication by the bureau in order of importance, as

indicated by value of products, and for convenience this order has been maintained by the bureau despite its loss of significance. A regrouping would seem to make the classification somewhat more significant. Consequently, for the purposes of this monograph, the following arrangement will be adopted:

- Iron and steel and their products.
- Nonferrous metals and their products.
- Chemicals and allied products.
- Stone, clay, and glass products.
- Lumber and its remanufactures.
- Paper and printing.
- Textiles and their products.
- Leather and its finished products.
- Food and kindred products.
- Liquors and beverages.
- Tobacco manufactures.
- Vehicles for land transportation, including railroad repair shops
- Miscellaneous products.

This arrangement clearly recognizes in a general way the use to which the products of the several different groups are to be put. For the most part, the products of the three groups standing at the top of the revised classification find their way into further industrial processes and into industrial apparatus and equipment. The next two groups (stone, clay, and glass products, and lumber and its remanufactures) provide materials which are consumed largely in new construction. The paper and printing group stands more or less by itself—a group whose products in some measure go almost immediately to the consumer but are to a considerable extent employed in the merchandising and shipping of other goods. The textiles and leather groups are concerned almost altogether with the production of clothing and footwear for immediate consumption. The food, drink, and tobacco groups manifestly minister directly to the consumer. The group producing vehicles for land transportation combines two rather different lines, namely, automobile manufacture and the manufacture of railway equipment. In both these lines, however, the product is finished goods for one specific use. Subsequent use of product clearly is made more evident by the amended arrangement.

While this arrangement of the groups is designed to bring out important differences in the use of the various manufactured products, and for this reason is upon the whole the most satisfactory form of the census classification, still another arrangement is to be recognized. The various materials which are fashioned in manufacture for final use are drawn from fundamentally different sources. Agriculture, including animal husbandry, forestry, and mining are generally recognized as the major sources of raw material.<sup>2</sup> From this point of

<sup>2</sup> This basis of differentiation is emphasized by Walter W. Stewart in the construction of his index of production. See *American Economic Review*, Vol. XI, p. 59, March, 1921.

view the textiles, leather, food, drink, and tobacco groups fall in one division; the lumber and paper groups fairly clearly in the second; and the metals, chemicals, and stone, clay, and glass groups in a third. It is clear that the groups of the census classification do not consistently recognize this fundamental distinction regarding the sources of raw material, but the differences may, nevertheless, be followed roughly in the different industrial groups. They suggest another significant approach to the census data.

The relative importance of the different industrial groups in the census classification may well be considered before their respective rates of expansion are analyzed. Two bases of judgment suggest themselves: (1) Average number of wage earners; (2) value added by manufacture. The percentage which each industrial group constitutes of the total for all lines of manufacture on these bases of measurement is given in Table 3. It will be observed that the relative importance of the several groups is substantially different in the two sections of the table.

TABLE 3.—RELATIVE IMPORTANCE OF INDUSTRIAL GROUPS.

| GROUP   | PER CENT OF TOTAL |       |       |       |       |       |       |
|---|-------------------|-------|-------|-------|-------|-------|-------|
|   | 1923              | 1921  | 1919  | 1914  | 1909  | 1904  | 1899  |
| AS INDICATED BY AVERAGE NUMBER OF WAGE EARNERS            |                   |       |       |       |       |       |       |
| All industries.....                                       | 100.0             | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Iron and steel and their products.....                    | 17.4              | 14.8  | 17.4  | 15.1  | 15.5  | 15.9  | 15.8  |
| Metals and metal products, other than iron and steel..... | 3.7               | 3.4   | 3.7   | 3.7   | 3.8   | 3.6   | 3.4   |
| Chemicals and allied products.....                        | 4.6               | 4.7   | 4.7   | 4.3   | 4.0   | 4.2   | 4.2   |
| Stone, clay, and glass products.....                      | 3.9               | 3.6   | 3.3   | 4.6   | 5.2   | 5.2   | 4.9   |
| Lumber and its remanufactures.....                        | 10.2              | 9.7   | 9.2   | 11.8  | 13.8  | 13.4  | 14.3  |
| Paper and printing.....                                   | 6.0               | 6.7   | 5.6   | 6.4   | 6.3   | 6.4   | 6.3   |
| Textiles and their products.....                          | 19.6              | 21.7  | 17.7  | 21.4  | 21.9  | 21.3  | 21.8  |
| Leather and its finished products.....                    | 3.9               | 4.0   | 3.8   | 4.4   | 4.7   | 4.8   | 5.3   |
| Food and kindred products.....                            | 7.1               | 8.2   | 7.5   | 7.1   | 6.2   | 6.5   | 6.4   |
| Liquors and beverages.....                                | .4                | .5    | .6    | 1.3   | 1.2   | 1.2   | 1.2   |
| Tobacco manufactures.....                                 | 1.7               | 2.2   | 1.7   | 2.5   | 2.5   | 2.9   | 2.8   |
| Vehicles for land transportation.....                     | 5.8               | 4.1   | 5.5   | 3.7   | 3.1   | 2.5   | 2.8   |
| Railroad repair shops.....                                | 6.0               | 6.0   | 5.7   | 5.2   | 4.6   | 4.5   | 3.8   |
| Miscellaneous industries.....                             | 9.7               | 10.3  | 13.5  | 8.3   | 7.3   | 7.5   | 6.9   |
| AS INDICATED BY VALUE ADDED BY MANUFACTURE                |                   |       |       |       |       |       |       |
| All industries.....                                       | 100.0             | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Iron and steel and their products.....                    | 18.0              | 14.1  | 18.3  | 14.8  | 16.0  | 16.0  | 17.0  |
| Metals and metal products, other than iron and steel..... | 3.7               | 3.2   | 3.4   | 4.0   | 4.1   | 4.2   | 4.5   |
| Chemicals and allied products.....                        | 7.7               | 8.0   | 7.4   | 7.2   | 7.0   | 7.0   | 6.4   |
| Stone, clay, and glass products.....                      | 3.8               | 3.3   | 2.7   | 3.8   | 4.1   | 4.3   | 3.9   |
| Lumber and its remanufactures.....                        | 7.5               | 6.8   | 6.8   | 8.5   | 10.2  | 11.2  | 10.9  |
| Paper and printing.....                                   | 8.6               | 9.9   | 6.8   | 8.9   | 8.5   | 8.8   | 8.1   |
| Textiles and their products.....                          | 15.7              | 17.2  | 15.3  | 14.5  | 15.5  | 14.4  | 15.3  |
| Leather and its finished products.....                    | 3.1               | 3.3   | 3.6   | 3.6   | 3.8   | 3.9   | 3.8   |
| Food and kindred products.....                            | 8.8               | 10.4  | 9.3   | 10.0  | 8.8   | 8.6   | 8.6   |
| Liquors and beverages.....                                | .6                | .7    | 1.5   | 5.3   | 5.7   | 5.7   | 6.0   |
| Tobacco manufactures.....                                 | 2.0               | 2.4   | 2.1   | 2.9   | 2.8   | 3.3   | 3.5   |
| Vehicles for land transportation.....                     | 6.6               | 5.1   | 6.2   | 4.5   | 3.0   | 2.3   | 2.6   |
| Railroad repair shops.....                                | 3.4               | 4.2   | 3.2   | 2.9   | 2.6   | 2.7   | 2.4   |
| Miscellaneous industries.....                             | 10.3              | 11.3  | 13.2  | 9.1   | 7.9   | 7.8   | 7.0   |

From the point of view of the present study, value added in manufacture seems a more significant index of relative importance than number of wage earners employed. On this basis the most important industrial group is that devoted to the manufacture of iron and steel and their products. The manufacture of textiles and their products, however, is very nearly as important. Food and kindred products, paper and printing, chemicals and allied products, and lumber and its remanufactures are next in order. The groups of the least importance are stone, clay, and glass products, leather and its products, nonferrous metals and their products, and tobacco.<sup>3</sup> Perhaps the most striking feature of the data is the stability of the percentage figures; except for an increase in the importance of the vehicle group (owing to the growth of the automobile industry) and a decline in the liquors and beverages group, the relative importance of the different industrial groups shows no radical change over a period of 24 years.

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<sup>3</sup> According to the 1923 classification, whereby certain industries producing machinery have been removed from the iron and steel group, the order is changed somewhat, with textiles leading, machinery generally second, and iron and steel and food and kindred products of approximately equal importance.



## V

### THE GROWTH OF MANUFACTURE, BY INDUSTRIAL GROUPS

The classification of industries developed in the preceding chapter may be made the basis of a more detailed examination of the growth of manufacture during the census years 1899 to 1923. The rate of growth disclosed by the analysis of all industries combined is a composite of widely varying changes. Some groups of industries have exhibited a much more rapid expansion than others. It is desirable to consider these differences in order that any persistent relationships may be discovered.

In comparing the growth of manufacture for the different industrial groups, the index numbers of physical volume of production, described in a previous chapter, will provide the principal evidence where available, but changes shown in the average number of wage earners and in primary horsepower are also to be considered. For some industrial groups these latter two lines of evidence will be the only bases of comparison. Growth of manufactures by groups of industries as indicated by these three schemes of measurement is given for each intercensal period and for the entire period from 1899 to 1923 in Table 4. The group index numbers are further shown on Chart III. Indexes are given separately on the charts for the shipbuilding and rubber industries, which in the case of wage earners and horsepower are included in the miscellaneous group. The index computed for liquors and beverages is composed only of data for alcoholic drinks, and consequently is not representative of all industries in the group, which includes also the manufacture of soft drinks for which no quantitative data are available. Since the trend of production of alcoholic beverages has been opposite to that for nonalcoholic beverages in recent years, no figures for any part of this group were included in the index for years subsequent to 1919. Wage earners and horsepower for railroad repair shops have been combined with those for vehicles, whereas the vehicles index includes for repair shops only a limited amount of data. In other cases important industries are frequently missing from the group indexes, but they sufficiently cover the basic products to warrant their acceptance as fairly representative.

CHART III.—GROWTH OF MANUFACTURE, BY INDUSTRIAL GROUPS: 1899 TO 1925  
(1919=100)

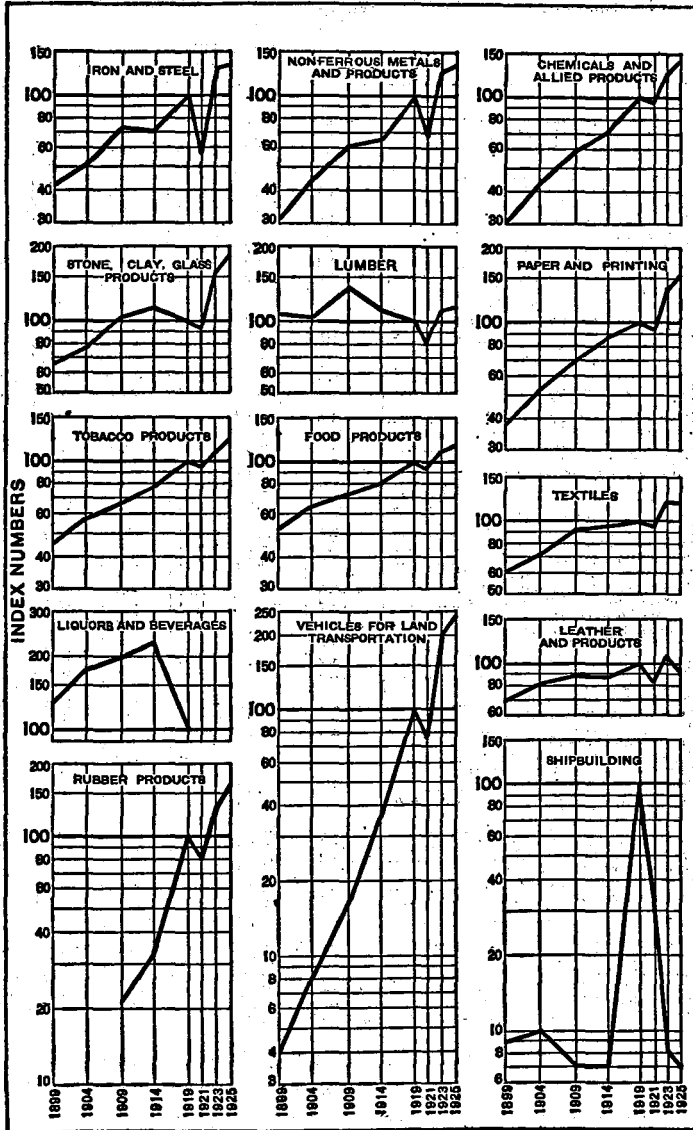


TABLE 4.—GROWTH OF MANUFACTURE, BY INDUSTRIAL GROUPS: 1899 TO 1923<sup>1</sup>

| INDUSTRIAL GROUP   | PER CENT OF INCREASE OR DECREASE (—) |                       |           |           |           |           |
|--|--------------------------------------|-----------------------|-----------|-----------|-----------|-----------|
|  | 24-year period, 1899-1923            | Interdecennial period |           |           |           |           |
|  |                                      | 1910-1923             | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |
| <b>All groups:</b>   |                                      |                       |           |           |           |           |
| Physical volume of production.....   | 160.7                                | 22.0                  | 26.1      | 6.4       | 30.3      | 22.2      |
| Average number of wage earners.....  | 88.2                                 | -2.5                  | 29.3      | 6.4       | 21.0      | 16.0      |
| Primary horsepower.....  | 229.6                                | 12.8                  | 31.5      | 20.1      | 38.5      | 33.6      |
| <b>Iron and steel and their products (III):</b>                                |                                      |                       |           |           |           |           |
| Physical volume of production.....   | 203.7                                | 31.2                  | 40.6      | -5.6      | 45.4      | 19.9      |
| Average number of wage earners.....  | 105.1                                | -3.6                  | 49.4      | 3.4       | 18.2      | 16.6      |
| Primary horsepower.....  | 308.8                                | 10.7                  | 46.0      | 21.4      | 37.1      | 52.0      |
| <b>Nonferrous metals and their products (X):</b>                               |                                      |                       |           |           |           |           |
| Physical volume of production.....   | 300.3                                | 25.7                  | 54.1      | 7.1       | 36.2      | 41.7      |
| Average number of wage earners.....  | 103.5                                | -3.2                  | 29.5      | 5.0       | 25.7      | 23.0      |
| Primary horsepower.....  | 467.5                                | 23.2                  | 71.9      | 24.2      | 59.2      | 35.5      |
| <b>Chemicals and allied products (VIII):</b>                                   |                                      |                       |           |           |           |           |
| Physical volume of production.....   | 314.2                                | 25.1                  | 41.4      | 20.2      | 37.1      | 42.1      |
| Average number of wage earners.....  | 106.4                                | -5.0                  | 42.5      | 12.1      | 17.6      | 15.7      |
| Primary horsepower.....  | 487.6                                | 32.5                  | 39.2      | 43.1      | 40.6      | 58.3      |
| <b>Stone, clay, and glass products (IX):</b>                                   |                                      |                       |           |           |           |           |
| Physical volume of production.....   | 131.2                                | 55.6                  | -11.9     | 8.8       | 32.2      | 17.2      |
| Average number of wage earners.....  | 50.3                                 | 16.6                  | -10.7     | -2.4      | 20.1      | 23.1      |
| Primary horsepower.....  | 274.3                                | 21.6                  | 5.3       | 20.2      | 60.0      | 52.1      |
| <b>Lumber and its remanufactures (IV):<sup>1</sup></b>                         |                                      |                       |           |           |           |           |
| Physical volume of production.....   | 3.5                                  | 10.1                  | -9.6      | -19.4     | 32.0      | -2.3      |
| Average number of wage earners.....  | 35.5                                 | 8.5                   | .7        | -8.6      | 24.2      | 9.3       |
| Primary horsepower.....  | 58.1                                 | -2.2                  | 7.3       | -2.0      | 46.5      | 4.9       |
| <b>Paper and printing (VI):<sup>1</sup></b>                                    |                                      |                       |           |           |           |           |
| Physical volume of production.....   | 274.6                                | 37.1                  | 14.3      | 25.4      | 34.5      | 41.8      |
| Average number of wage earners.....  | 79.1                                 | 4.9                   | 12.6      | 8.9       | 18.3      | 17.7      |
| Primary horsepower.....  | 200.7                                | 16.9                  | 14.5      | 22.6      | 28.0      | 43.2      |
| <b>Textiles and their products (II):</b>                                       |                                      |                       |           |           |           |           |
| Physical volume of production.....   | 102.5                                | 22.9                  | 3.3       | 5.3       | 27.8      | 18.5      |
| Average number of wage earners.....  | 67.1                                 | 6.7                   | 6.9       | 4.3       | 24.3      | 13.1      |
| Primary horsepower.....  | 173.0                                | 16.4                  | 19.0      | 20.3      | 31.1      | 25.0      |
| <b>Leather and its finished products (V):</b>                                  |                                      |                       |           |           |           |           |
| Physical volume of production.....   | 51.3                                 | 5.6                   | 14.4      | -3.       | 7.6       | 16.8      |
| Average number of wage earners.....  | 38.3                                 | -1.2                  | 13.8      | -9        | 17.1      | 6.4       |
| Primary horsepower.....  | 163.0                                | 8.0                   | 22.4      | 13.1      | 38.1      | 27.4      |
| <b>Food and kindred products (I):<sup>1</sup></b>                              |                                      |                       |           |           |           |           |
| Physical volume of production.....   | 110.6                                | 11.6                  | 23.8      | 8.0       | 14.9      | 22.8      |
| Average number of wage earners.....  | 108.2                                | -8.2                  | 38.0      | 20.6      | 16.2      | 17.3      |
| Primary horsepower.....  | 123.9                                | 3.0                   | 28.9      | 15.6      | 22.8      | 18.6      |
| <b>Liquors and beverages (VII):</b>  |                                      |                       |           |           |           |           |
| Physical volume of production.....   | -42.2                                | -42.5                 | -37.1     | 18.3      | 15.3      | 32.5      |
| Average number of wage earners.....  | -2.3                                 | -40.1                 | -21.0     | 17.8      | 28.4      | 36.6      |
| <b>Tobacco manufactures (XI):</b>  |                                      |                       |           |           |           |           |
| Physical volume of production.....   | 137.1                                | 9.8                   | 30.9      | 14.7      | 15.2      | 24.8      |
| Average number of wage earners.....  | 11.9                                 | -5.6                  | -12.2     | 7.2       | 4.6       | 20.3      |
| Primary horsepower.....  | 95.2                                 | .3                    | 24.2      | 22.5      | 15.9      | 10.4      |
| <b>Vehicles for land transportation and railroad repair shops (XII, XIII):</b> |                                      |                       |           |           |           |           |
| Physical volume of production.....   | 4,434.0                              | 99.5                  | 177.8     | 130.8     | 90.0      | 86.4      |
| Average number of wage earners.....  | 248.3                                | 8.2                   | 60.8      | 24.0      | 31.9      | 22.4      |
| Primary horsepower.....  | 759.2                                | 40.4                  | 63.7      | 42.3      | 81.8      | 44.6      |
| <b>Miscellaneous products (XIV):</b>   |                                      |                       |           |           |           |           |
| Average number of wage earners.....  | 154.5                                | -30.4                 | 109.5     | 21.5      | 18.0      | 25.2      |
| Primary horsepower.....  | 636.5                                | 10.3                  | 80.6      | 51.9      | 39.7      | 74.3      |

<sup>1</sup> These figures are given for the purpose of showing growth of manufactures as a whole and by groups, as indicated by different means of measurement. The three sets of data for individual groups should not be used as an indication of changes in output per worker, because in some cases the group index is based upon data for industries which are not entirely representative of the group as a whole, whereas the figures for wage earners and horsepower are totals for the entire group. This is particularly true of the lumber group and to a less degree of food products and paper and printing.

During the period from 1899 to 1904, according to these various lines of evidence, the greatest expansion appears to have been among the industries in the miscellaneous group, with the growth in output of vehicles for land transportation also large. Other leaders

were chemicals, stone, clay, and glass products, liquors and beverages, and metals. The group lowest in the list was lumber, in which the volume of output showed practically no increase. Leather and textiles showed relatively small increases. Food products and tobacco were close to the average for all industries.

The relationships disclosed in the growth of manufacture for the quinquennial period 1904-1909 are somewhat different. Expansion in the output of vehicles for land transportation was much more rapid during this period than the increase of manufacture in any other line. The metals group, and the two groups having to do primarily with building materials (stone, clay, and glass products, and lumber and its remanufactures) also showed substantial increases. The chemicals, textiles, and paper and printing groups expanded in line with the growth of industry as a whole. In the food, drink, and tobacco groups the rates of increase fell substantially below the rates shown for all manufacture. In general, the period from 1904 to 1909 appears to have been unusual in the uniformity of expansion in almost all divisions of manufacture.

Records for the period 1909-1914 are dominated, it will be recalled, by the fact that 1914 was a year of industrial depression. The general increase, as shown by the production index and by wage earners, was only 6 per cent, whereas horsepower at the end of the period was only 20 per cent larger than in 1909. The percentages of increase covering this period, shown in Table 4, were smaller for most of the items shown than in any census period from 1899 to 1919. It is interesting to note that under these conditions the food, drink, and tobacco groups show practically the highest average increase of any of the combinations of groups recognized in the analysis. Among the individual groups, vehicles for land transportation and miscellaneous products show by far the greatest expansion of output during this period. Chemicals, liquors and beverages, tobacco, food products, and paper and printing follow at some distance behind the leaders. Textiles and nonferrous metals showed a slight increase, but decreases were noted in at least one of the three items considered in the iron and steel, stone, clay, and glass, and leather groups, and in the case of lumber, production, employment, and horsepower were all reduced. From this comparison it would appear, as might be expected, that lines of manufacture connected with industrial materials and equipment are much more definitely affected by industrial conditions than those having to do with the current necessities of life, such as food in its various forms. It is interesting to note, however, that the manufacture of clothing and footwear seems to have been as much depressed during this period as the manufacture of such important industrial materials as iron and steel and the non-ferrous metals.

For the period 1914-1919 the most striking feature of the record is the irregularity of the changes from group to group. The miscellaneous group shows by far the greatest increase. The explanation of this is to be found in the extraordinary development of two or three lines of industry, of which shipbuilding is by far the most important. Vehicles for land transportation show the next largest increase, an increase, which, of course, merely reflects the extraordinarily rapid development of automobile manufacture. The metals and chemicals groups stand together with rates of increase running well above the average for all groups combined. Food and kindred products show a high rate of growth, as did the output of tobacco products, although wage earners in the latter industry decreased. Liquors and beverages, under the influence of war prohibition, showed drastic reductions. Textiles, leather, and paper and printing exhibited considerable expansion, yet no such increase as those displayed by other lines of manufacture. The groups concerned with building materials bring up the bottom of the list, showing actual decreases in output for this quinquennial period, a result which is readily accounted for by the restrictions on building operations which prevailed during the war period.

After 1919 records are available biennially, but all movements within that period were so dominated by fluctuations incident to the depression of 1921 and recovery in the following two years that evidence of growth is provided only by direct comparison of 1923 with 1919. The four-year period, furthermore, corresponds more closely in duration with the quinquennial periods used in previous comparisons. Another disadvantage of the use of 1921 data is that horsepower statistics were not compiled in that year, and therefore the picture is not only incomplete but is limited to those features that are affected greatly by so-called cyclical fluctuations, which in that year were most extreme.

Data for 1921 in comparison with 1919 and 1923, nevertheless, are significant because of the light that they throw on the character of movements in a period of decline from great activity to depression and of subsequent recovery to prosperity. An analysis of the available evidence indicates that those industries which had previously shown the greatest growth, as a rule, declined the furthest from 1919 to 1921. These were notably the metals industries and vehicles. The industries supplying more staple articles of consumption goods, on the other hand, which had not expanded so rapidly—textiles, food products, and tobacco—declined the least. Leather, paper and printing, the building materials, and chemicals were close to the average. The greatest recession of all was, of course, shipbuilding, in which a program of great war-time expansion was being curtailed. Liquors and beverages also declined further following adoption of national

prohibition. In the succeeding biennial period 1921-1923 the rates of recovery among the various industries, as a rule, corresponded with the degrees of decline from 1919 to 1921. Vehicles and metals led the list, with building materials next in order, reflecting the great increase in building activity which characterized that period. Rates of increase in the cases of tobacco, food products, and textiles were close to the bottom. Shipbuilding and liquors and beverages, of course, continued to decline.

The net resultant for the entire period 1919-1923 was substantial growth for industry as a whole, characterized by almost amazing increases in automobiles and related industries—rubber tires and petroleum refining—by the largest output of building materials since before the war, and by moderate increases in the production of iron and steel, nonferrous metals, textiles, and paper. With the exception of shipbuilding and liquors and beverages, which decreased under the influence of special circumstances, leather, food products, and tobacco showed the smallest increases for the period.

When the growth of manufactures by industrial groups for the 24-year period from 1899 to 1923, taken as a whole, is considered, it is evident that the expansion of industries manufacturing vehicles for land transportation stands at the top of the list, with the miscellaneous group second, and chemicals and metals next. The increase for paper and printing follows in order. Tobacco (as measured by increases in physical output, although not in wage earners or horsepower), food products, and stone, clay, and glass products are close to the center of the list. Textiles and leather stand fairly close together, well below the average for all industries. Growth of the lumber industry has been very small, and liquors and beverages have shown net decreases since the beginning of the century.

Viewing these figures as a whole, a number of conclusions may be drawn regarding relative rates of growth in different lines of manufacture since 1899. The phenomenal increase in the output of automobiles is a fact too commonly recognized to call for further comment. The high increase in the output of miscellaneous products reflects in part the exceptionally rapid expansion of production of such articles as phonographs, photographic equipment and supplies, rubber products, and electrical appliances and machinery. The fact that the metals and chemicals groups stand well above the average for all groups combined bespeaks the increasing industrialization of modern economic life. Products most closely related to the consumer—food and tobacco on the one hand and clothing and footwear on the other—show increases which vary widely but in general are clearly well above the rate of increase of population, which for this 24-year period was nearly 50 per cent. In the light

of the figures, it may safely be concluded that manufacturing output is more than keeping pace with the expansion of population. Though the figures throw no light on the way in which the greater output of manufacturing enterprise has been distributed among the population, there is convincing proof that the real income of the community, as measured in finished manufacturing products, increased appreciably during the quarter of a century recently ended. Full understanding of the extent of this increase requires, however, an examination of certain particulars which appear only in the details of the record to which thus far no attention has been given.

## VI

### CONTRASTS IN THE FOOD, DRINK, AND TOBACCO GROUPS

In the food, drink, and tobacco groups we encounter trades that are vitally related to the ultimate consumer. In the previous chapter it was shown that the growth of consumers' goods during the past 24 years has been rather less rapid than industrial expansion in other directions. While this is a valid generalization, it overlooks many of the differences which are to be observed among the different individual trades. Manufacture of certain products in the food, drink, and tobacco groups has apparently increased very rapidly during the past quarter of a century.

Conclusions concerning *relative* increases of output in the various food, drink, and tobacco trades are to be drawn from the records of the average number of wage earners employed, and of horsepower of prime movers, supplemented as may be by actual production data. Changes, as indicated by index numbers of the physical volume of production in certain of these industries, are shown in Table 5 and on Chart IV. Table 5 also shows data on wage earners and horsepower for a more inclusive list of trades.

From inspection of the table it is evident that the manufacture of foodstuffs and tobacco during the 24 years 1899-1923 far outstripped the production of drink.<sup>1</sup> This is largely the result of prohibition, which led in 1919 and later years to a marked decline in both the average number of wage earners and primary horsepower reported for the liquors and beverages group. The growth of manufacture in the liquors and beverages group, for the intercensal periods from 1899 to 1914, was at approximately the same rate as in the food group. The tobacco industry since 1899 has been characterized by a change in its principal product from cigars to cigarettes, which has involved little change in total number of wage earners employed. Machinery has been introduced rapidly, but the growth in horsepower has not been as great as that which has taken place in the output of cigarettes.

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<sup>1</sup> No account is taken here of the volume of illicit production of intoxicants.



## GROWTH OF MANUFACTURES

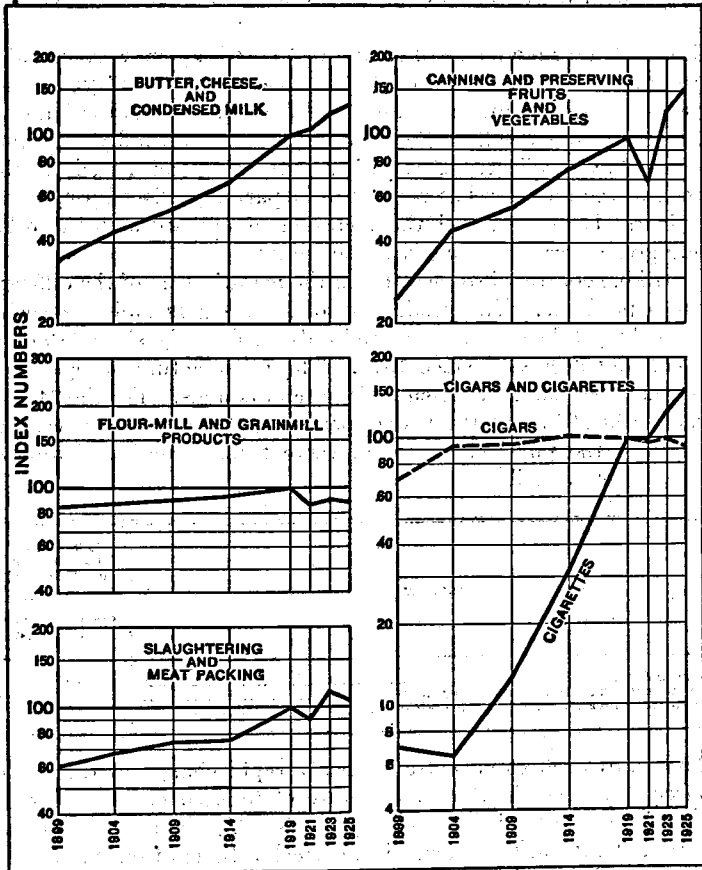
TABLE 5.—FOOD, DRINK, AND TOBACCO INDUSTRIES—PER CENT OF INCREASE, FOR CENSUS PERIODS: 1899 TO 1923

| INDUSTRY   | PER CENT OF INCREASE OR DECREASE (-) |                    |           |           |           |           |
|--|--------------------------------------|--------------------|-----------|-----------|-----------|-----------|
|  | 24-year period, 1899-1923            | Intercensal period |           |           |           |           |
|  |                                      | 1919-1923          | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |
| <b>INCREASE IN PHYSICAL VOLUME OF PRODUCTION</b>         |                                      |                    |           |           |           |           |
| Food and kindred products.....                           | 110.6                                | 11.6               | 23.8      | 8.0       | 14.9      | 22.8      |
| Butter, cheese, and condensed milk.....                  | 260.0                                | 22.4               | 47.6      | 29.0      | 19.5      | 29.4      |
| Slaughtering and meat packing.....                       | 88.5                                 | 13.0               | 32.1      | 1.2       | 10.2      | 12.0      |
| Flour-mill and grain-mill products.....                  | 8.3                                  | -8.9               | 4.8       | 4.6       | 4.2       | 4.0       |
| Canning and preserving, fruits and vegetables.....       | 415.0                                | 26.7               | 29.4      | 41.8      | 20.6      | 83.7      |
| Liquors and beverages.....                               | (1)                                  | (1)                | -56.9     | 18.3      | 15.3      | 32.5      |
| Tobacco.....   | 137.1                                | 9.8                | 30.9      | 14.7      | 15.2      | 24.8      |
| <b>INCREASE IN AVERAGE NUMBER OF WAGE EARNERS</b>        |                                      |                    |           |           |           |           |
| Food and kindred products.....                           | 108.9                                | -8.2               | 38.0      | 20.6      | 16.2      | 17.3      |
| Animal products.....                                     | 90.5                                 | -15.5              | 57.6      | 29.0      | 18.5      | 4.5       |
| Vegetable products.....                                  | 116.8                                | -4.7               | 30.4      | 22.6      | 15.4      | 23.3      |
| Liquors and beverages.....                               | -42.2                                | -42.5              | -37.1     | 13.3      | 13.9      | 24.0      |
| Tobacco products.....                                    | 11.9                                 | -5.6               | -12.2     | 7.2       | 4.6       | 20.3      |
| Food products, animal:                                   |                                      |                    |           |           |           |           |
| Butter, cheese, and condensed milk.....                  | 164.8                                | -3.8               | 52.8      | 25.5      | 18.0      | 21.9      |
| Slaughtering and meat packing.....                       | 94.2                                 | -17.5              | 62.9      | 12.5      | 18.5      | 8.4       |
| Food products, vegetable:                                |                                      |                    |           |           |           |           |
| Chocolate and cocoa products.....                        | 423.2                                | -24.3              | 118.3     | 47.2      | 35.2      | 59.1      |
| Sugar, beet.....   | 294.5                                | -35.7              | 47.3      | 11.0      | 81.3      | 101.2     |
| Confectionery and ice cream (including chewing gum)..... | 232.2                                | -9.7               | 54.4      | 43.5      | 23.2      | 34.9      |
| Food preparations, not elsewhere specified.....          | 220.9                                | -13.2              | 49.5      | 35.7      | 32.1      | 38.0      |
| Bread and other bakery products.....                     | 172.4                                | 15.8               | 14.1      | 23.8      | 23.3      | 35.0      |
| Pickles, preserves, and sauces.....                      | 113.4                                | -7.2               | 32.0      | 31.8      | 12.2      | 17.8      |
| Canning and preserving, fruits and vegetables.....       | 56.7                                 | -4.3               | 20.9      | 24.3      | 1.3       | 7.5       |
| Flour-mill and grain-mill products.....                  | 9.6                                  | -22.3              | 14.5      | 7         | 9         | 21.4      |
| Liquors and beverages:                                   |                                      |                    |           |           |           |           |
| Mineral and soda waters.....                             | 117.0                                | 9.3                | 12.5      | 17.9      | 20.3      | 23.8      |
| Liquors, malt, including cereal beverages.....           | -71.6                                | -67.3              | -44.3     | 13.7      | 13.4      | 22.0      |
| Tobacco products:  |                                      |                    |           |           |           |           |
| Tobacco, cigars and cigarettes.....                      | 27.7                                 | -4.9               | -9.2      | 9.5       | 3.1       | 31.0      |
| Tobacco, chewing and smoking, and snuff.....             | -44.9                                | -10.9              | -29.5     | -4.6      | 13.5      | -17.7     |
| <b>INCREASE IN HORSEPOWER OF PRIME MOVERS</b>            |                                      |                    |           |           |           |           |
| Food and kindred products.....                           | 123.9                                | 3.0                | 28.9      | 15.6      | 22.8      | 18.8      |
| Animal products.....                                     | 240.5                                | 7.3                | 40.9      | 27.6      | 44.8      | 21.9      |
| Vegetable products.....                                  | 102.7                                | 1.8                | 25.8      | 12.8      | 18.6      | 18.3      |
| Liquors and beverages.....                               | -2.3                                 | -40.1              | -21.0     | 17.8      | 28.4      | 36.6      |
| Tobacco products.....                                    | 95.2                                 | .3                 | 24.2      | 22.5      | 15.9      | 10.4      |
| Food products, animal:                                   |                                      |                    |           |           |           |           |
| Butter, cheese, and condensed milk.....                  | 123.7                                | 16.6               | 29.0      | 29.1      | 8.0       | 6.6       |
| Slaughtering and meat packing.....                       | 350.5                                | 6.6                | 41.9      | 25.0      | 74.6      | 36.4      |
| Food products, vegetable:                                |                                      |                    |           |           |           |           |
| Chocolate and cocoa products.....                        | 1,613.3                              | 41.2               | 69.4      | 86.3      | 103.0     | 89.3      |
| Sugar, beet.....   | 783.6                                | .3                 | 65.1      | 34.1      | 61.2      | 145.4     |
| Confectionery and ice cream (including chewing gum)..... | 1,282.3                              | 44.2               | 83.5      | 132.8     | 47.7      | 25.2      |
| Food preparations, not elsewhere specified.....          | 1,054.5                              | 19.0               | 87.7      | 45.1      | 95.9      | 81.9      |
| Bread and other bakery products.....                     | 761.1                                | 16.6               | 54.0      | 65.0      | 75.3      | 65.7      |
| Pickles, preserves, and sauces.....                      | 461.5                                | 64.0               | 19.4      | 46.8      | 25.6      | 55.6      |
| Canning and preserving, fruits and vegetables.....       | 417.3                                | 5.1                | 50.0      | 47.3      | 34.7      | 65.4      |
| Flour-mill and grain-mill products.....                  | 6.0                                  | -18.9              | 6.6       | -3.7      | 10.1      | 15.6      |
| Liquors and beverages:                                   |                                      |                    |           |           |           |           |
| Mineral and soda waters.....                             | 717.9                                | 57.4               | 66.0      | 29.8      | 58.8      | 52.0      |
| Liquors, malt, including cereal beverages.....           | -20.3                                | -61.4              | -20.1     | 16.7      | 30.6      | 34.5      |
| Tobacco products:  |                                      |                    |           |           |           |           |
| Tobacco, cigars and cigarettes.....                      | 445.6                                | 1.6                | 79.3      | 47.5      | 52.6      | 33.0      |
| Tobacco, chewing and smoking, and snuff.....             | 5.0                                  | -1.4               | -11.2     | 10.5      | 8.9       | 4.5       |

1 Index not computed after 1919.

Within the liquors and beverages group, a marked difference is to be noted. The production of soft drinks has increased more rapidly than that of malt liquors, quite apart from the effects of prohibition during the past few years. Comparison of the increases for the

CHART IV.—GROWTH OF MANUFACTURE OF FOOD AND TOBACCO PRODUCTS:  
1899 TO 1925  
(1919=100)



three 5-year intercensal periods from 1899 to 1914 shows that for both average number of wage earners and primary horsepower, the increases were greater in the case of soft drinks than in the case of malt liquors. Of course, the actual decline in the production of malt liquors for the periods 1914-1919 and 1919-1923 accentuate the difference between these two lines of manufacture. The effect

of prohibition has been, in fact, to increase the demand for other than alcoholic beverages, and between 1919 and 1923, the number of wage earners employed in the mineral and soda water industry increased by 9 per cent, while decreases were noted in most other industries of this group. Furthermore, the amount of horsepower in that industry during the same period increased by nearly 60 per cent. Increases as great as that occurred in few industries. Satisfactory quantitative data of the production of liquors and beverages are not available. Fiscal-year statistics reported by the Commissioner of Internal Revenue for distilled and fermented liquors were included in the production index from 1899 to 1919, but in recent years they have not been used for two reasons. In the first place, the industry has become too small to be significant, and, secondly, evidence quoted above indicates that the downward trend noted in this branch of the industry has been at least partially offset by increases in mineral beverages, and the inclusion of one without the other would give an erroneous index for the group.

A striking contrast is observable in the manufacture of the different tobacco products. The production of large cigars and of chewing and smoking tobacco has increased only moderately since 1899 and has actually decreased since 1914. The manufacture of cigarettes, upon the other hand, has risen by leaps and bounds. For the 24-year period 1899-1923 and the 9-year period 1914-1923, the percentage changes in the physical output of these three varieties of tobacco products were as follows:

| PRODUCT   | PER CENT OF INCREASE OR DECREASE (-) |              |
|---|--------------------------------------|--------------|
|   | 1899 to 1923                         | 1914 to 1923 |
| Tobacco and snuff.....                                      | 40                                   | -7           |
| Cigars (weighing more than 3 pounds per 1,000).....         | 41                                   | -3           |
| Cigarettes (weighing not more than 3 pounds per 1,000)..... | 1,710                                | 302          |

The figures reflect an extraordinarily rapid change in the use of tobacco. Increase in the manufacture of tobacco has been largely confined to the production of cigarettes. The effect has been a steady and substantial growth in physical volume of output for the industry and a moderate increase in horsepower with only a slight expansion in number of wage earners, as the manufacture of cigarettes is much more largely a machine process than is that of cigars.

Among foodstuffs, the most notable increases are to be found in the manufacture of certain vegetable products which can hardly be viewed as among the necessities of life. By far the largest increase for the 24-year period 1899-1923 is shown in the manufacture of

chocolate and cocoa products. It is significant that two out of the remaining three products that head the list are beet sugar, and confectionery and ice cream. The American people have developed an extraordinary appetite for sweets, and this naturally finds expression in the statistics of manufacturing output.

The other group of products standing among the first four is "Food preparations, not elsewhere specified." The most important single trade under this heading is that engaged in the manufacture of "breadstuff preparations such as cereals and table foods." In general, this industry as a whole includes various food products of a more highly manufactured sort. The rapid growth in this line of business undoubtedly reflects an increase in consumption of prepared foods of every description. The widely advertised breakfast food is simply illustrative of a tendency for manufacture to intervene in the preparation of foodstuffs for the modern table. This same tendency is evidenced by the rapid growth of the manufacture of "Bread and other bakery products." Here, as in other lines, the factory with its modern equipment and scores of operatives is displacing in part the work of the housewife. It should be clearly recognized that the growth of manufacture when it involves this sort of substitution does not add directly to the material income of consumers. Manufacture expands, but the products from which we draw our subsistence exist in no greater volume.

The validity of this line of reasoning is confirmed by the figures for flour-mill and gristmill products. From this industry, after all, are obtained the basic materials for the manufacture of bread and other bakery products. The increase of flour and grain milling from 1899 to 1923 was relatively slight, both as represented by average number of wage earners and by primary horsepower. The figures of wheat-flour production available for all the census years substantiate the story. Production of wheat flour in barrels for 1923 was only about 15 per cent greater than the production in 1899 and was slightly less than in 1914. Presumably the quantity of breadstuffs actually consumed has not increased in much larger proportion.

Clearly, in the manufacture of vegetable foodstuffs, we are confronted by the combined effects of two different lines of development: First, the manufacture of less staple foods to meet newly developed or rapidly growing tastes—such as the Nation has acquired for chocolate, confectionery, ice cream, and chewing gum; and second, the production within the factory of more staple articles formerly prepared largely by the housewife. It is probable that actual output of the more staple articles has not increased during the past quarter of a century much more rapidly than the population; that is, not much more than 50 per cent. But the production of foodstuffs within factories has undoubtedly increased at a much higher rate.

The same ideas apply to the manufacture of animal food products. In the case of slaughtering and meat packing, the data on the dressed weight of animals slaughtered would indicate an increase of about 74 per cent from 1899 to 1923. On the other hand, both average number of wage earners and primary horsepower suggest a much higher rate of growth. What has happened undoubtedly has been a larger and larger derivation of product from the animals slaughtered, a higher and higher degree of fabrication in the meat-packing industry. By-products are now utilized that formerly went to waste. Various specialized foodstuffs are produced and inspected and packed with increasing care. Part of all this represents an actual increase of manufacture in excess of the increase of materials consumed in manufacture; part, upon the other hand, represents improvement of quality which can hardly be included specifically in one's concept of manufacturing growth. No clearer example exists of the complications—discussed in Chapter I—involved in the concept of a general growth of manufacture.

The rapid growth of manufacture of butter, cheese, and condensed milk is primarily an illustration of the invasion by manufacture of fields formerly assigned to other lines of business enterprise. Butter, cheese, and milk formerly were regarded as farm products, and in large part were such. They are increasingly becoming factory products. The rapid growth of the manufacture of these products, evidenced in the average number of wage earners, in primary horsepower, and in physical quantity produced, shows this transition. The figures probably must be discounted if one is to obtain an accurate notion of the increase in the volume of these products available for consumption.

The increase in the output of canned and preserved fruits and vegetables is not adequately indicated by statistics of wage earners. Physical production in number of cases of goods canned during 1923 was about four times as great as in 1899. Apparently this growth was largely effected by additions to power as the amount of primary horsepower in the industry increased during the period by approximately the same amount as production. This, however, is another illustration of growth in manufacturing which does not represent equally as great an increase in consumption, as undoubtedly factory canned and preserved products are displacing those formerly put up in the home. On the other hand, it is undoubtedly true that the consumption of canned goods of all kinds has increased considerably in the past quarter century.

The index of the physical volume of production for food products probably understates growth of manufacture in this group. The industries in which increases of wage earners and horsepower have been greatest are of such a nature that statistics of physical output are not collected, and therefore most of them are not represented in

the index. A relatively unimportant exception is beet sugar. For the most important industry of the group—slaughtering and meat packing—it was pointed out that the number of pounds of meat produced was probably not an accurate indicator of changes in the increasingly varied volume of manufacture in that industry. The indexes for canning and preserving and for butter, cheese, and condensed milk probably give a fairly accurate picture of what has occurred in the manufacture of these products.

## VII

### CONTRASTS IN THE TEXTILE AND LEATHER GROUPS AND AMONG OTHER CONSUMPTION GOODS

“Textiles and their products” and “Leather and its finished products” are two groups falling naturally together, because they are primarily concerned with the production of clothing and footwear for direct consumption. The textile group in the census classification is divided into two parts: (a) Textile fabrics and materials, and (b) articles from textile fabrics for personal wear.<sup>1</sup> Though the recent extraordinary expansion of automobile-tire manufacture has created a substantial demand for textile fabrics outside the range of wearing apparel, the great bulk of textile fabrics still find their way into clothing of one form or another. Thus the group of “Textiles and their products” has to do primarily with wearing apparel. The group of “Leather and its finished products” is similarly divided in the census classification into (a) leather, tanned, curried, and finished, and (b) finished products of leather. In this case, as in that of textiles, fabrication runs largely in one direction. The finished products of leather consist very largely of footwear. In the two groups of textile and leather products, then, we deal with lines of manufacture which closely resemble one another in that they yield products destined for immediate use by the ultimate consumer.

**TABLE 6.—TEXTILE AND LEATHER INDUSTRIES—PER CENT OF INCREASE, FOR  
CENSUS PERIODS: 1899 TO 1923**

| INDUSTRY   | PER CENT OF INCREASE OR DECREASE (—) |                     |               |               |               |               |
|--|--------------------------------------|---------------------|---------------|---------------|---------------|---------------|
|  | 24-year<br>period,<br>1899-1923      | Inter-censal period |               |               |               |               |
|  |                                      | 1913-<br>1923       | 1914-<br>1919 | 1909-<br>1914 | 1904-<br>1909 | 1899-<br>1904 |
| <b>INCREASE IN PHYSICAL VOLUME OF PRODUCTION</b> |                                      |                     |               |               |               |               |
| Textiles and their products.....                 | 102.5                                | 22.9                | 8.3           | 5.3           | 27.8          | 18.5          |
| Cotton goods.....                                | 83.6                                 | 22.8                | -1.6          | 8.3           | 25.4          | 11.8          |
| Knit goods.....                                  | 160.0                                | 15.2                | 7.6           | 7.0           | 41.1          | 38.8          |
| Silk goods.....                                  | 259.7                                | 16.9                | 36.6          | 23.1          | 41.3          | 29.5          |
| Woolen and worsted goods.....                    | 81.1                                 | 23.2                | -4.1          | -0.9          | 21.2          | 22.6          |
| Leather and its finished products.....           | 51.8                                 | 5.6                 | 14.4          | -3            | 7.5           | 16.8          |
| Leather, tanned, curried, and finished.....      | 30.4                                 | 4.7                 | 16.3          | -4.2          | .2            | 11.6          |
| Boots and shoes, leather.....                    | 60.8                                 | 6.0                 | 13.1          | 2.7           | 9.8           | 19.0          |

<sup>1</sup> A third subdivision, “other articles from textile fabrics,” is of negligible significance and in the present study has been included in the group of textile fabrics and materials.

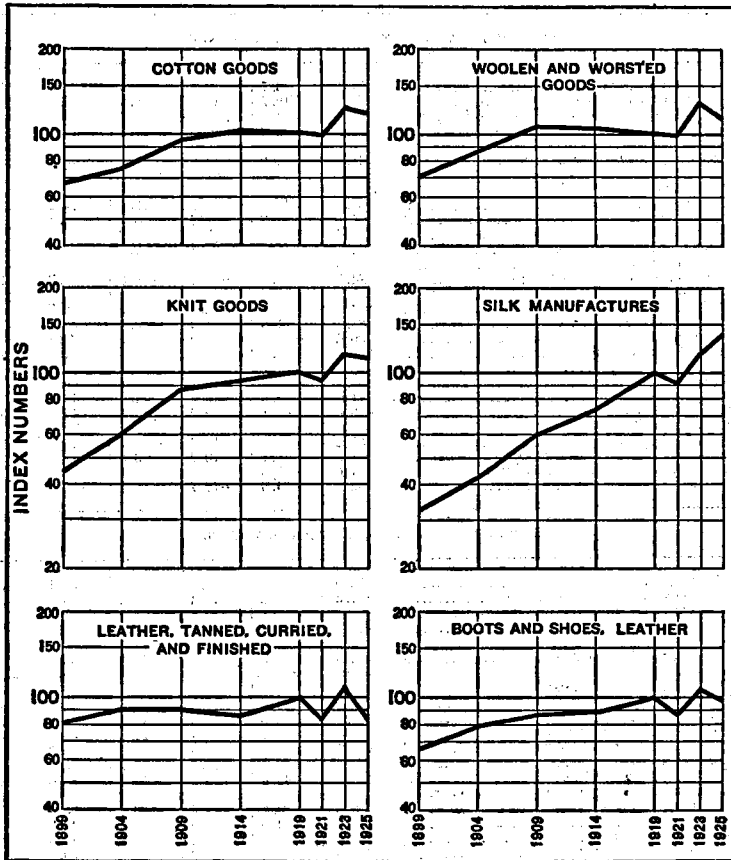
TABLE 6.—TEXTILE AND LEATHER INDUSTRIES—PER CENT OF INCREASE, FOR CENSUS PERIODS: 1899 TO 1923—Continued

| INDUSTRY  | PER CENT OF INCREASE OR DECREASE (-) |                    |           |           |           |           |
|---|--------------------------------------|--------------------|-----------|-----------|-----------|-----------|
|   | 24-year period, 1899-1923            | Intercensal period |           |           |           |           |
|   |                                      | 1918-1923          | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |
| <b>INCREASE IN AVERAGE NUMBER OF WAGE EARNERS</b>       |                                      |                    |           |           |           |           |
| Textiles and textile products.....                      | 87.1                                 | 6.7                | 6.9       | 4.8       | 24.8      | 18.1      |
| Textile fabrics and materials.....                      | 70.4                                 | 10.7               | 10.7      | 4.5       | 18.9      | 11.8      |
| Articles from textile fabrics for personal wear.....    | 56.7                                 | -4.2               | -6        | .5        | 36.1      | 17.2      |
| Leather and leather products.....                       | 38.8                                 | -1.2               | 13.8      | -9        | 17.1      | 6.4       |
| <b>Textile fabrics and materials:</b>                   |                                      |                    |           |           |           |           |
| Knit goods (including hosiery).....                     | 132.2                                | 12.6               | 14.7      | 16.4      | 24.2      | 24.4      |
| Silk goods.....   | 91.5                                 | -1.2               | 17.2      | 9.2       | 24.4      | 21.7      |
| Cotton goods (including lace).....                      | 60.7                                 | 9.5                | 13.1      | 4.2       | 19.6      | 4.2       |
| Woolen and worsted goods.....                           | 54.8                                 | 16.7               | 5.1       | -2.8      | 14.9      | 12.8      |
| Cordage and twine.....                                  | 25.0                                 | -7.0               | 11.8      | 7.8       | -1        | 11.4      |
| Carpets and rugs, other than rag.....                   | 24.0                                 | 53.6               | -26.8     | -6.0      | .3        | 16.9      |
| <b>Articles from textile fabrics for personal wear:</b> |                                      |                    |           |           |           |           |
| Millinery and lace goods.....                           | 224.8                                | 7.7                | 12.3      | 15.5      | 42.5      | 63.0      |
| Men's clothing.....                                     | 61.7                                 | 11.6               | .9        | -9.1      | 39.4      | 13.4      |
| Women's clothing.....                                   | 59.6                                 | -19.3              | -1.9      | 9.9       | 32.9      | 38.2      |
| Men's furnishing goods.....                             | 211.5                                | .9                 | 24.4      | 41.1      | -2.9      | 24.4      |
| Shirts.....   | 42.4                                 | 31.7               | -23.8     | 7.1       | 32.9      | -3        |
| Corsets.....  | 31.2                                 | -12.4              | -10.2     | 16.7      | 60.0      | -10.8     |
| Hats, fur-felt.....                                     | -11.4                                | -9.6               | -13.2     | -14.9     | 13.7      | 16.8      |
| Men's collars and cuffs.....                            | -30.0                                | -5.8               | 9.9       | -18.7     | 15.2      | -37.1     |
| <b>Leather and leather goods:</b>                       |                                      |                    |           |           |           |           |
| Trunks and valises.....                                 | 65.2                                 | .3                 | 15.7      | -10.9     | 22.3      | 30.5      |
| Boots and shoes (including cut stock).....              | 58.8                                 | 6.7                | 10.2      | 3.5       | 23.5      | 5.7       |
| Leather, tanned, curried, and finished.....             | 14.5                                 | -17.6              | 29.6      | -10.1     | 8.7       | 9.8       |
| Saddlery and harness.....                               | -52.1                                | -34.0              | -19.7     | -11.4     | -2.7      | 4.7       |
| <b>INCREASE IN HORSEPOWER OF PRIME MOVERS</b>           |                                      |                    |           |           |           |           |
| Textiles and textile products.....                      | 173.0                                | 16.4               | 19.0      | 20.3      | 31.1      | 25.0      |
| Textile fabrics and materials.....                      | 171.8                                | 17.6               | 19.4      | 19.5      | 30.2      | 24.2      |
| Articles from textile fabrics for personal wear.....    | 211.5                                | .3                 | 10.5      | 32.5      | 53.6      | 38.0      |
| Leather and leather products.....                       | 163.0                                | 8.0                | 22.4      | 13.1      | 38.1      | 27.4      |
| <b>Textile fabrics and materials:</b>                   |                                      |                    |           |           |           |           |
| Knit goods (including hosiery).....                     | 224.9                                | 22.9               | 20.5      | 21.3      | 31.7      | 37.4      |
| Silk goods.....   | 265.4                                | 18.6               | 51.2      | 19.4      | 36.5      | 25.0      |
| Cotton goods (including lace).....                      | 174.4                                | 17.2               | 17.4      | 22.5      | 31.4      | 24.0      |
| Woolen and worsted goods.....                           | 130.6                                | 15.5               | 22.9      | 9.5       | 25.6      | 18.2      |
| Cordage and twine.....                                  | 115.2                                | 8.7                | 20.3      | 17.2      | 15.2      | 21.9      |
| Carpets and rugs, other than rag.....                   | 104.5                                | 43.3               | -13.2     | 14.0      | 13.6      | 26.9      |
| <b>Articles from textile fabrics for personal wear:</b> |                                      |                    |           |           |           |           |
| Millinery and lace goods.....                           | 750.6                                | 26.2               | -2.0      | 60.3      | -67.9     | 155.8     |
| Men's clothing.....                                     | 298.2                                | 31.0               | 13.8      | 18.0      | 42.5      | 58.1      |
| Women's clothing.....                                   | 130.0                                | -14.5              | 14.9      | 27.4      | 49.5      | 49.7      |
| Men's furnishing goods.....                             | 589.8                                | -4.5               | 53.6      | 47.6      | 30.1      | 144.9     |
| Shirts.....   | 98.4                                 | -5.6               | -15.2     | 39.2      | 45.1      | 22.7      |
| Corsets.....  | 66.8                                 | -15.2              | 1.4       | 54.0      | 39.5      | -9.7      |
| Hats, fur-felt.....                                     | 56.2                                 | -9.3               | -2.2      | 8.3       | 18.7      | 40.4      |
| Men's collars and cuffs.....                            | 119.7                                | -4.3               | 35.7      | 20.5      | 37.0      | 2.5       |
| <b>Leather and leather goods:</b>                       |                                      |                    |           |           |           |           |
| Trunks and valises.....                                 | 119.6                                | -5.5               | 1.8       | 9.9       | 37.3      | 51.4      |
| Boots and shoes (including cut stock).....              | 170.6                                | 10.9               | 20.4      | 16.7      | 52.5      | 13.7      |
| Leather, tanned, curried, and finished.....             | 159.6                                | 5.7                | 25.4      | 16.6      | 26.1      | 32.2      |
| Saddlery and harness.....                               | 29.1                                 | -5.4               | -21.0     | -39.7     | 132.8     | 22.5      |



For the more important textile and leather trades percentage changes in physical volume of production, as indicated by index numbers, are given in Table 6 and on Chart V, and Table 6 also shows increases in the average number of wage earners and in primary

CHART V.—GROWTH OF MANUFACTURE OF TEXTILE AND LEATHER PRODUCTS: 1899 TO 1925  
(1919=100)



horsepower. Attention may be focussed largely on increases for the full 24-year period from 1899 to 1923.

The details for the several textile-fabric trades may first be examined. A number of contrasts are to be noted. The greatest increase from 1899 to 1923 in the average number of wage earners is found in the production of knit goods, including hosiery, with the manufacture of silk goods a close second. As measured by increases in both quantity of goods produced and horsepower of prime movers, on the other

hand, the silk industry is in first place and knit goods second. The increase in the knit-goods industry has been to a large extent in hosiery and in outer wear, including sweaters, jerseys, scarfs, etc., rather than in underwear. In the underwear industry, important developments, especially in recent years, have been the growing use of silk underwear by women and of so-called athletic underwear by men, and the increasing popularity in knit underwear of union suits in place of two-piece garments, all of which have tended to reduce somewhat the importance of the knit-underwear industry. The increase in hosiery and silk manufacture has been somewhat related, the production of silk hosiery increased from 12,600 dozen pairs in 1899 to 4,640,000 dozen pairs in 1923, and output of silk-mixed hosiery has also increased rapidly. Rayon, now a textile fiber of some importance, has come so recently into prominence that its production was not reported separately until 1923, and it was not designated as a separate industry by the Bureau of the Census until 1925, and at that time was continued as a part of the chemical group.

Cotton goods, woolen and worsted goods, and cordage and twine show much smaller increases than silk and knit goods. Carpets and rugs, other than rag, which actually decreased from 1899 to 1919, increased in production, wage earners, and horsepower by approximately 50 per cent in the four years from 1919 to 1923, and thereby showed a net increase for the 24-year period. This recent growth reflects the influence of the large number of new homes built and furnished in 1922 and 1923. Oilcloth, linoleum, and asphalted-felt-base floor coverings have had even greater increases.

The results confirm one's general impressions. The rapid increase in the use of silk and recently of rayon in personal apparel is one of the outstanding features of changing fashion in dress during the past few years. Cotton and wool have to do with more conservative and thoroughly established lines of use. In these more thoroughly stabilized trades the increase in the average number of wage earners has not been markedly different from the rate of increase of the population. Industrial expansion in the manufacture of silk, on the other hand, has apparently been much greater than the growth of population during the same period.

Among articles from textile fabrics for personal wear, the largest percentage increases for the period 1899-1923, as judged by average number of wage earners and by horsepower, were in millinery and lace and men's and women's clothing. The manufacture of corsets has not grown as rapidly and in the past decade has declined considerably. Men's furnishings and other articles of men's attire show only moderate increases in wage earners. In some cases actual decreases were registered for the period 1899-1923. Considerable

increases in primary horsepower were reported, however, for some of the trades. Presumably, there has been increasing resort to machinery in the manufacture of men's wearing apparel. Unfortunately, there are no actual production records with which to ascertain the precise facts in this important line of production.

As already stated, the finished products of leather consist largely of boots and shoes, such other products as saddlery and harness and trunks and valises being now of negligible importance. This line of manufacture seems to illustrate the definite tendency toward increasing fabrication of product. The increase in boot and shoe production from 1899 to 1923 was approximately 61 per cent. The record of an increase of 59 per cent in wage earners and of 171 per cent in horsepower would suggest a somewhat greater enlargement of output. The explanation of the failure of physical volume to expand with wage earners and primary horsepower may lie either in increasing fabrication of the product or in restriction on output. The case is an excellent illustration of the difficulties of interpreting satisfactorily data regarding the growth of manufacture. In the tanning of leather, on the other hand, production has increased to a greater extent than the number of wage earners, apparently by means of the wider application of machinery.

In general, the manufacture of clothing and footwear shows a decided increase for the period 1899-1923. This increase, on the whole, is somewhat above the increase shown by population, but by no means as greatly above as in several other lines of manufacture. The highest increases in the trades making articles for personal wear apparently run largely to luxuries rather than necessities. All through these groups of consumers' goods there is evidence of increasing fabrication—increasing resort to factory processes. It is probable that this accounts for the greater increase of manufacture along these lines than population. It is doubtful whether there was any material advance during the years 1899-1923 in the per capita volume of staple goods available for final consumption.

Among certain varieties of consumption goods quite a different situation prevails, for some articles of consumption are still in process of introduction. In Table 7, percentage increases in the average number of wage earners are shown for industries dealing with four different products, all of which are employed in amusement or entertainment of one kind or another.

TABLE 7.—INDUSTRIES PRODUCING MISCELLANEOUS CONSUMPTION GOODS—  
PER CENT OF INCREASE, FOR CENSUS PERIODS: 1899 TO 1923

| INDUSTRY                                   | PER CENT OF INCREASE OR DECREASE (-) |                       |               |               |               |               |
|--|--------------------------------------|-----------------------|---------------|---------------|---------------|---------------|
|  | 24-year<br>period,<br>1899-1923      | Interdecennial period |               |               |               |               |
|  |                                      | 1919-<br>1923         | 1914-<br>1919 | 1909-<br>1914 | 1904-<br>1909 | 1899-<br>1904 |
| INCREASE IN AVERAGE NUMBER OF WAGE EARNERS |                                      |                       |               |               |               |               |
| Phonographs and graphophones.....          | 1,518.6                              | -28.6                 | 206.2         | 80.4          | 53.0          | 168.1         |
| Photographic materials.....                | 373.9                                | -4.6                  | 97.3          | 67.0          | 36.3          | 10.7          |
| Toys and games.....                        | 340.3                                | 2.8                   | 80.1          | 48.7          | 22.5          | 30.6          |
| Musical instruments and materials.....     | 4.2                                  | -3.3                  | -3.9          | 6.4           | 21.4          | -1.4          |
| INCREASE IN HORSEPOWER OF PRIME MOVERS     |                                      |                       |               |               |               |               |
| Phonographs and graphophones.....          | 3,705.2                              | 2.5                   | 243.7         | 83.5          | 152.6         | 133.1         |
| Photographic materials.....                | 1,373.6                              | 74.7                  | 74.6          | 90.8          | 70.7          | 48.3          |
| Toys and games.....                        | 411.6                                | 11.7                  | 112.8         | 27.5          | 11.9          | 50.8          |
| Musical instruments and materials.....     | 28.4                                 | -6.4                  | 10.6          | 11.8          | 33.1          | -16.0         |

The contrasts shown are illuminating. In the case of musical instruments and materials until 1914, we find an increase not unlike that displayed by other lines of consumers' goods, but in the past decade there has been little or no growth in production, wage earners, or horsepower in this industry. The increases shown in the other three cases, however, are very different. The average number of wage earners employed rose for toys and games, 340 per cent; for photographic materials, 374 per cent; and for phonographs and graphophones, 1,519 per cent. The latter two instruments of entertainment and amusement—as well as education—have enjoyed during recent years a phenomenal popularity. The decline in the phonograph and graphophone industry from 1919 to 1923, however, should be noted. From 1914 to 1919, the number of wage earners employed and the amount of horsepower of prime movers in the industry tripled and the actual production of instruments quadrupled, but in the following four years production was cut in half and employment declined by nearly 30 per cent.<sup>2</sup> Either the so-called "saturation point" for this industry has been reached or the competition offered by the new radio industry has been of effective importance. Despite this decrease, the growth of manufacture since 1899 in the case of phonographs and graphophones has been more rapid than in any other industry except the automobile industry.

Radio apparatus is produced by establishments classified under "Electrical machinery, apparatus, and supplies" industry. Statis-

<sup>2</sup>For production figures see Table 37, Appendix B.

tics of physical quantity of such products manufactured were not collected in detail until 1923. Dollar figures, which are not strictly comparable for every year, indicate a rapid growth from 1914 to 1925, most of which came between 1921 and 1925. The value of radio apparatus produced in 1925 was \$170,390,572; 1923, \$54,000,470; 1921, \$10,646,817; 1919, \$8,074,636; and 1914, \$792,465.

It is an interesting commentary on current tendencies that among consumption goods, the lines of manufacture which have shown the most rapid rates of growth have been lines concerned with the production of goods primarily devoted to recreation and diversions of one kind or another.

## VIII

### CONTRASTS IN OTHER GROUPS

It is neither necessary nor desirable to consider changes in each of the many individual industries covered by the census returns.<sup>1</sup> But it is worth while to examine certain further contrasts disclosed by the census records, contrasts which are suggestive of fundamental changes taking place in the development of manufacture in this country. It is proposed, therefore, to single out the data for selected industries and comment in turn upon the significance of the differences thus disclosed.

In the iron and steel group, for example, marked divergences are evident in the rates of increase in the manufacture of different iron and steel products. The increase in the average number of wage earners for this group as a whole in the period 1899-1923 was 105 per cent. In the manufacture of iron and steel and rolled products<sup>2</sup> the average number of wage earners increased 115 per cent during the same 24-year period. In the same time the tonnage production of rolling-mill products has tripled and the amount of horsepower for the group has quadrupled. Interesting changes in capacity and efficiency within these industries producing rolling-mill products during the past decade are apparent from the following percentages of change:

|                         | 1914-1923       | 1919-1923       | 1914-1919       |
|-------------------------|-----------------|-----------------|-----------------|
|                         | <i>Per cent</i> | <i>Per cent</i> | <i>Per cent</i> |
| Tonnage production..... | 86              | 31              | 42              |
| Wage earners.....       | 50              | 4               | 45              |
| Primary horsepower..... | 55              | 10              | 41              |

Between 1914 and 1919, the period of war expansion, an increase in production of over 40 per cent was accompanied by corresponding increases in number of wage earners and in power. From 1919 to 1923, however, with little change in number of wage earners and only a 10 per cent increase in power, tonnage output was enlarged by over 30 per cent. This is a good example of what has apparently taken place in many other industries, i. e., by means of greater utilization of labor-saving machinery and devices, the more efficient use of power,

<sup>1</sup> If any one of these is of particular interest, consult the details given in Tables 32 to 43, pp. 117 to 200.

<sup>2</sup> Including iron and steel products, not made in steel works or rolling mills, although largely made in such, as well as wire and wirework, not elsewhere specified.

and other economies of operation, production has been expanded without a corresponding increase in the number of wage earners employed or in the installed horsepower of prime movers.

The various highly fashioned products of iron and steel show widely varying increases for the 24-year period. Data are given in Table 8 for some of these and for certain machinery industries, two of which—electrical machinery and agricultural implements—are not classified by the census in the iron and steel group. Those industries primarily concerned with the manufacture of machinery (and in 1923 placed by the Census Bureau in the new machinery group) have been segregated in the tables from the other iron and steel industries.

TABLE 8.—IRON AND STEEL PRODUCTS AND MACHINERY—PER CENT OF INCREASE, FOR CENSUS PERIODS: 1899 TO 1923

| INDUSTRY   | PER CENT OF INCREASE OR DECREASE (-) |                    |           |           |           |           |
|--|--------------------------------------|--------------------|-----------|-----------|-----------|-----------|
|  | 24-year period, 1899-1923            | Intercensal period |           |           |           |           |
|  |                                      | 1919-1923          | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |
| <b>INCREASE IN AVERAGE NUMBER OF WAGE EARNERS</b>                                    |                                      |                    |           |           |           |           |
| All iron and steel products.....   | 105.1                                | -8.6               | 49.4      | 3.4       | 18.2      | 16.6      |
| <b>Iron and steel:</b>   |                                      |                    |           |           |           |           |
| Steam fittings and heating apparatus.....  | 377.0                                | 20.3               | 39.0      | 12.9      | 100.0     | 26.4      |
| Plumbers' supplies, not elsewhere classified.....                                    | 239.1                                | 100.2              | -26.4     | -4.0      | 79.1      | 34.0      |
| Crude iron and steel products plus <sup>1</sup> .....                                | 115.2                                | 3.6                | 44.5      | 2.8       | 23.1      | 13.6      |
| Hardware.....  | 88.7                                 | 17.5               | 3.1       | 7.0       | 21.4      | 19.8      |
| Cutlery and edge tools.....  | 38.8                                 | -15.9              | 19.9      | -2.6      | 16.9      | 20.9      |
| <b>Machinery:</b>  |                                      |                    |           |           |           |           |
| Cash registers and calculating machines.....   | 624.4                                | -9.5               | 84.7      | 20.0      | 83.0      | 97.3      |
| Electrical machinery, apparatus, and supplies <sup>2</sup> .....                     | 459.1                                | 10.6               | 79.9      | 35.3      | 44.3      | 43.9      |
| Typewriters and supplies.....  | 245.1                                | -4.4               | 41.3      | 16.8      | 53.7      | 43.6      |
| Foundry and machine shops, including certain machinery industries <sup>3</sup> ..... | 99.8                                 | -6.8               | 58.0      | 2.4       | 15.1      | 15.1      |
| Sewing machines and attachments.....   | .5                                   | -30.1              | 6.8       | -6.5      | 12.5      | 28.1      |
| Agricultural implements <sup>3</sup> .....   | -33.5                                | -43.0              | 12.2      | -4.1      | 6.7       | 1.7       |
| <b>INCREASE IN PRIMARY HORSEPOWER</b>  |                                      |                    |           |           |           |           |
| All iron and steel products.....   | 808.8                                | 10.7               | 46.0      | 21.4      | 37.1      | 52.0      |
| <b>Iron and steel:</b>   |                                      |                    |           |           |           |           |
| Steam fittings and heating apparatus.....  | 1299.8                               | 35.0               | 74.7      | 17.0      | 208.6     | 64.3      |
| Plumbers' supplies, not elsewhere classified.....                                    | 693.7                                | 102.0              | 5.3       | 8.3       | 107.0     | 66.4      |
| Crude iron and steel products plus <sup>1</sup> .....                                | 293.6                                | 10.4               | 40.6      | 20.3      | 37.4      | 53.4      |
| Hardware.....  | 249.5                                | 17.2               | 26.5      | 27.7      | 25.1      | 47.4      |
| Cutlery and edge tools.....  | 64.9                                 | 12.0               | 12.0      | 7.9       | -6        | 22.5      |
| <b>Machinery:</b>  |                                      |                    |           |           |           |           |
| Cash registers and calculating machines.....   | 2130.3                               | 104.0              | 38.0      | 52.9      | 67.8      | 208.9     |
| Electrical machinery, apparatus, and supplies <sup>2</sup> .....                     | 1001.3                               | 9.6                | 92.7      | 43.4      | 50.7      | 141.3     |
| Typewriters and supplies.....  | 404.4                                | -12.3              | 20.0      | 59.1      | 53.6      | 96.1      |
| Foundry and machine shops, including certain machinery industries <sup>3</sup> ..... | 387.1                                | 18.7               | 57.9      | 18.9      | 52.2      | 43.6      |
| Sewing machines and attachments.....   | 123.7                                | -29.7              | 32.2      | 24.7      | 13.2      | 70.4      |
| Agricultural implements <sup>3</sup> .....   | 72.6                                 | -4.9               | 5.6       | 20.7      | 12.1      | 27.0      |

<sup>1</sup> See footnote 2, p. 65.

<sup>2</sup> Not included in the group total given above.

<sup>3</sup> See footnote 3, p. 87.

The rapid growth in the manufacture of cash registers and calculating machines and of typewriters and supplies is significant of the increasing use of machinery in offices. The increases from 1919 to 1923 in the number of wage earners engaged in the manufacture of plumbers' supplies, steam heating apparatus, hardware, tools, and electrical machinery, apparatus, and supplies reflect the great construction activity of 1923 and adjoining years. The industry designated as "Foundries and machine shops" is a sort of a catch-all for establishments which manufacture machinery and parts but which, because they make such a wide variety of products or for other reasons, can not be elsewhere classified.<sup>3</sup> From time to time establishments have been taken from this combination to form new industries. Some of these are those producing locomotives, stoves, engines, machine tools, and textile machinery. The figures given in the accompanying table include these industries, which all together in 1923 employed about 70 per cent of the total number of wage earners in the machinery group of industries, according to the new census classification, and over 40 per cent of those in the iron and steel group, according to the classification followed in this monograph.<sup>4</sup> These industries showed a large increase from 1914 to 1919, but the growth for the entire period has been slightly below the average for all industries.

A contrast of interest is that between electric machinery and agricultural machinery and implements. Percentage increases in the average number of wage earners and in primary horsepower for these two industries also appear in Table 8. In the case of the manufacture of agricultural implements there has actually been a net decrease in wage earners since 1899. Undoubtedly this is in part due to technical improvements in this line of manufacture leading to somewhat greater use of machinery; but that this is not the principal explanation is indicated by the fact that the increase of primary horsepower during the 24-year period from 1899 to 1923 was only 73 per cent. Production of agricultural implements does not seem to have expanded greatly from 1899 to 1919, and from 1919 to 1923, a period of agricultural depression, the output of agricultural implements decreased by an average of about 25 per cent. The growth of manufacture of electric apparatus and supplies, upon the other hand, has been very rapid indeed. Furthermore, it has been persistent throughout each of the five-intercensal periods. Index numbers of production were computed for recent years from statistics of selected products for these two industries, and, although they were not considered suitable for inclusion in the general index, their results are of

<sup>3</sup> See footnote 8, for Tables 29, 30, and 31, Appendix B, p. 146, for industries used in computing percentages given in the above table. For a complete list of products made in these industries see Abstract of Census of Manufactures, 1914, pp. 115-119.

<sup>4</sup> See Ch. IV, p. 39.



some significance. They are given in Table 24, page 110, Appendix A.<sup>5</sup> The decrease in output of units of agricultural machinery and increase in electrical machinery is rather strikingly demonstrated by these figures, which, however, it should be remembered, are subject to a large margin of error owing to the difficulty of obtaining strictly comparable units. This contrast between electrical and agricultural apparatus, shown by several lines of evidence, although not surprising, is certainly a striking example of the trend of modern mechanical arts.

It is obvious from the above data that widely different rates of increase are to be observed in any stated period in lines of manufacture utilizing the same basic material. Some trades are enjoying the advantage of rapid introduction of their product; others have to do with products which are already well established and thoroughly stabilized. Still others are affected by the declining use of their products. In the figures for broad industrial groups, such as iron and steel and their products; or textiles and their products, these differences are entirely concealed.

In the group of lumber and its remanufactures we find a situation quite different from that in iron and steel. Some of the more instructive figures are given in Table 9.

TABLE 9.—LUMBER AND ITS REMANUFACTURES—PER CENT OF INCREASE, FOR CENSUS PERIODS: 1899 TO 1923

| INDUSTRY                                       | PER CENT OF INCREASE OR DECREASE (-) |                     |           |           |           |           |
|--|--------------------------------------|---------------------|-----------|-----------|-----------|-----------|
|  | 24-year period.<br>1899-1923         | Inter-censal period |           |           |           |           |
|  |                                      | 1919-1923           | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |
| INCREASE IN PHYSICAL VOLUME OF PRODUCTION      |                                      |                     |           |           |           |           |
| Lumber.....                                    | 3.5                                  | 10.1                | -9.6      | -12.4     | 32.0      | -2.3      |
| INCREASE IN AVERAGE NUMBER OF WAGE EARNERS     |                                      |                     |           |           |           |           |
| Lumber and its remanufactures.....             | 35.5                                 | 8.5                 | 0.7       | -8.6      | 24.2      | 9.3       |
| Furniture.....                                 | 90.4                                 | 20.1                | 8.2       | 3.6       | 12.1      | 26.2      |
| Boxes, wooden packing, except cigar boxes..... | 78.4                                 | -7.5                | 10.1      | 8.7       | 16.9      | 37.9      |
| Coffins, burial cases, etc.....                | 69.6                                 | -2.4                | 25.6      | 1.4       | 10.3      | 23.8      |
| Lumber and timber products.....                | 23.0                                 | 5.7                 | .2        | -12.3     | 35.3      | -2.1      |
| Lumber and planing-mill products.....          | 48.2                                 | 20.5                | -10.3     | -11.6     | 15.1      | 32.9      |
| INCREASE IN HORSEPOWER OF PRIME MOVERS         |                                      |                     |           |           |           |           |
| Lumber and its remanufactures.....             | 58.1                                 | -2.2                | 7.3       | -2.0      | 46.5      | 4.9       |
| Furniture.....                                 | 319.8                                | 83.1                | 9.2       | 13.8      | 29.2      | 42.8      |
| Boxes, wooden packing, except cigar boxes..... | 174.0                                | 4.1                 | 13.6      | 12.7      | 80.9      | 57.1      |
| Coffins, burial cases, etc.....                | 208.4                                | 23.2                | 17.6      | 15.3      | 25.1      | 47.6      |
| Lumber and timber products.....                | 40.6                                 | -18.0               | 7.6       | -5.4      | 56.4      | 8.4       |
| Lumber and planing-mill products.....          | 121.6                                | 18.6                | 1.0       | 2.9       | 32.6      | 35.5      |

<sup>5</sup> For production of individual products of these industries, 1914 to 1923, see Table 37, Appendix B.

As is generally known, sources of the raw material for the lumber trades are being steadily depleted and the substitution of other materials for lumber is taking place rapidly. The growth of manufacture of the grosser products of this group—such products, for example, as timber and the simpler planing-mill products—was relatively slight during the 20-year period from 1899 to 1919. For that period the increase in the average number of wage earners in the two industries making these products was only 17 per cent. Since 1919, however, as a result of large building activity, the demand for lumber has been greater, and production has increased. This has been effected with a relatively small addition to the number of employees and with an actual decrease in horsepower at sawmills. The increase in wage earners in the case of furniture for the 24-year period was 90 per cent, and in the case of wooden packing boxes was 78 per cent, as compared with only 23 per cent for lumber and timber products. Apparently among the more highly fabricated products, limitation of the raw material does not prevent fairly rapid expansion of output. Other influences dominate growth. In the case of furniture—obviously for the most part consumers' goods—we find the percentage increase until 1919 not unlike that displayed by other consumers' goods, such as clothing and footwear; since 1919, however, the tremendous volume of new homes built has called for an increase in the production of furniture greater than in previous years. The manufacture of packing boxes until 1919 appeared to be influenced by the growth of trade and transportation and increased more rapidly than furniture, but in recent years the growing tendency to substitute paper-board boxes for those made of wood is reflected in the comparison of the census statistics for these two industries.<sup>6</sup>

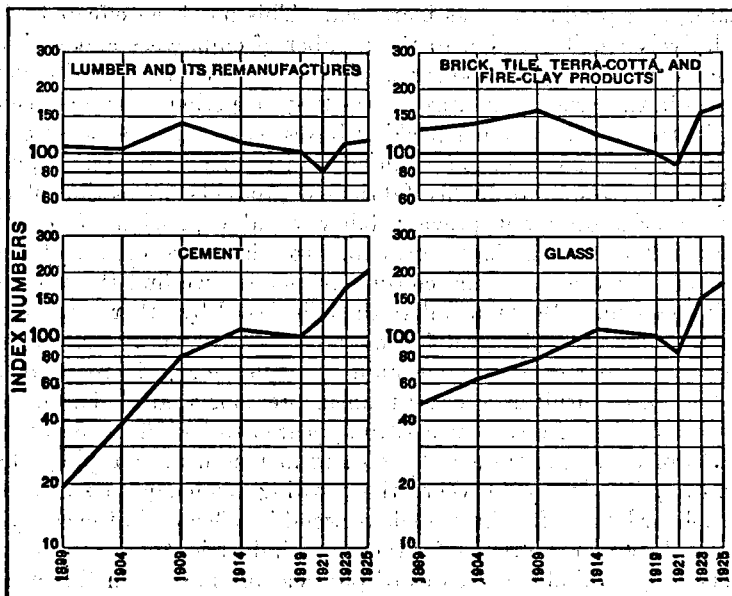
The only available statistics of physical production in this group of industries are those showing the production of different species of lumber, which have been used to make the production index shown in Table 9. These contain figures for custom mills and for small establishments in some years and omit them in others and therefore are not strictly comparable, but they do indicate increasing output of lumber until about 1909, a decrease in the following decade, and an increase in recent years, with the maximum, attained in 1923, still below output for most years from 1909 to 1916.

Other evidence of fluctuations in construction activity may be seen in the stone, clay, and glass products industries, for which figures are shown in Table 10 and on Chart VI. This group of industries showed slightly more than average increases in both wage earners and horsepower during the first decade of the period under survey. They were apparently affected by the small depression of 1914 and were considerably curtailed in 1919. By 1923, however,

<sup>6</sup> See also Table 11, p. 72.

under the impetus of the great building activity of that period, sharp recovery had taken place in nearly all industries of the group. The rapid growth of the cement industry reflects the increasing use of cement in new buildings and within recent years in road construction. The brick industry has not grown over the period to the same extent as cement, but output of specialized types of brick has

CHART VI.—GROWTH OF MANUFACTURE OF BUILDING MATERIALS: 1899 TO 1925  
(1919=100)



increased considerably. The number of wage earners in the glass industry has not increased materially since 1904 and actually decreased between 1919 and 1923. The horsepower of prime movers, however, has shown a substantial increase, and production statistics indicate enlarged output. Apparently this is another case of changed plant technique. The production index for this group of industries demonstrates the extent of depression in building and related industries prevailing in 1919 and 1921. From 1899 to 1919 the increase in the index for this group was much below the average for all industries.<sup>7</sup>

<sup>7</sup> See Table 4, p. 48.

CONTRASTS IN OTHER GROUPS

TABLE 10.—STONE, CLAY, AND GLASS PRODUCTS—PER CENT OF INCREASE, FOR CENSUS PERIODS: 1899 TO 1923

| INDUSTRY   | PER CENT OF INCREASE OR DECREASE (-) |                    |           |           |           |           |
|--|--------------------------------------|--------------------|-----------|-----------|-----------|-----------|
|  | 24-year period, 1899-1923            | Intercensal period |           |           |           |           |
|  |                                      | 1919-1923          | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |
| <b>INCREASE IN PHYSICAL VOLUME OF PRODUCTION</b>         |                                      |                    |           |           |           |           |
| Stone, clay, and glass products.....                     | 131.2                                | 55.6               | -11.9     | 8.8       | 32.2      | 17.2      |
| Brick and tile, terra-cotta, and fire-clay products..... | 19.9                                 | 54.8               | -18.4     | -22.7     | 14.8      | 7.0       |
| Cement.....  | 776.4                                | 70.7               | -8.7      | 33.5      | 110.3     | 100.0     |
| Glass.....   | 216.7                                | 51.7               | -7.0      | 39.3      | 22.7      | 31.3      |
| <b>INCREASE IN AVERAGE NUMBER OF WAGE EARNERS</b>        |                                      |                    |           |           |           |           |
| Stone, clay, and glass products.....                     | 50.3                                 | 16.6               | -10.7     | -2.4      | 20.1      | 23.1      |
| Glass.....   | 38.9                                 | -5.4               | 4.1       | 8.1       | 7.7       | 21.1      |
| Pottery.....   | 119.8                                | 32.1               | 4.6       |           | 7.1       | 19.9      |
| Brick and tile, terra-cotta, and fire-clay products..... | 24.1                                 | 34.5               | -23.2     | 30.9      | 15.9      | 6.5       |
| Cement.....  |                                      | 37.5               | -8.6      | 4.3       | 53.2      |           |
| Marble, slate, and stone work.....                       | -2.5                                 | 24.0               | -40.3     | -16.3     | 28.4      | 22.6      |
| <b>INCREASE IN HORSEPOWER OF PRIME MOVERS</b>            |                                      |                    |           |           |           |           |
| Stone, clay, and glass products.....                     | 274.3                                | 21.6               | 5.3       | 20.2      | 60.0      | 52.1      |
| Glass.....   | 354.5                                | 16.0               | 27.1      | 32.5      | 34.6      | 72.8      |
| Pottery.....   | 267.8                                | 53.3               | 30.2      |           | 4.9       | 38.4      |
| Brick and tile, terra-cotta, and fire-clay products..... | 172.3                                | 18.6               | -8.4      | 29.8      | 33.6      | 44.5      |
| Cement.....  |                                      | 31.5               | -3        | 31.9      | 148.5     |           |
| Marble, slate, and stone work.....                       | 157.9                                | 26.0               | -18.0     | 10.5      | 82.4      | 23.8      |

The paper and printing group discloses some interesting contrasts. Percentage increases in the average number of wage earners employed, given for four different divisions of the group in Table 11, reveal a greater relative increase in number of wage earners in the paper and wood pulp industry, which produces the basic material for the group, than in the other industries, which are engaged in more advanced phases of manufacture. The relatively slight increase in the average number of wage earners in the printing and publishing trades probably understates substantially the growth of manufacture along these lines. Here, as in certain other lines already pointed out, there have been revolutionary changes in methods of production, with the result that labor has been in considerable measure displaced with machinery. The statistics of horsepower of prime movers indicate that increases in the use of power have been greater in printing and publishing and in the manufacture of paper products than in the paper and wood pulp industry, the reverse of the situation shown by the data on wage earners. Data of newsprint consumed and of the production of various grades of paper used in printing establishments would

suggest a considerably higher proportion of increase than is found in the average number of wage earners. These data were used in the production index and indicate a greater growth in printing and publishing than in paper production.<sup>8</sup>

TABLE 11.—PAPER AND PRINTING—PER CENT OF INCREASE, FOR CENSUS PERIODS: 1899 TO 1923

| INDUSTRY   | PER CENT OF INCREASE      |                    |           |           |           |           |
|--|---------------------------|--------------------|-----------|-----------|-----------|-----------|
|  | 24-year period, 1899-1923 | Intercensal period |           |           |           |           |
|  |                           | 1919-1923          | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |
| INCREASE IN PHYSICAL VOLUME OF PRODUCTION              |                           |                    |           |           |           |           |
| Paper and printing.....                                | 274.6                     | 37.1               | 14.3      | 25.4      | 34.5      | 41.8      |
| Paper and wood pulp.....                               | 239.6                     | 24.3               | 15.7      | 23.7      | 34.5      | 41.8      |
| Printing and publishing.....                           |                           | 41.8               | 11.5      | 28.5      |           |           |
| INCREASE IN AVERAGE NUMBER OF WAGE EARNERS             |                           |                    |           |           |           |           |
| Paper and printing.....                                | 79.1                      | 4.9                | 12.6      | 8.9       | 18.3      | 17.7      |
| Paper and wood pulp.....                               | 143.1                     | 6.1                | 28.6      | 16.4      | 15.2      | 32.9      |
| Boxes, paper and other, not elsewhere specified.....   | 105.8                     | 1.9                | 23.3      | 14.7      | 23.2      | 16.0      |
| Printing and publishing, book and job.....             | 94.8                      | 7.1                | 8.7       | 4.1       | 23.9      | 29.8      |
| Printing and publishing, newspaper and periodical..... | 27.8                      | .5                 | 5.3       | 5.2       | 12.2      | 2.4       |
| INCREASE IN HORSEPOWER OF PRIME MOVERS                 |                           |                    |           |           |           |           |
| Paper and printing.....                                | 200.7                     | 16.9               | 14.5      | 22.6      | 28.0      | 43.2      |
| Paper and wood pulp.....                               | 186.1                     | 17.8               | 14.2      | 24.3      | 19.3      | 43.5      |
| Boxes, paper and other, not elsewhere specified.....   | 567.6                     | 12.8               | 43.9      | 63.7      | 54.3      | 62.8      |
| Printing and publishing, book and job.....             | 313.6                     | 15.9               | 15.5      | 17.1      | 73.6      | 52.0      |
| Printing and publishing, newspaper and periodical..... | 190.6                     | 4.8                | 6.6       | 4.8       | 63.4      | 35.8      |

It is interesting to observe that the increase of wage earners in the paper-box industry during the 24-year period 1899-1919, and particularly from 1919 to 1923, was greater than that for wooden packing cases. Growth in these industries, taken together, may be supposed to reflect the same underlying factor; namely, the increase of trade and the corresponding increase in the demand for materials for conveyance, and their divergence indicates, as was pointed out above, the substitution of paper for wood.

By far the most striking industrial changes of the past decade have occurred in the shipbuilding industry. Changes in the average number of wage earners employed in both steel and wooden shipbuilding are given in Table 13. From 1899 to 1914, wooden shipbuilding exhibited an uninterrupted decadence.

<sup>8</sup> See p. 111, Appendix A.

Steel shipbuilding showed declines for the period 1904-1909 and only moderate increases for the other two quinquennial periods. In striking contrast, in the period 1914-1919 the average number of wage earners employed in steel shipbuilding increased 927 per cent and in wooden shipbuilding, 296 per cent. The shipbuilding program of the Federal Government clearly brought a tremendous shifting of labor and capital into this industry. Similar changes were noted in the rated horsepower of machines in the industry and in the production of ships. The number and gross tonnage of new vessels launched in census years from 1899 to 1923 are as follows:

TABLE 12.—VESSELS OF 5 GROSS TONS AND OVER LAUNCHED: 1899 TO 1923

| CENSUS YEAR | STEEL  |               | WOODEN |               |
|-------------|--------|---------------|--------|---------------|
|             | Number | Gross tonnage | Number | Gross tonnage |
| 1923        | 289    | 281,316       | 527    | 112,807       |
| 1921        | 387    | 1,206,866     | 438    | 119,019       |
| 1919        | 1,085  | 3,734,201     | 938    | 755,008       |
| 1916        | 230    | 486,860       | 1,147  | 248,248       |
| 1914        | 126    | 242,959       | 967    | 182,161       |
| 1909        | 158    | 254,988       | 1,426  | 212,233       |
| 1904        | 152    | 328,411       | 1,962  | 350,114       |
| 1899        | 134    | 262,516       | 1,947  | 424,643       |

These figures and those for wage earners and horsepower definitely indicate that the phenomenal increase of manufacture in this industry between 1914 and 1919 was merely a war episode, as output by 1923 was back at approximately the pre-war level. The readjustment in industry caused by these great and unusually rapid shifts was tremendous. Expensive plants were built for the purpose, and workers were drawn from other industries. The postwar adjustment was effected by the conversion of many plants to other industries, and reports at the census of 1923 indicate that a large part of the total value of work done by establishments engaged in shipbuilding was in repair work rather than in the building of new ships. Other industries and, probably to a large extent, other types of building construction have absorbed the workers left unemployed by the curtailment of shipbuilding.

TABLE 13.—SHIPBUILDING INDUSTRY—PER CENT OF INCREASE, FOR CENSUS PERIODS: 1899 TO 1923

| INDUSTRY  | PER CENT OF INCREASE OR DECREASE (-) |                    |           |           |           |           |
|---|--------------------------------------|--------------------|-----------|-----------|-----------|-----------|
|   | 24-year period, 1899-1923            | Intercensal period |           |           |           |           |
|   |                                      | 1919-1923          | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |
| INCREASE IN PHYSICAL VOLUME OF PRODUCTION         |                                      |                    |           |           |           |           |
| Ship and boat building.....                       | -12.2                                | -92.1              | 1,269.9   | 1.4       | -28.0     | 11.1      |
| Steel shipbuilding.....                           | 7.2                                  | -92.5              | 1,437.0   | -4.7      | -22.4     | 26.1      |
| Wooden shipbuilding, including boat building..... | -73.4                                | -85.1              | 814.9     | -14.2     | -39.4     | -17.6     |
| INCREASE IN AVERAGE NUMBER OF WAGE EARNERS        |                                      |                    |           |           |           |           |
| Ships, wooden and steel.....                      | 33.2                                 | -83.9              | 770.5     | 9.9       | -20.3     | 8.8       |
| Steel shipbuilding.....                           | 68.1                                 | -84.9              | 926.7     | 19.1      | -23.4     | 18.9      |
| Wooden shipbuilding, including boat building..... | -34.5                                | -76.1              | 295.5     | -11.2     | -11.8     | 11.5      |
| INCREASE IN HORSEPOWER OF PRIME MOVERS            |                                      |                    |           |           |           |           |
| Ships, wooden and steel.....                      | 414.1                                | -42.6              | 380.1     | 31.0      | 12.7      | 26.4      |
| Steel shipbuilding.....                           | 622.0                                | -41.0              | 468.1     | 45.1      | 13.1      | 31.3      |
| Wooden shipbuilding, including boat building..... | 63.9                                 | -51.9              | 147.1     | 4.2       | 12.1      | 18.2      |

Perhaps the most extraordinary contrasts to be found anywhere in the records of manufacture during recent years appear in the group producing vehicles for land transportation. The more important data on these industries are given in Table 14.

TABLE 14.—VEHICLES FOR LAND TRANSPORTATION, PLUS RAILROAD REPAIR SHOPS—PER CENT OF INCREASE, FOR CENSUS PERIODS: 1899 TO 1923

| INDUSTRY  | PER CENT OF INCREASE OR DECREASE (-) |                    |           |           |           |           |
|---|--------------------------------------|--------------------|-----------|-----------|-----------|-----------|
|   | 24-year period, 1899-1923            | Intercensal period |           |           |           |           |
|   |                                      | 1919-1923          | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |
| INCREASE IN PHYSICAL VOLUME OF PRODUCTION                         |                                      |                    |           |           |           |           |
| Vehicles.....   | 4,434.0                              | 99.5               | 177.8     | 130.8     | 90.0      | 88.4      |
| Automobiles.....  | 116,100.0                            | 132.4              | 301.6     | 352.7     | 450.0     | 400.0     |
| Railway equipment.....  | 44.4                                 | 19.0               | 18.2      | 38.5      | -19.0     | -6.6      |
| INCREASE IN AVERAGE NUMBER OF WAGE EARNERS                        |                                      |                    |           |           |           |           |
| Vehicles for land transportation, plus railroad repair shops..... | 245.9                                | 8.6                | 60.8      | 24.0      | 31.9      | 22.4      |
| Automobiles, plus automobile bodies and parts.....                | 18,062.1                             | 18.1               | 170.0     | 67.8      | 528.4     | 437.7     |
| Cars, electric-railroad, plus electric-railroad repairs.....      | 266.7                                | 14.2               | 13.2      | 16.2      | 64.5      | 49.1      |
| Cars, steam-railroad, plus steam-railroad repairs.....            | 172.9                                | 5.3                | 36.3      | 21.2      | 19.9      | 30.9      |
| Bicycles, motor cycles, and parts.....                            | -62.5                                | -39.6              | 63.0      | 50.6      | 33.7      | -81.1     |
| Carriages and wagons, including repairs.....                      | -86.3                                | -56.0              | -56.0     | -21.4     | -13.5     | 3.9       |

TABLE 14.—VEHICLES FOR LAND TRANSPORTATION, PLUS RAILROAD REPAIR SHOPS—PER CENT OF INCREASE, FOR CENSUS PERIODS: 1899 TO 1923—CON.

| INDUSTRY  | PER CENT OF INCREASE OR DECREASE (-) |                    |           |           |           |           |
|---|--------------------------------------|--------------------|-----------|-----------|-----------|-----------|
|   | 24-year period, 1899-1923            | Intercensal period |           |           |           |           |
|   |                                      | 1913-1923          | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |
| INCREASE IN HORSEPOWER OF PRIME MOVERS:                           |                                      |                    |           |           |           |           |
| Vehicles for land transportation, plus railroad repair shops..... | 759.2                                | 40.4               | 63.7      | 42.3      | 81.8      | 44.6      |
| Automobiles, plus automobile bodies and parts.....                | 28,407.5                             | 66.7               | 213.4     | 129.9     | 647.4     | 219.5     |
| Cars, electric-railroad, plus electric-railroad repairs.....      | 540.3                                | 14.5               | 14.9      | 7.9       | 399.2     | -0.7      |
| Cars, steam-railroad, plus steam-railroad repairs.....            | 666.0                                | 30.8               | 34.2      | 43.3      | 74.6      | 74.3      |
| Bicycles, motor cycles, and parts.....                            | -23.2                                | 2.9                | 69.2      | 47.6      | 3.5       | -71.1     |
| Carriages and wagons, including repairs.....                      | -50.8                                | -37.9              | -44.9     | -5.6      | 26.0      | 21.8      |

No considerable line of manufacture has shown so phenomenal an increase as the manufacture of automobiles. In this trade, between 1899 and 1923, the average number of wage earners employed increased over 18,000 per cent. Further details regarding the growth of the automobile industry are given in Table 15, showing data for census years from 1899 to 1923 for number of cars produced, value added by manufacture, number of wage earners, and primary horsepower. Figures have also been included showing value added by manufacture for each car produced and number of cars produced for each wage earner employed. These show roughly the effects on production technique of increasing output in a newly developing industry.

TABLE 15.—GROWTH OF MOTOR-VEHICLE INDUSTRY (INCLUDING MOTOR-VEHICLE BODIES AND PARTS)

| CENSUS YEAR | Number of vehicles produced (thousands of cars) | Value added by manufacture (millions of dollars) | Number of wage earners (in thousands) | Primary horsepower (thousands of horsepower) | Value added per vehicle (in dollars) | Vehicles per wage earner |
|-------------|---|--|---------------------------------------|--|--------------------------------------|--------------------------|
| 1925.....   | 4,157.8   | 1,750.5  | 426.1                                 | 1,172.0                                      | 421.0                                | 9.76                     |
| 1923.....   | 3,902.4   | 1,494.9  | 404.9                                 | 898.6  | 375.4                                | 9.64                     |
| 1921.....   | 1,603.1   | 758.4  | 212.8                                 | .....  | 473.1                                | 7.53                     |
| 1919.....   | 1,893.2   | 1,139.4  | 343.1                                 | 544.2  | 601.8                                | 5.52                     |
| 1914.....   | 573.0   | 276.6  | 127.1                                 | 173.7  | 482.8                                | 4.51                     |
| 1909.....   | 127.3   | 117.6  | 75.7                                  | 75.6   | 923.8                                | 1.68                     |
| 1904.....   | 22.8  | 16.8   | 12.0                                  | 10.1   | 736.6                                | 1.99                     |
| 1899.....   | 5.0   | 2.9  | 2.2                                   | 3.2  | 580.0                                | 1.56                     |

In 1923 seven times as many cars were produced as in 1914 with less than four times as many workers, the number of cars per worker doubling in that period. Most of this increase occurred between 1919 and 1923. Statistics for the motor-vehicle industry from the census of 1925 showed a continuation of this trend at a reduced rate of increase.

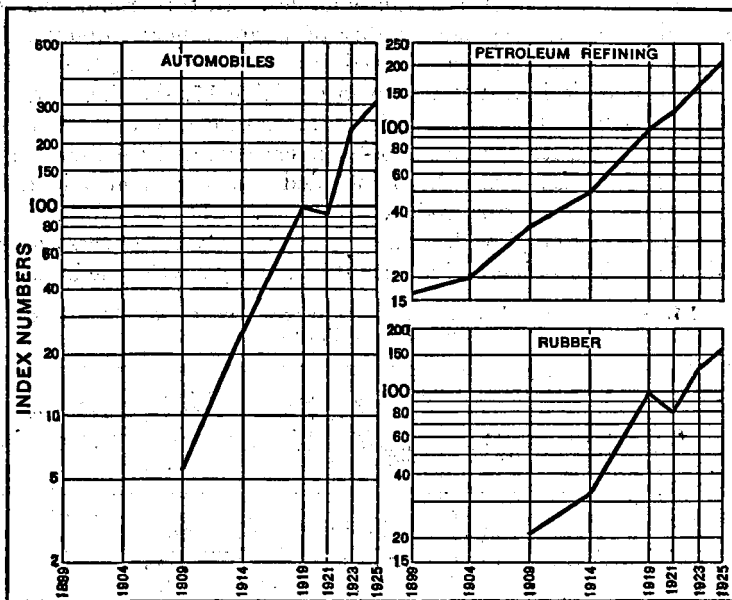


From 1921 to 1923 and again from 1923 to 1925, however, the proportion of closed cars, more highly fabricated products, to open cars was rapidly increasing, and consequently the total number of automobiles produced, without regard to type, do not fully reveal the recent changes that have really occurred in the productivity of the industry. The production index, which makes allowances for differences in types of cars, shows increases in output from 1919 to 1923 of 132 per cent and from 1923 to 1925 of 31 per cent, as compared, respectively, with increases of 106 per cent and 7 per cent in number of cars produced. This index is shown on Chart VII.

When the growth of the automobile industry is contrasted with declines in the carriage and wagon industry—87 per cent in number of wage earners employed, 51 per cent in primary horsepower, and

CHART VII.—GROWTH OF MANUFACTURE OF AUTOMOBILES AND ALLIED PRODUCTS: 1899 TO 1925

(1919=100)



85 per cent in number of vehicles produced during the 24-year period—some idea is obtained of the marvelous changes which have been taking place during recent years in land transportation. The number of wage earners employed in the production and repair of steam and electric railway cars has increased at a fairly high rate compared with most other lines of manufacture, but at a rate which

appears low indeed when compared with the growth of automobile production. The sudden collapse in the popularity of the bicycle is shown in the sharp decrease from 1899 to 1904 in the number of wage earners employed in the bicycle and motor-cycle trade. From 1904 to 1919, largely because of the increasing use of the motor cycle, the number of wage earners employed in this line of manufacture increased steadily, but the number employed in 1919 was less than in 1899, and since 1919 the motor cycle has in turn become less popular, owing largely to the lowering of automobile prices to within the range of effective competition. The number of motor cycles and bicycles produced in census years since 1899 is given in Table 37, Appendix B.

Two other industries, which 20 years ago were of relatively little importance, have been stimulated by the growing use of automobiles, and together with the manufacture of motor vehicles have risen to a place among the more important industries. These are petroleum refining and the manufacture of rubber tires and tubes. The percentages of increase in production, in the average number of wage earners employed, and in horsepower installed in these industries during census years are given in Table 16 and indexes of production are shown graphically on Chart VII.

TABLE 16.—RUBBER PRODUCTS AND PETROLEUM REFINING—PER CENT OF INCREASE, FOR CENSUS PERIODS: 1899 TO 1923

| INDUSTRY  | PER CENT OF INCREASE OR DECREASE (-) |                    |           |           |           |           |
|---|--------------------------------------|--------------------|-----------|-----------|-----------|-----------|
|   | 24-year period, 1899-1923            | Intercensal period |           |           |           |           |
|   |                                      | 1919-1923          | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |
| <b>INCREASE IN PHYSICAL VOLUME OF PRODUCTION</b>                      |                                      |                    |           |           |           |           |
| All rubber products.....  |                                      | 30.8               | 209.6     | 53.8      |           |           |
| Rubber tires and tubes and rubber goods, not elsewhere specified..... |                                      | 35.9               | 311.5     |           |           |           |
| Boots and shoes, rubber.....  |                                      | 10.3               | 32.5      |           |           |           |
| Petroleum refining.....   | 868.5                                | 62.7               | 102.4     | 41.5      | 74.5      | 19.0      |
| <b>INCREASE IN AVERAGE NUMBER OF WAGE EARNERS</b>                     |                                      |                    |           |           |           |           |
| All rubber products.....  | 277.0                                | -13.0              | 114.2     | 50.3      | 12.3      | 20.0      |
| Rubber tires and tubes and rubber goods, not elsewhere specified..... | 389.1                                | -13.7              | 127.1     | 74.8      | 27.2      | 12.2      |
| Boots and shoes, rubber.....  | 104.4                                | -10.5              | 75.9      | 6.1       | -7.3      | 32.0      |
| Petroleum refining.....   | 446.9                                | 13.3               | 132.2     | 82.1      | -16.9     | 37.5      |
| <b>INCREASE IN HORSEPOWER OF PRIME MOVERS</b>                         |                                      |                    |           |           |           |           |
| All rubber products:  |                                      |                    |           |           |           |           |
| Rubber tires and tubes and rubber goods, not elsewhere specified..... | 1,092.1                              | 44.6               | 117.5     | 81.2      | 59.0      | 31.6      |
| Boots and shoes, rubber.....  | 124.6                                | 13.7               | 100.6     | -4.9      | -7        | 4.3       |
| Petroleum refining.....   | 982.5                                | 63.7               | 86.0      | 42.3      | 96.2      | 27.4      |

The physical volume of production of those products used in the operation of automobiles—gasoline and rubber tires—has shown especially rapid growth. Output of fuel oil has also increased, reflecting the growing use of oil-burning machinery.

The contrasts brought out in this chapter are suggestive of the extraordinary complexity of changes in the volume of manufacture. One line of manufacture expands rapidly under the influence of the first widespread introduction of its product; another disintegrates because of the collapse of consumers' demand. Trades, long on the decline, are caught in the whirl of a war program and thrown into unprecedented activity. Others pursue their even course, steadily expanding with the growth of population, through times of war and of peace. The general growth of manufacture merges these diverse conditions into a single composite result. In employing this composite the diversities which lie beneath are not to be forgotten.

## IX

### THE GROWTH OF MANUFACTURE, BY GEOGRAPHIC DIVISIONS AND STATES

The measurement of industrial expansion thus far undertaken has recognized only distinctions among the several industries without reference to their location. It has paid no attention to variation in the rate of growth in different sections of the country. It seems desirable to consider finally the expansion of manufacturing enterprises, by geographic divisions and in the several States. By this means conclusions may be drawn regarding any observable shifting of manufacturing development from one section to another.

For this purpose changes shown in the average number of wage earners and in primary horsepower are to be considered, as it is not feasible to compute index numbers of the physical volume of production by States or by larger geographic divisions. While, as already recognized, changes in the number of wage earners and in installed horsepower do not accurately represent changes in the physical volume of production, they do serve to show relative rates of expansion or contraction of production among broad groups of manufacturing enterprise. Increases considered by States and still larger geographic divisions rest upon sufficiently broad groups of industries to permit satisfactory comparisons on the basis of changes in number of wage earners and in primary horsepower without primary analysis of other indexes of manufacturing growth.

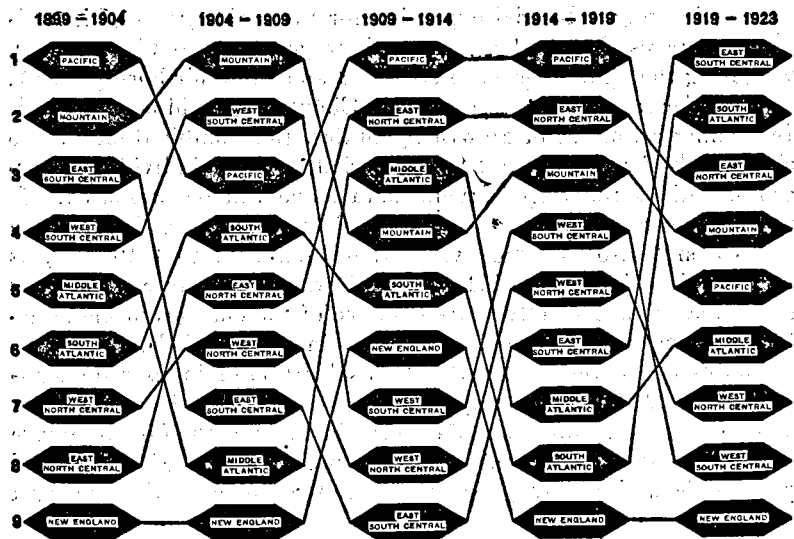
In estimating industrial expansion for the major geographic divisions, averages of percentage changes in wage earners and horsepower, weighting the figures for wage earners 3 and those for horsepower 1, as given for the country as a whole in Chapter III, will be employed. In making estimates of growth by States, this combination will be shown only for the entire 24-year period, and for individual intercensal periods the wage earners' data alone will be presented. It must be remembered, however, in considering the period from 1919 to 1923 and also to some extent that from 1914 to 1919 that, as was explained in Chapter III, changes in the number of wage earners employed are not strictly representative of the changes in manufacturing output which actually took place in those periods.

Analysis may well begin with a consideration of industrial expansion among the major geographic divisions. This can be followed by a more detailed examination of changes in the growth of manufacture among the several States. That the precise limits of the several geographic divisions may be known, the States comprised in each

are shown below, and the 24 States which in 1923 showed at least 1 per cent of the total number of wage earners are marked with an asterisk:

|  |  |   |
|--|--|---|
| <p><b>NEW ENGLAND DIVISION</b></p> <p>Maine.<br/>New Hampshire.<br/>Vermont.<br/>Massachusetts.*<br/>Rhode Island.*<br/>Connecticut.*</p> <p><b>MIDDLE ATLANTIC DIVISION</b></p> <p>New York.*<br/>New Jersey.*<br/>Pennsylvania.*</p> <p><b>EAST NORTH CENTRAL DIVISION</b></p> <p>Ohio.*<br/>Indiana.*<br/>Illinois.*<br/>Michigan.*<br/>Wisconsin.*</p> | <p><b>WEST NORTH CENTRAL DIVISION</b></p> <p>Minnesota.*<br/>Iowa.<br/>Missouri.*<br/>North Dakota.<br/>South Dakota.<br/>Nebraska.<br/>Kansas.</p> <p><b>SOUTH ATLANTIC DIVISION</b></p> <p>Delaware.<br/>Maryland.*<br/>District of Columbia.<br/>Virginia.*<br/>West Virginia.<br/>North Carolina.*<br/>South Carolina.*<br/>Georgia.*<br/>Florida.</p> <p><b>EAST SOUTH CENTRAL DIVISION</b></p> <p>Kentucky.<br/>Tennessee.*<br/>Alabama.*<br/>Mississippi.</p> | <p><b>WEST SOUTH CENTRAL DIVISION</b></p> <p>Arkansas.<br/>Louisiana.*<br/>Oklahoma.<br/>Texas.*</p> <p><b>MOUNTAIN DIVISION</b></p> <p>Montana.<br/>Idaho.<br/>Wyoming.<br/>Colorado.<br/>New Mexico.<br/>Arizona.<br/>Utah.<br/>Nevada.</p> <p><b>PACIFIC DIVISION</b></p> <p>Washington.*<br/>Oregon.<br/>California.*</p> |
|--|--|---|

**CHART VIII.—RANKING OF GEOGRAPHIC DIVISIONS ACCORDING TO GROWTH OF MANUFACTURE, BY CENSUS PERIODS: 1899 TO 1923**



The growth of manufactures, by geographic divisions, for census periods 1899-1923, as indicated by percentage increases in average number of wage earners employed and in primary horsepower installed, and by the combination of these two sets of percentages, appear in Table 17.

Differences among the increases may perhaps be made clearer by ranking the several divisions according to their proportionate increases in each of the intercensal periods. The ranking may be exhibited in two different fashions. These are given in Table 18 and on Chart VIII.

TABLE 17.—GROWTH OF MANUFACTURE, BY GEOGRAPHIC DIVISIONS:  
1899 TO 1923

| GEOGRAPHIC DIVISION                       | 24-year period, 1899-1923 | PER CENT OF INCREASE OR DECREASE (-) |           |           |           |           |
|---|---------------------------|--------------------------------------|-----------|-----------|-----------|-----------|
|   |                           | Intercensal period                   |           |           |           |           |
|   |                           | 1919-1923                            | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |
| <b>United States:</b>                     |                           |                                      |           |           |           |           |
| Wage earners and horsepower combined..... | 116.5                     | 1.1                                  | 20.8      | 9.7       | 25.1      | 20.2      |
| Average number of wage earners.....       | 83.2                      | -2.5                                 | 29.3      | 6.4       | 21.0      | 16.0      |
| Primary horsepower.....                   | 229.6                     | 12.8                                 | 31.5      | 20.1      | 38.5      | 33.6      |
| <b>New England:</b>                       |                           |                                      |           |           |           |           |
| Wage earners and horsepower combined..... | 65.5                      | -3.0                                 | 19.2      | 6.3       | 19.7      | 12.4      |
| Average number of wage earners.....       | 47.7                      | -6.9                                 | 18.5      | 3.5       | 17.1      | -10.4     |
| Primary horsepower.....                   | 132.8                     | 9.9                                  | 21.5      | 15.1      | 27.7      | 18.6      |
| <b>Middle Atlantic:</b>                   |                           |                                      |           |           |           |           |
| Wage earners and horsepower combined..... | 95.9                      | -1.4                                 | 23.3      | 10.1      | 20.1      | 21.9      |
| Average number of wage earners.....       | 68.4                      | -5.9                                 | 21.9      | 6.7       | 17.0      | 17.6      |
| Primary horsepower.....                   | 208.2                     | 13.3                                 | 27.4      | 21.1      | 30.0      | 35.6      |
| <b>East North Central:</b>                |                           |                                      |           |           |           |           |
| Wage earners and horsepower combined..... | 154.8                     | 4.1                                  | 42.6      | 14.0      | 27.6      | 17.9      |
| Average number of wage earners.....       | 123.1                     | -1.1                                 | 42.6      | 11.0      | 23.6      | 14.1      |
| Primary horsepower.....                   | 279.8                     | 17.9                                 | 42.7      | 23.7      | 40.4      | 29.9      |
| <b>West North Central:</b>                |                           |                                      |           |           |           |           |
| Wage earners and horsepower combined..... | 100.8                     | -1.7                                 | 30.4      | 4.4       | 25.9      | 19.2      |
| Average number of wage earners.....       | 78.4                      | -5.0                                 | 30.9      | 1.9       | 19.8      | 17.4      |
| Primary horsepower.....                   | 186.3                     | 8.7                                  | 28.7      | 12.4      | 46.2      | 24.6      |
| <b>South Atlantic:</b>                    |                           |                                      |           |           |           |           |
| Wage earners and horsepower combined..... | 118.8                     | 5.3                                  | 20.2      | 8.2       | 32.2      | 20.8      |
| Average number of wage earners.....       | 83.5                      | 2.9                                  | 19.3      | 3.4       | 26.9      | 14.0      |
| Primary horsepower.....                   | 270.8                     | 12.9                                 | 22.9      | 24.2      | 50.0      | 43.5      |
| <b>East South Central:</b>                |                           |                                      |           |           |           |           |
| Wage earners and horsepower combined..... | 117.5                     | 6.1                                  | 24.0      | 3.6       | 22.8      | 30.0      |
| Average number of wage earners.....       | 93.4                      | 3.9                                  | 24.5      | 1.0       | 18.3      | 24.9      |
| Primary horsepower.....                   | 183.6                     | 3.6                                  | 22.3      | 11.7      | 37.5      | 46.8      |
| <b>West South Central:</b>                |                           |                                      |           |           |           |           |
| Wage earners and horsepower combined..... | 156.3                     | -2.2                                 | 31.5      | 5.3       | 46.1      | 29.7      |
| Average number of wage earners.....       | 138.0                     | -5.4                                 | 34.6      | 3.6       | 42.6      | 26.5      |
| Primary horsepower.....                   | 222.3                     | 8.0                                  | 22.8      | 10.6      | 57.2      | 39.8      |
| <b>Mountain:</b>                          |                           |                                      |           |           |           |           |
| Wage earners and horsepower combined..... | 208.0                     | 2.2                                  | 38.1      | 9.3       | 48.3      | 34.6      |
| Average number of wage earners.....       | 141.5                     | -1.6                                 | 34.6      | 7.5       | 42.9      | 18.6      |
| Primary horsepower.....                   | 539.0                     | 14.5                                 | 49.2      | 14.8      | 65.7      | 96.6      |
| <b>Pacific:</b>                           |                           |                                      |           |           |           |           |
| Wage earners and horsepower combined..... | 409.7                     | -0.4                                 | 78.4      | 16.5      | 39.8      | 41.1      |
| Average number of wage earners.....       | 243.7                     | -2.7                                 | 84.8      | 10.5      | 29.9      | 33.2      |
| Primary horsepower.....                   | 594.0                     | 8.4                                  | 60.6      | 36.5      | 74.3      | 67.6      |

NOTE.—The percentages shown for wage earners and horsepower combined are weighted geometric averages of the individual percentages for wage earners and for horsepower, with wage earners weighted 3 and horsepower 1.

TABLE 18.—RANKING OF GEOGRAPHIC DIVISIONS ACCORDING TO WEIGHTED AVERAGE OF INCREASES IN NUMBER OF WAGE EARNERS AND IN PRIMARY HORSEPOWER, FOR CENSUS PERIODS: 1899 TO 1923

| GEOGRAPHIC DIVISION     | 1899-1904 | 1904-1909 | 1909-1914 | 1914-1919 | 1919-1923 | Total rank score |
|-------------------------|-----------|-----------|-----------|-----------|-----------|------------------|
| Pacific.....            | 1         | 3         | 1         | 1         | 5         | 11               |
| Mountain.....           | 2         | 1         | 4         | 3         | 4         | 14               |
| East North Central..... | 8         | 5         | 2         | 2         | 3         | 20               |
| West South Central..... | 4         | 2         | 7         | 4         | 8         | 25               |
| South Atlantic.....     | 4         | 4         | 7         | 8         | 2         | 25               |
| East South Central..... | 3         | 7         | 9         | 6         | 1         | 26               |
| Middle Atlantic.....    | 5         | 8         | 3         | 7         | 6         | 29               |
| West North Central..... | 7         | 6         | 8         | 5         | 7         | 33               |
| New England.....        | 9         | 9         | 6         | 9         | 9         | 42               |

Certain features of the rank lists are striking. One is the rise of the East North Central division from a relatively low position in the first intercensal period to near the top of the list in the period from 1909 to 1923. The rather radical changes in ranking in the latest period, 1919-1923, are especially notable. The Pacific and Mountain divisions which in earlier years were consistently near the top in rate of growth were moved down to the middle of the list, while the East South Central and South Atlantic divisions which were near the bottom from 1909 to 1919 rose to first and second places. The tendency of the New England, West North Central, and Middle Atlantic divisions to occupy positions toward the foot of the rank list is also to be noted; two of these are old established manufacturing sections which passed through their stages of rapid expansion several decades ago, and the third is largely dominated by agricultural States, most of which have had little manufacturing development.

The changes in the years since 1899 may be effectively summarized by considering the combined increases in the average number of wage earners and primary horsepower for the full 24-year period 1899-1923. These increases appear in the first column of Table 17. Despite certain irregularities from one intercensal period to another, it is clear that the most rapid growth of manufacture has been in the Pacific, the Mountain, the West South Central, and the East North Central divisions. The South Atlantic and East South Central divisions, owing to rapid growth between 1919 and 1923, also show, for the full 24-year period, slightly larger increases than the average for the country as a whole. Expansion in the West North Central, Middle Atlantic, and New England States has been below the nationwide average. New England has shown by far the smallest increase for the full 24-year period and also ranked lowest in rate of increase in every intercensal period shown except one.

Changes in the average number of wage earners among the several States are given in full in Table 19.<sup>1</sup> Differences in industrial expansion from State to State are most effectively shown in a series of

<sup>1</sup> The actual numbers of wage earners reported for the different States are given in Table 35, p. 178.

statistical maps, pages 87 to 89, exhibiting relative increases in the average number of wage earners for the intercensal periods and for the 24-year period 1899-1923.

TABLE 19.—PER CENT OF INCREASE IN AVERAGE NUMBER OF WAGE EARNERS, FOR CENSUS PERIODS, BY STATES: 1899 TO 1923

| STATE                      | PER CENT OF INCREASE OR DECREASE (—) |                    |           |           |           |           |
|----------------------------|--------------------------------------|--------------------|-----------|-----------|-----------|-----------|
|                            | 24-year period, 1899-1923            | Intercensal period |           |           |           |           |
|                            |                                      | 1910-1923          | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |
| UNITED STATES.....         | 88.2                                 | -2.5               | 29.3      | 6.4       | 21.0      | 16.0      |
| <b>NEW ENGLAND:</b>        |                                      |                    |           |           |           |           |
| Maine.....                 | 20.1                                 | -5.3               | 7.9       | 2.7       | 6.7       | 7.2       |
| New Hampshire.....         | 11.6                                 | -9.1               | 5.2       | 4         | 20.3      | -3.4      |
| Vermont.....               | 10.3                                 | -7.2               | 2.4       | -3.2      | 2.1       | 17.5      |
| Massachusetts.....         | 52.5                                 | -3.4               | 17.7      | 3.8       | 19.7      | 11.4      |
| Rhode Island.....          | 53.2                                 | -3.3               | 23.3      | -1        | 16.7      | 10.3      |
| Connecticut.....           | 65.1                                 | -9.9               | 23.3      | 7.3       | 16.1      | 13.7      |
| <b>MIDDLE ATLANTIC:</b>    |                                      |                    |           |           |           |           |
| New York.....              | 59.0                                 | -5.9               | 16.1      | 5.4       | 17.2      | 17.9      |
| New Jersey.....            | 109.9                                | -11.7              | 36.2      | 14.5      | 22.5      | 24.5      |
| Pennsylvania.....          | 65.6                                 | -3.2               | 22.9      | 5.3       | 15.0      | 15.0      |
| <b>EAST NORTH CENTRAL:</b> |                                      |                    |           |           |           |           |
| Ohio.....                  | 127.7                                | -4.0               | 43.2      | 14.2      | 22.7      | 18.2      |
| Indiana.....               | 110.7                                | 5.5                | 40.5      | 5.6       | 21.3      | 10.9      |
| Illinois.....              | 94.6                                 | -8                 | 28.8      | 8.8       | 22.8      | 14.0      |
| Michigan.....              | 223.7                                | 7.0                | 73.8      | 17.1      | 32.1      | 12.5      |
| Wisconsin.....             | 81.0                                 | -5.7               | 35.8      | 6.4       | 20.6      | 10.1      |
| <b>WEST NORTH CENTRAL:</b> |                                      |                    |           |           |           |           |
| Minnesota.....             | 62.4                                 | -9.3               | 24.5      | 9.5       | 21.7      | 7.9       |
| Iowa.....                  | 77.3                                 | -2.2               | 27.6      | 2.4       | 24.6      | 11.4      |
| Missouri.....              | 84.4                                 | 1.8                | 28.2      | -5        | 14.9      | 23.6      |
| North Dakota.....          | 174.0                                | -16.8              | 36.5      | 17.4      | 58.9      | 29.2      |
| South Dakota.....          | 141.9                                | -15.7              | 68.5      | 5.2       | 44.5      | 12.0      |
| Nebraska.....              | 70.0                                 | -13.1              | 45.2      | 3.3       | 20.1      | 8.5       |
| Kansas.....                | 90.9                                 | -15.2              | 48.0      | -6.7      | 24.8      | 31.2      |
| <b>SOUTH ATLANTIC:</b>     |                                      |                    |           |           |           |           |
| Delaware.....              | 13.0                                 | -20.0              | 31.1      | 4.3       | 15.0      | -10.1     |
| Maryland.....              | 37.7                                 | -7.6               | 26.8      | 3.4       | 14.6      | (1)       |
| District of Columbia.....  | 60.3                                 | -5.9               | 18.1      | 15.2      | 22.4      | -1.3      |
| Virginia.....              | 71.4                                 | -4.9               | 16.1      | -2.7      | 31.6      | 21.2      |
| West Virginia.....         | 160.8                                | 3.9                | 16.8      | 11.2      | 46.0      | 32.3      |
| North Carolina.....        | 143.3                                | 11.6               | 15.2      | 12.7      | 42.3      | 18.0      |
| South Carolina.....        | 107.5                                | 22.8               | 10.6      | -1.5      | 22.9      | 26.4      |
| Georgia.....               | 66.9                                 | 12.7               | 18.2      | -1        | 12.8      | 11.3      |
| Florida.....               | 84.8                                 | -11.9              | 33.8      | -3.2      | 36.5      | 18.7      |
| <b>EAST SOUTH CENTRAL:</b> |                                      |                    |           |           |           |           |
| Kentucky.....              | 50.8                                 | 12.5               | 7.4       | -1.2      | 9.4       | 15.6      |
| Tennessee.....             | 135.1                                | 13.5               | 27.9      | 7         | 21.9      | 31.8      |
| Alabama.....               | 96.4                                 | -3.4               | 36.1      | 9.1       | 16.0      | 18.0      |
| Mississippi.....           | 106.0                                | -4.1               | 23.2      | -7.3      | 30.2      | 44.4      |
| <b>WEST SOUTH CENTRAL:</b> |                                      |                    |           |           |           |           |
| Arkansas.....              | 43.9                                 | -9.2               | 19.0      | -6.7      | 35.9      | 5.0       |
| Louisiana.....             | 132.9                                | -3.1               | 26.5      | 2.0       | 36.4      | 36.5      |
| Oklahoma.....              | 985.5                                | -12.4              | 69.1      | 32.7      | 140.9     | 129.1     |
| Texas.....                 | 167.9                                | -3.8               | 43.6      | 6.6       | 43.1      | 27.1      |
| <b>MOUNTAIN:</b>           |                                      |                    |           |           |           |           |
| Montana.....               | 64.5                                 | -5.5               | 25.2      | 17.6      | 30.1      | -9.1      |
| Idaho.....                 | 967.1                                | 19.0               | 66.0      | 8.5       | 163.5     | 97.2      |
| Wyoming.....               | 270.3                                | 15.0               | 121.9     | 4.3       | 63.3      | -11.0     |
| Colorado.....              | 62.3                                 | -10.3              | 20.2      | -2.8      | 28.7      | 11.9      |
| New Mexico.....            | 123.7                                | -2.9               | 51.9      | -3.9      | 19.1      | 39.7      |
| Arizona.....               | 190.8                                | 6.6                | 23.6      | 7.1       | 34.4      | 53.3      |
| Utah.....                  | 197.4                                | -14.7              | 35.8      | 17.9      | 44.4      | 48.8      |
| Nevada.....                | 831.8                                | 60.5               | -14.7     | 61.9      | 181.4     | 59.1      |
| <b>PACIFIC:</b>            |                                      |                    |           |           |           |           |
| Washington.....            | 255.5                                | -15.7              | 97.8      | -2.9      | 52.9      | 43.4      |
| Oregon.....                | 336.2                                | 7.7                | 103.1     | 3         | 55.2      | 26.1      |
| California.....            | 220.6                                | 1.6                | 74.7      | 21.0      | 14.9      | 30.0      |

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



Contrasts among the different States may be shown in a still different way by ranking the States according to the increases in the number of their wage earners in each intercensal period. The analysis here need hardly concern itself with all the States, but may be advantageously confined to the 24 States which had in 1923 at least 1 per cent of the total number of wage earners in the country. Table 20 and Chart IX show in two different ways for each intercensal period the rankings of these 24 States according to the increases in their wage-earning population.

TABLE 20.—RANKING OF 24 LEADING MANUFACTURING STATES ACCORDING TO INCREASE IN AVERAGE NUMBER OF WAGE EARNERS, FOR CENSUS PERIODS: 1899 TO 1923

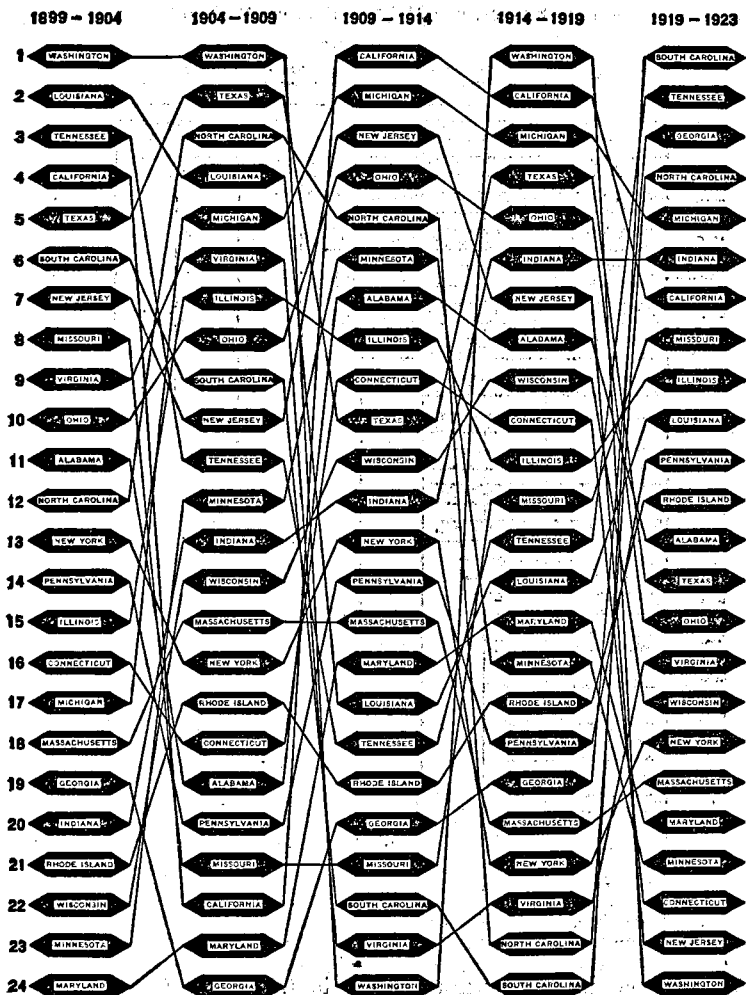
| STATE               | 1899-1904 | 1904-1909 | 1909-1914 | 1914-1919 | 1919-1923 | Total rank score |
|---------------------|-----------|-----------|-----------|-----------|-----------|------------------|
| Michigan.....       | 17        | 5         | 2         | 3         | 5         | 32               |
| Texas.....          | 5         | 2         | 10        | 4         | 14        | 35               |
| California.....     | 4         | 22        | 1         | 2         | 7         | 36               |
| Ohio.....           | 10        | 8         | 3         | 7         | 15        | 43               |
| Louisiana.....      | 2         | 4         | 17        | 14        | 10        | 47               |
| North Carolina..... | 12        | 3         | 5         | 23        | 4         | 47               |
| Tennessee.....      | 3         | 11        | 18        | 13        | 2         | 47               |
| New Jersey.....     | 7         | 10        | 3         | 7         | 23        | 50               |
| Illinois.....       | 15        | 7         | 8         | 11        | 9         | 50               |
| Washington.....     | 1         | 1         | 24        | 1         | 24        | 51               |
| Indiana.....        | 20        | 13        | 12        | 6         | 6         | 57               |
| Alabama.....        | 11        | 19        | 7         | 9         | 13        | 58               |
| South Carolina..... | 6         | 9         | 22        | 24        | 1         | 62               |
| Missouri.....       | 8         | 21        | 21        | 12        | 8         | 70               |
| Wisconsin.....      | 22        | 14        | 11        | 9         | 17        | 73               |
| Connecticut.....    | 16        | 18        | 9         | 10        | 22        | 75               |
| Virginia.....       | 9         | 6         | 23        | 22        | 16        | 76               |
| Pennsylvania.....   | 14        | 20        | 14        | 18        | 11        | 77               |
| Minnesota.....      | 23        | 12        | 6         | 16        | 21        | 78               |
| New York.....       | 13        | 16        | 13        | 21        | 18        | 81               |
| Georgia.....        | 19        | 24        | 20        | 19        | 3         | 85               |
| Rhode Island.....   | 21        | 17        | 19        | 17        | 12        | 86               |
| Massachusetts.....  | 18        | 15        | 15        | 20        | 19        | 87               |
| Maryland.....       | 24        | 23        | 16        | 15        | 20        | 98               |

Marked differences in rates of growth among the various States are to be noted in the postwar as compared with the war and pre-war periods, and consequently, as in the case of the geographic divisions, the accompanying table shows that some noteworthy changes in the ranking of the States have occurred. The consistent rise of Michigan to a place near the top of the list is significant, and California has maintained a high position, but Washington, Texas, New Jersey, and Ohio, which until 1919 have been among the States showing the most rapid increases, ranked below half of the States in rate of increase in wage earners from 1919 to 1923. In the positions formerly occupied by these States, were South Carolina, Tennessee, Georgia, and North Carolina.

The situation among the 24 leading manufacturing States may be differently summarized by showing increases in number of wage

earners for the full 24-year period 1899-1923. The results are shown on Chart X. Despite the small postwar growth, Washington, Texas, Ohio, and New Jersey maintained positions for the entire 24-year

CHART IX.—RANKING OF 24 LEADING STATES ACCORDING TO INCREASE IN AVERAGE NUMBER OF WAGE EARNERS, BY CENSUS PERIODS: 1899 TO 1923

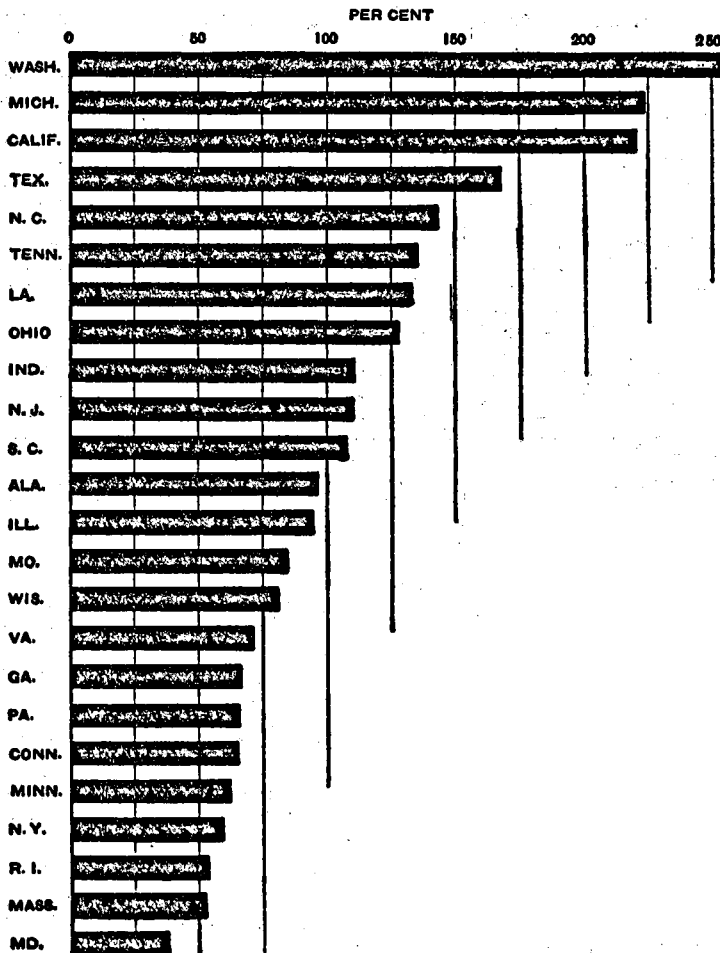


period near the top of the list. California and Michigan, which have continued to increase, and the Southeastern States, which have risen to the top since the war, also rank high. Maryland, Massa-

chusetts, Rhode Island, and New York have remained consistently near the bottom of the list.

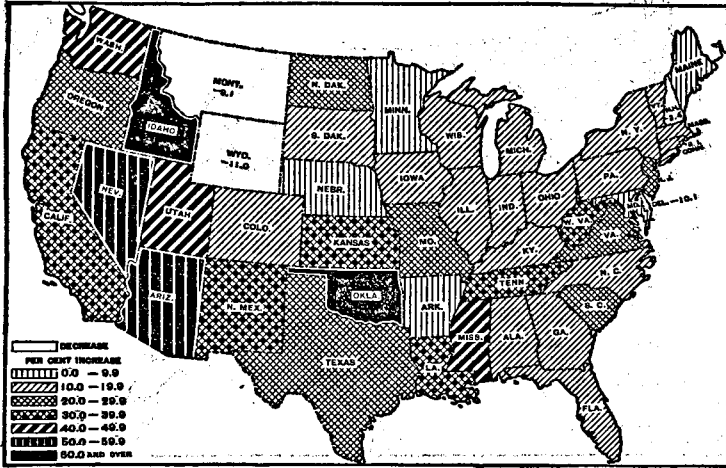
From the data as a whole, it is obvious that the most notable expansion in the 20-year period from 1899 to 1919 occurred on the

CHART X.—INCREASE IN AVERAGE NUMBER OF WAGE EARNERS IN 24 LEADING STATES, FOR 24-YEAR PERIOD: 1899 TO 1923

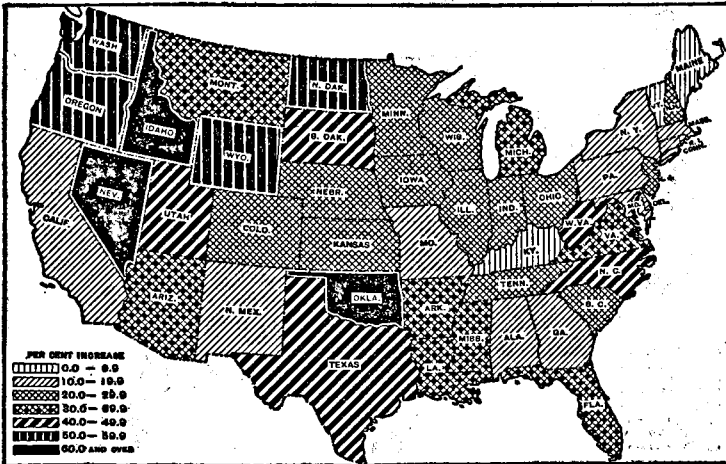


Pacific coast, in the Southwest, and in the North Central region about the Great Lakes. In the Southern States substantial increases were noted prior to 1909, but in the following 10 years other sections showed greater advances. Since 1919, however, the expansion in the new industrial South has been the dominant feature of the growth

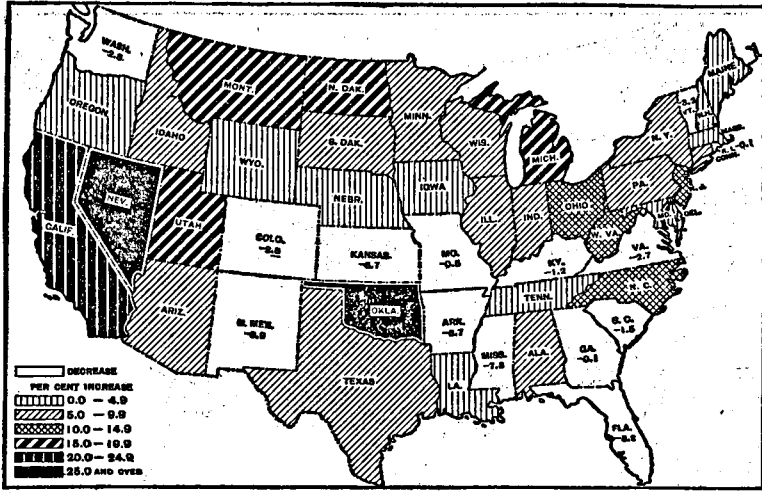
MAP I.—INCREASE IN AVERAGE NUMBER OF WAGE EARNERS, BY STATES:  
1899 to 1904



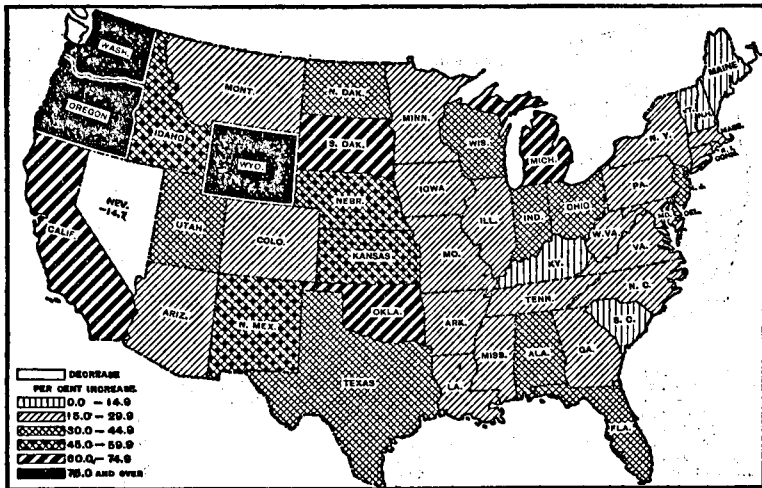
MAP II.—INCREASE IN AVERAGE NUMBER OF WAGE EARNERS, BY STATES:  
1904 to 1909



MAP III.—INCREASE IN AVERAGE NUMBER OF WAGE EARNERS, BY STATES:  
1909 to 1914

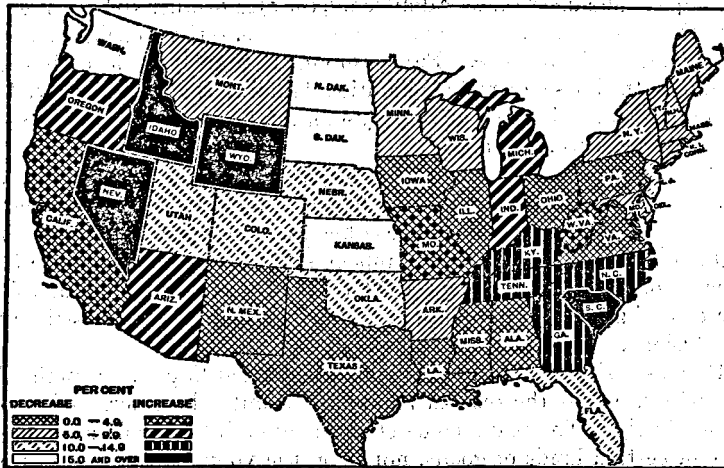


MAP IV.—INCREASE IN AVERAGE NUMBER OF WAGE EARNERS, BY STATES:  
1914 to 1919



for the country as a whole. Part of these changes reflect little more than general economic development of the sections in question. Part, however, evidence a virtual shifting of manufacturing enterprise into new sections. This is particularly true of the East North

MAP V.—INCREASE IN AVERAGE NUMBER OF WAGE EARNERS, BY STATES:  
1919 TO 1923.



Central States and the new industrial South. It will be most interesting to follow the further course of these new developments. They seem at this time to foreshadow the relative decrease in importance of the older manufacturing sections of the country, and the rapid approach to industrial maturity of sections which only recently were not seriously regarded in the affairs of manufacturing enterprise in this country.

## X

### GENERAL CONCLUSIONS

The results of the present study may appear to some readers incomplete and uncertain. Admittedly, they leave much to be desired. Yet they seem to afford ground for several tentative conclusions of considerable significance. Furthermore, the analysis has shown definitely the lines along which additional information is most needed. Before the study is brought to a close, a brief consideration of these matters seems worth while.

Rough as the measurement of industrial expansion has had to be, it leaves no doubt concerning the fact of a large increase of output during recent years. This increase has exceeded greatly the growth of population; in fact, it would appear safe to state that the rate of growth of manufacture from 1899 to 1923 was more than double the rate of growth of population. This is perhaps the most striking conclusion to be drawn from the analysis.

It does not follow from this conclusion regarding the growth of manufacture that the real income of the country has increased correspondingly. The real income of the community depends upon the flow of certain kinds of goods, not upon the volume of manufacture of goods in general. To what extent does the analysis throw light upon the character of the enlarged output now being placed at the community's disposal? How has the increase in the output of consumers' goods compared with the increase of goods in general?

Conclusions here can not be as definite as they can be regarding the total growth of manufacture. Yet certain facts are fairly clear. In general, industrial expansion has been most rapid in lines producing industrial apparatus and equipment. True, the manufacture of automobiles and of a few comparatively new lines of consumption goods, such as phonographs, has exhibited an even more rapid increase. But these are hardly to be viewed as general lines of manufacture. Among the general industrial groups, those fabricating iron and steel, the nonferrous metals, and chemicals and allied materials show the largest gains. Undoubtedly this is due in part to the ease with which the sources of raw materials in these groups are exploited. (Consider, in contrast, the restrictions forced upon expansion in the lumber trade by the gradual depletion of our timber resources.) But quite apart from this influence is the underlying tendency toward greater industrialization in current production. We resort increasingly to the factory, and within the factory, increasingly to the machine. Inventions, technical improvements, new

industrial processes make for continual change. Labor is displaced by machinery; old machines are replaced with new—all of which calls for larger and larger output of industrial materials and equipment. Along these lines the most rapid growth of manufacture during recent years is to be found.

But if the increase in the output of consumers' goods has not been as great, it appears, nevertheless, to have exceeded the growth of population during the same period. If attention is focused upon the various lines of manufacture turning out staple consumers' goods, increases during the period 1899-1923 will nearly all be found to be between 50 and 100 per cent. The growth of population for the same period was about 50 per cent. Undoubtedly some lines of manufacture did no more than keep pace with the increase of population. Others, under the influence of declining consumers' demand, failed to expand even this much, or even fell off materially. Furthermore, even in those cases in which manufacture appears to have exceeded the growth of population, we may be dealing with increasing fabrication and not altogether with increasing output. The situation is undoubtedly somewhat obscure. But, upon the whole, the evidence seems to justify the conclusion that the increase in the production of consumers' goods from 1899 to 1923 was considerably in excess of the growth of population during the same period. In other words, there was an increase in the real income per capita in this country during the quarter century ended in 1923.

In view of the importance of the subject, it is regrettable that no more exact and detailed conclusions are to be drawn from the analysis. Inadequacy of the available data has been one of the most conspicuous handicaps of the present investigation. It is to be hoped that some of these deficiencies may in time be remedied. In order that this result may be expedited, some of the lines along which additional information is most needed may well be pointed out.

In the first place, it should be practicable to collect more data on materials consumed and goods produced in manufacturing establishments.<sup>1</sup> The possibility of assembling such information should be carefully canvassed by the census authorities in consultation with competent parties engaged in the several trades. It is obviously unwise to attempt any complete registration or count of the infinite variety of goods produced in current manufacture in this country. But a considerable number of fairly homogeneous products should be selected and followed consistently from one census to another, and special attention should be devoted to those staple commodities which, because of their basic or key positions, reflect the volume of production over wider fields. Much can be done in these directions if the subject is given careful and sustained attention.

<sup>1</sup> Omission from the biennial censuses of inquiries concerning materials consumed is particularly unfortunate.



In the second place, certain unusual situations may well be made objects of special inquiry. If a particular line of manufacture is showing unusual expansion under some specific influence and the nature of the product permits of a study of physical output, much may be learned from a more intensive investigation of the industry. If the production of butter, for instance, appears to be shifting from the farm to the factory, let this be made a matter of special inquiry, perhaps through the Departments of Agriculture and Commerce acting jointly; if the manufacture of bicycles is threatened with sudden collapse, let special data be collected in the trade, that the course of events may be followed more closely. Knowledge of these special cases should be of material assistance in the more general studies of manufacturing growth.

In the third place, studies may be undertaken of the relationship of physical output to the number of wage earners employed and primary horsepower used in the producing establishments. Undoubtedly these relationships differ widely from plant to plant. Furthermore, changes in output may or may not be accompanied by corresponding changes in working forces or installed horsepower. Yet in the number of wage earners and the amount of primary horsepower we have the most general indexes of productive capacity. The extent to which changes in these indirect indexes may be utilized in estimating changes in industrial output should, if possible, be ascertained. Certainly the subject would seem to merit some special attention.

It may seem to some that these suggestions do not promise results substantial enough to warrant additional expenditure. The Federal census of manufactures is already a complicated and expensive statistical inquiry. It would be easy to retort that certain parts of the usual manufacturing schedule are of no value at all—as long contended by the census authorities themselves—and that these might be omitted to make way for those suggested without net increase in the census expenditure. But, in the opinion of the writers, information regarding the growth of manufacture is to be sought quite apart from action taken with regard to other sections of the usual census of manufactures. As pointed out at the very beginning of this monograph, changes in industrial output possess exceptional significance from several points of view. In particular, such changes should be noted with the utmost care because of the light they throw on changes in the size and composition of the real income of the country. Because of the far-reaching importance of this subject, measurement of the growth of manufacture should constitute one of the permanent objects of inquiry of the Federal Bureau of the Census.

## APPENDIX A

### CONSTRUCTION OF THE INDEX OF PRODUCTION OF MANUFACTURES

In order to provide a composite measure of the physical quantity of manufactures produced, statistics representing the production of individual products as reported by the census have been summarized into a set of index numbers covering census years. Such index numbers for the years 1899, 1904, 1909, and 1914 were constructed in 1920 by Prof. Warren M. Persons, with the assistance of Miss Eunice S. Coyle, and published in the Review of Economic Statistics for November, 1920. Description of the construction of this index, which has been called the Harvard census index, is given in Chapter II of this monograph and need not be repeated here.

Since 1914 census investigations have been made for 1919, 1921, 1923, and 1925. For the purposes of this monograph and to provide the information for others who may wish to use it, a similar index has been computed for census years from 1914 to date and has been chained to the earlier index, thus providing a homogeneous measure of the physical volume of production by census years from 1899 to 1925. Index numbers for all industries combined, for the major industrial groups, and for certain selected industries, by census years, 1899 to 1923, are given in Table 38, Appendix B.

With some noteworthy variations the same methods of construction utilized in constructing the Harvard census index were adopted in making the new index. The index is a weighted geometric mean of relatives; the weights are based upon figures for value added by manufacture; and products and industries included are classified according to the grouping followed in the censuses of manufactures prior to that of 1923.<sup>1</sup>

The year 1919, however, was used as the base, whereas 1909 was the base in the earlier index. Another very important variation is to be found in the method of computing weights. Weights for the Harvard index were derived from values added by manufacture for 1909, the base year, but in the later index the weights applied to the relatives for any given year were averages of those for 1919, the base year, and those for the given year.<sup>2</sup>

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<sup>1</sup> Classification was changed in 1923. See Ch. IV of monograph.

<sup>2</sup> The Harvard census index was computed for 1919 and revised for earlier years according to this method by Professor Day in 1922, but no explanation of the revision was published.

Other changes in the new index were confined largely to the data used. Several new production series have been given in recent censuses, but, on the other hand, statistics of raw materials consumed, which were used extensively with satisfactory results in the Harvard index, have not been reported since 1919. The index therefore is based entirely upon products manufactured. Although the absence of information regarding materials consumed is to be regretted, it is not believed to have materially affected the final results, as the Harvard indexes obtained by the two sets of data were closely similar.

Fuller treatment of data and methods, with explanations of the variations from those employed in the earlier indexes, is given in later sections. A general statement of methods used in the Harvard index is given in Chapter II of the monograph. Briefly, it may be said that in computing the new index physical quantity figures for each product included for the census years 1914, 1921, and 1923 were reduced to relatives in terms of the 1919 figures as 100; these relatives for all products in a single industry were weighted in accordance with their proportionate importance to each other and then averaged; thus a set of industry indexes were secured. The industry indexes were in turn weighted and averaged to give group indexes, which were similarly combined into a composite index for all manufactures. The actual physical quantity figures used, their individual relatives, the weights, and the industry and group indexes by census years from 1914 to 1925 are all shown in Table 26, given at the end of this chapter. The results have been discussed in the various chapters of the monograph.

#### SELECTION OF DATA

In constructing the index the data utilized were, with some important additions and a few subtractions, those employed in the Harvard census index. The nature of this statistical material is indicated in Chapter II of the monograph by a quotation from the Review of Economic Statistics. The most important variation from the Harvard index, as was stated above, is that in the new index practically no statistics of materials consumed have been used, because such data have not been requested in the census investigations since 1919.<sup>3</sup>

Statistics of products, on the other hand, have been expanded somewhat by the census, and a number of series not available for earlier dates are included in the new index. In some cases these additions are merely new series, perhaps of little or no importance until recently, added to an industry already represented in the index. Examples of these are found in the cases of some of the chemicals and acids, of upper leather, and of face brick. Generally, however,

<sup>3</sup> Specifically statistics of materials consumed were used in flour milling, wood pulp, coke, gas, and petroleum refining. In a number of instances the production of semifinished and finished products in the same industry were given—e. g., pig iron and steel ingots, crude petroleum and refinery products, leather and shoes, and wood pulp and paper.

the additions were of entire industries or groups of industries— notably shipbuilding, rubber products, locomotives, cement, and several others of less importance. The inclusion of shipbuilding is a distinctive feature of the new index. It was felt to be necessary in order to provide an accurate basis of comparison between 1919 and other years, because of the unusual magnitude of that industry in 1919. In other years it was not of great importance.

Data for some previously unrepresented industries were derived by still another method which involved the utilization of extracensal information. Estimates of paper consumption to represent the printing and publishing industries and of nonferrous metals consumption for industries using these materials were arrived at by the use of production, import, and export statistics, and were included in the index. For reasons given below the liquors and beverages industries have been omitted for years since 1919.<sup>4</sup>

Another difference between earlier census figures and those of recent years, which is of such small importance as to be hardly worthy of mention, is that the investigations of 1921 and 1923 did not include establishments with a total production for the year of less than \$5,000 in value, whereas in previous years \$500 had been the minimum. That the effect of this change is insignificant is seen by the fact that for 1919 the total value of products for all establishments was 62,193 millions of dollars, whereas for those with products of \$5,000 and over the total was 62,042 millions of dollars, a difference of only two-tenths of 1 per cent.

Data included in the index, however, are subject to certain important limitations. In the first place only a portion of all products of manufacture are measurable and therefore available for use, and, secondly, changes in degree of fabrication are not indicated by mere changes in quantity. Improvements in quality represent larger production as much as do increases in quantity, but there is no satisfactory way of measuring such changes.<sup>5</sup>

Data for some of the industries and individual series are peculiar in respect to source, method of compilation, units, weighting, or some other such characteristic. These peculiarities, where worthy of notice, are given in the section at the end of the chapter after the discussion of methods. Note is made especially of cases where the data are not exactly the same as those used in the Harvard census index. Certain more detailed information regarding some of the series may be found in the description of that index in *The Review of Economic Statistics*.<sup>6</sup>

<sup>4</sup> See p. 111.

<sup>5</sup> In the index for the automobile industry some allowance is made for such changes in the quality of automobiles produced by providing for the increase in proportion of closed cars produced as compared with open cars. This index indicates an increase of 132 per cent in production of automobiles from 1919 to 1923, as compared with 106 per cent shown by comparing the simple totals of number of cars produced.

<sup>6</sup> Preliminary Vol. II, No. 11, November, 1920, pp. 311-315.

*Representativeness of the index.*—A rough measure of the comprehensiveness of the index may be obtained by comparing the value of those products included in the index with the total value of all products manufactured. Because of the large amount of duplication in the figures of total value reported by the census, however, a comparison of the value added by manufacture for those industries represented in the index with total value added for all industries is probably a more accurate measure of representativeness.

These comparisons and other measures of the comprehensiveness of the index are given in Table 21. In the first two columns the number of industries and series included in the index from each group is shown. It will be noted that indexes are available for 53 separate industries, comprising relatives for 137 individual products. It should be remembered, however, that for most of these products the series are totals of a large number of subdivisions. All kinds of cotton goods, for example, are shown by a single series, and the tonnage of all the various products of steel rolling mills has been added together.

TABLE 21.—MEASURES OF REPRESENTATIVENESS OF DATA USED IN INDEX

| GROUP AND INDUSTRY  | Number of industries | Number of products series | ADEQUACY OF DATA            |                         |
|---|----------------------|---------------------------|-----------------------------|-------------------------|
|   |                      |                           | For industries <sup>1</sup> | For groups <sup>2</sup> |
| All groups covered.....                                   | 53                   | 137                       |                             | 187                     |
| All industries covered.....                               |                      |                           |                             | 48                      |
| <b>I.—Food and kindred products.....</b>                  | <b>10</b>            | <b>26</b>                 |                             | <b>48</b>               |
| Butter, cheese, and condensed and evaporated milk.....    |                      | 3                         | 88                          |                         |
| Slaughtering and meat packing.....                        |                      | 7                         | 87                          |                         |
| Flour-mill and grain-mill products.....                   |                      | 4                         | 98                          |                         |
| Sugar, beet.....  |                      | 2                         | 95                          |                         |
| Sugar refining, cane.....                                 |                      | 1                         | 99                          |                         |
| Canning, etc., fruits and vegetables.....                 |                      | 4                         | 99                          |                         |
| Canning, etc., fish and oysters.....                      |                      | 1                         | 79                          |                         |
| Corn sirup, corn oil, and starch.....                     |                      | 1                         | 28                          |                         |
| Rice cleaning and polishing.....                          |                      | 1                         | 95                          |                         |
| Ice, manufactured.....                                    |                      | 1                         | 99                          |                         |
| <b>II.—Textiles and their products.....</b>               | <b>8</b>             | <b>20</b>                 |                             | <b>52</b>               |
| Cotton goods.....   |                      | 3                         | 90                          |                         |
| Knit goods.....   |                      | 5                         | 81                          |                         |
| Silk manufactures.....                                    |                      | 3                         | 80                          |                         |
| Woolen and worsted goods.....                             |                      | 4                         | 96                          |                         |
| Carpets and rugs, wool, other than rag.....               |                      | 1                         | 96                          |                         |
| Cordage and twine, etc.....                               |                      | 2                         | 91                          |                         |
| Hats, fur-felt.....                                       |                      | 1                         | 83                          |                         |
| Oilcloth and floor coverings.....                         |                      | 1                         | 98                          |                         |
| <b>III.—Iron and steel and their products.....</b>        | <b>2</b>             | <b>9</b>                  |                             | <b>40</b>               |
| Blast furnaces.....                                       |                      | 1                         | 98                          |                         |
| Steel works and rolling mills.....                        |                      | 1                         | 74                          |                         |
| <b>IV.—Lumber and its remanufactures.....</b>             | <b>1</b>             | <b>9</b>                  |                             | <b>48</b>               |
| Lumber and timber products and planing-mill products..... |                      | 2                         | 79                          |                         |
| <b>V.—Leather and its finished products.....</b>          | <b>2</b>             | <b>6</b>                  |                             | <b>80</b>               |
| Leather, tanned, curried, and finished.....               |                      | 1                         | 100                         |                         |
| Boots and shoes.....                                      |                      | 1                         | 100                         |                         |

See footnotes at bottom of table on opposite page.

TABLE 21.—MEASURES OF REPRESENTATIVENESS OF DATA USED IN INDEX—Continued

| GROUP AND INDUSTRY                                   | Number of industries | Number of products series | ADEQUACY OF DATA |            |
|--|----------------------|---------------------------|------------------|------------|
|  |                      |                           | For industries   | For groups |
| <b>VI.—Paper and printing</b> .....                  | 3                    | 11                        |                  | * 15       |
| Paper and wood pulp.....                             |                      | 8                         | 90               |            |
| Printing and publishing.....                         |                      | 2                         | (7)              |            |
| Paper boxes.....                                     |                      | 1                         | (7)              |            |
| <b>VII.—Liquors and beverages</b> .....              | 0                    | 0                         | 0                | 0          |
| <b>VIII.—Chemicals and allied products</b> .....     | 35                   | 35                        |                  | 77         |
| Chemicals and acids.....                             |                      | 10                        | 36               |            |
| Coke.....  |                      | 2                         | 72               |            |
| Gas.....   |                      | 3                         | 88               |            |
| Fertilizers.....                                     |                      | 1                         | 97               |            |
| Explosives.....                                      |                      | 1                         | 91               |            |
| Paint and varnish.....                               |                      | 5                         | 95               |            |
| Petroleum refining.....                              |                      | 7                         | 91               |            |
| Oil and cake, cottonseed.....                        |                      | 2                         | 65               |            |
| Turpentine and rosin.....                            |                      | 2                         | 100              |            |
| Salt.....  |                      | 1                         | 76               |            |
| Soap.....  |                      | 1                         | 66               |            |
| <b>IX.—Stone, clay, and glass products</b> .....     | 4                    | 7                         |                  | 64         |
| Brick, tile, etc.....                                |                      | 3                         | 54               |            |
| Lime.....  |                      | 1                         | 84               |            |
| Cement.....  |                      | 1                         | 99               |            |
| Glass.....   |                      | 2                         | 35               |            |
| <b>X.—Metals, nonferrous</b> .....                   | 2                    | 11                        |                  | * 35       |
| Brass, bronze, etc.....                              |                      | 1                         | 79               |            |
| Smelting and refining.....                           |                      | 5                         | 62               |            |
| Other industries.....                                |                      | 5                         | (7)              |            |
| <b>XI.—Tobacco products</b> .....                    | 3                    | 3                         |                  | * 100      |
| Chewing, smoking, etc.....                           |                      | 1                         | 100              |            |
| Cigars.....  |                      | 1                         | 100              |            |
| Cigarettes.....                                      |                      | 1                         | 100              |            |
| <b>XII.—Vehicles for land transportation</b> .....   | 4                    | 8                         |                  | 97         |
| Motor vehicles.....                                  |                      | 3                         | 60               |            |
| Carriages, wagons, etc.....                          |                      | 1                         | 65               |            |
| Railway equipment <sup>1</sup> .....                 |                      | 2                         | 74               |            |
| Cars, etc.....                                       |                      | 2                         | 70               |            |
| Locomotives.....                                     |                      | 1                         | 86               |            |
| <b>XIII.—Railroad repair shops<sup>2</sup></b> ..... | 0                    | 0                         | 0                | 0          |
| <b>XIV.—Miscellaneous</b> .....                      | 8                    | 9                         |                  | 18         |
| Ship and boat building.....                          |                      | 2                         | 19               |            |
| Rubber products—                                     |                      |                           |                  |            |
| Rubber boots and shoes.....                          |                      | 4                         | 100              |            |
| Rubber tires and inner tubes.....                    |                      | 3                         | 87               |            |

<sup>1</sup> Percentage that (1) value of products covered by index for each industry in 1923 bears to (2) total value reported for all products of that industry in 1923.

<sup>2</sup> Percentage that (1) value added by manufacture in 1923 for industries covered in each group bears to (2) total value added by manufacture reported for all industries in that group. The figures from which these percentages are computed are given in part in Table 23.

<sup>3</sup> Percentage of value added by manufacture for the groups represented in the index to that of all groups reported by the census.

<sup>4</sup> Percentage of (1) value added by manufacture for all industries directly represented in the index to (2) that of all industries reported by the census. Had certain paper and printing and nonferrous metals industries, which are indirectly represented in the index by consumption estimates, been included in (1) this ratio would have been 56.

<sup>5</sup> Exact data are not available. The estimate given has been based on the best information at hand.

<sup>6</sup> These percentages cover only those industries directly represented in the index. The inclusion of the industries indirectly represented by consumption figures would give the following: Paper and printing, 91; and metals, nonferrous, 87.

<sup>7</sup> No adequate data for use as basis of estimates are available.

<sup>8</sup> Indirectly some 22 industries in Group X are represented.

<sup>9</sup> New products manufactured by railroad repair shops are included under railway equipment.

The number of the series, however, gives little indication of the extent to which the figures actually cover the industries, and in the last two columns of the table figures are given to show (1) the percentage of the value of the products represented from each industry included in the index to the total value of all products of that industry and (2) the percentage of value added for the industries included from each group to the value added for that group as a whole. Most of the individual industries included are fairly well represented by their products, the value percentage varying from 19 to 100 per cent, with nearly one-half above 90 per cent.

Direct representation of some of the groups, however, is not so large. The important iron and steel and allied industries, for example, are covered by but two industries, whose value added equals only about 40 per cent of the total for the group, and in nonferrous metals the direct representation is smaller, but in both of these groups the products used are of such a basic nature that they probably reflect rather closely conditions in the more advanced industries using these products as raw materials. The liquors and beverages group is not represented at all after 1919. The most completely covered groups are tobacco products and vehicles for land transportation.

Comparisons of totals of these groups, industries, and products included in the index to the grand total for all manufactures give the following results: Value added by manufacture for all groups directly and indirectly represented is 87 per cent of the total and the value added of only those industries directly represented equals nearly 50 per cent of the total. A comparison of the total value of products to total value of all products included can not be accurately determined because of (1) the lack of value figures in a number of cases and (2) the large amount of duplication in the combined value figures.

The conclusion drawn from such a comparison for the Harvard census index is applicable here. It is "Analysis of the data, therefore, leads to the conclusion, first, that our sample of manufacture is well distributed and, second, that the sample is large enough to constitute a reliable basis for the computation of indexes of physical production for manufacture."

Another test of the representativeness of the index is given in Table 22, which shows for intercensal periods the percentage of change in the number of wage earners and in primary horsepower for all industries, for the industries directly represented in the index, and for those not so represented.

TABLE 22.—COMPARISON OF GROWTH OF INDUSTRIES INCLUDED IN INDEX WITH GROWTH OF OTHER INDUSTRIES

|                                       | PER CENT OF INCREASE OR DECREASE (-) |                     |           |           |           |           |
|---------------------------------------|--------------------------------------|---------------------|-----------|-----------|-----------|-----------|
|                                       | 24-year period, 1899-1923            | Intercensal period. |           |           |           |           |
|                                       |                                      | 1919-1923           | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |
| <b>NUMBER OF WAGE EARNERS</b>         |                                      |                     |           |           |           |           |
| All Industries.....                   | 88.2                                 | -2.5                | 29.3      | 6.4       | 21.0      | 16.0      |
| Industries included in index.....     | 82.4                                 | -3.5                | 33.0      | 5.2       | 20.7      | 11.4      |
| Industries not included in index..... | 95.2                                 | -1.8                | 25.5      | 7.6       | 21.3      | 21.4      |
| <b>PRIMARY HORSEPOWER</b>             |                                      |                     |           |           |           |           |
| All Industries.....                   | 229.6                                | 12.8                | 31.5      | 20.1      | 38.5      | 33.6      |
| Industries included in index.....     | 218.3                                | 12.7                | 33.5      | 15.6      | 40.6      | 30.1      |
| Industries not included in index..... | 251.2                                | 13.1                | 26.1      | 34.2      | 32.2      | 38.8      |

From this evidence it would seem that changes from one census year to another in the industries included in the index are in most cases typical of those for all industries, although in a few cases there are fairly wide discrepancies. These data show that for the period as a whole the industries included in the index have grown by a slightly smaller amount than those excluded, indicating that over a long period of time the index probably somewhat understates the growth of all manufactures. The industries included in the index employed over 50 per cent of the total number of wage earners employed in all industries and contributed nearly 75 per cent of the total primary horsepower.

METHODS OF CONSTRUCTION

Processes involved in the construction of this index previously briefly described will now be explained in greater detail. The figures for 1914, 1921, and 1923 in each set of physical quantity data were reduced to percentages of the corresponding figure for 1919, and a weighted geometric average of these percentages or relatives for any given year gave the composite index number for that year. The weights represented the importance of their respective products relative to all other products included in the index. They were derived from figures showing value added by manufacture in the base year (1919) and in the particular year for which they were used. In other words, there was a different set of weights for each year covered by the index, which were averages of two other sets, one applying to the common base year and the other to the given year.

The following formula expresses in mathematical symbols the methods employed in compiling the index:

$$I_0 = \sqrt{\frac{\sum (p_{1919} + p_{1921})}{2}} \sqrt{\frac{p_{1919} + p_{1921}}{2}} \times \left(\frac{q_1}{q_0}\right)^{\frac{p'_{1919} + p'_{1921}}{2}} \times \left(\frac{q''_1}{q''_0}\right)^{\frac{p''_{1919} + p''_{1921}}{2}} \text{ etc.,}$$



wherein  $q_1$  is the quantity of a given product produced in any given year,  $q_0$  the quantity of the same product produced in the base year;  $q'_1$  and  $q''_0$ ,  $q''_1$  and  $q'''_0$ , quantities of other products produced in corresponding years;  $\frac{q_1}{q_0}$  and  $\frac{q'_1}{q'_0}$ , etc., are the relatives;  $p_0 q_0$  and  $p_1 q_1$  represent value added by manufacture;  $\frac{p_0 q_0 + p_1 q_1}{2}$  represents the average value added in the given year and base year, or the weights assigned; and the radical,  $\sqrt{\frac{p_0 q_0 + p_1 q_1}{2}}$ , is the sum of all the weights.

*Type of average.*—Several considerations governed the choice of the geometric mean as the type of average to be utilized in constructing this index. In the first place, it was desirable that the methods used be similar to those employed in computing the Harvard census index, in which the geometric type of average was adopted. Another reason is that the index was devised for use in a study of the relative growth of manufacture and the geometric average is especially suited for averaging percentages and securing composite measures of relative changes. The so-called aggregative type of index, wherein all figures are reduced to values and the aggregate values are compared to secure the index numbers, more closely measures absolute changes in volume. Another objection to the aggregative type is the difficulty of obtaining, in the case of manufactures, satisfactory weight factors which are needed to reduce the quantity figures to values. This difficulty is due to the fact that these factors not only must convert quantities into values but also at the same time must weight the products in accordance with the relative importance of the various industries which they represent.<sup>7</sup>

Advantages of the geometric mean over the arithmetic mean are technical in nature but are important in this index. In the first place, with the geometric type the index can be readily shifted to a new base without recalculation of the averages. This characteristic was advantageous in linking the new index with the Harvard census index. The geometric mean, in the second place, is not ordinarily as much affected by extremely large items as is the arithmetic average, and in computing this index there were some relatives of sufficient magnitude to make this feature important.

*Base period.*—The year 1919 was chosen as the base in computing this index primarily because it was the middle year, in point of time, of the period covered by the index, and therefore was more directly comparable with all the other years than any other single year would be. It is a link between the old and the new—between the pre-war industrial system and the somewhat different order now

<sup>7</sup> Experimental computations of aggregative indexes gave practically the same results as the geometric averages adopted.

prevailing. Furthermore, it was central in point of magnitude, the index for 1919 (100) being practically halfway between that for 1914 (78) and that for 1923 (122). This was likewise true for a number of the individual industries, and therefore the relatives comprising the index tend to group themselves around the average more closely than they would if another year had been selected as a base. Another advantage of 1919 as a base over some earlier year is that it permits the use of a number of figures which were not available until 1919.

*Weights.*—In averaging the relatives for individual products to secure a composite measure of changes in the volume of production of all manufactures, it was necessary to weight each relative in accordance with the proportionate importance of the product represented. Because the output of many products manufactured can not be measured and therefore these products can not be included in the index, the weight for each major industrial group was divided among the industries of that group included in the index, and the industry weights were in turn divided among the products included. Thus steel production is weighted not only in accordance with the importance of the industry designated as "steel works and rolling mills" but also for all industries in the iron and steel group, except blast furnaces which are represented by pig iron.

The weights for industries and for major industrial groups were derived from figures measuring value added by the process of manufacture, and the weights for individual products within each industry were derived from data showing total value produced, data for value added not being available for the individual products. The value added figures provide the most satisfactory basis of weighting available because they represent the actual contribution of the manufacturing process to the production of a commodity—the application of machinery and labor.<sup>8</sup> The weights were computed in terms of percentages of the whole and multiplied by 10, the total of weights for all products equaling 1,000. The percentages were first computed for the major groups, the group percentages were divided proportionately among their respective industries, and the industry totals in turn were distributed among their products.

In computing weights for groups, industries, and the individual-products series, some allowances were made for their adequacy, comprehensiveness, and representativeness. Iron and steel production, for example, because of the basic nature of these products, was assigned weight for a large number of industries in which iron and steel are used as raw materials. Full weight, as indicated by the value added by manufacture, on the other hand, was not assigned to a few products which could not be considered as repre-

<sup>8</sup> See Ch. I, p. 20.

sentative of production in other lines. Outstanding examples of these are automobiles and shipbuilding, for which one-half of the value added by manufacture was assigned to iron and steel. The principal reason for this, in addition to that mentioned above that the products being results of the final stages of the production process do not represent output of other products in more advanced stages of manufacture, is that the materials used in their construction—chiefly iron and steel—are already represented once in the index, and their inclusion again gives them undue importance as contrasted with the amount of those same materials going into other manufactures not included, notably machinery. The use of steel in machinery output probably declined between 1919 and 1923, whereas that used in automobiles increased; the inclusion of one without the other presents a distorted picture. The reduction of the weight given to automobiles and the corresponding increase of that assigned to steel serves to remedy this defect. Another reason for reducing the weight for shipbuilding and automobile manufacturing is the unsatisfactory character of the physical-quantity figures, which do not adequately represent production in these industries because of important changes in nature of product. Adjustments of weights in individual instances are discussed in the subsequent section dealing with the individual series included in the index.

Percentages of the importance of the various groups, industries, and products were computed from the value-added data for each year covered by the index—1914, 1919, 1921, and 1923—and those for 1914, 1921, and 1923 were averaged separately with the corresponding percentages for 1919 in order to obtain a set of weights for use in computing the index for each year. That is, the 1914 weights are averages of the 1914 and 1919 percentages, those for 1921 are averages of the 1921 and 1919 percentages, and so on. Table 23 gives the computation of weights for the major industrial groups and for individual industries. In computing these percentages, figures were rounded off as much as possible in order to simplify the labor of computation. Percentages were used instead of actual value figures in order to remove the influence of price changes and of growth, thereby preventing one year from dominating the weights.

The practice of averaging the computed weights for a given year with those for 1919 in order to obtain the weights actually used for that year has the advantage of providing in the index for changes which occur in the relative importance of different industries. If 1919 weights alone had been used, for example, the shipbuilding industry would have exerted far too great an influence on the index—its relative importance during the period changed from 0.6 per cent of the total in 1914 to 4.2 per cent in 1919, and back to 0.6 per cent in 1923. The industrial structure is likely to change materially in a

decade and in two decades changes are too great to be ignored. The automobile industry was of only moderate importance in 1914; in 1923 it was the leading industry in total value of output. It is necessary that the weighting system provide for such changes.

Another reason for using these combined weights is a technical one relating to the characteristics of the type of average used. A geometric average of relatives weighted on the basis of data for a single year is likely to have a bias—i. e., "a foreseeable tendency to err in one direction"—and such a bias is particularly pronounced if the relatives cover a wide range. Since with base-year weights the bias is in one direction and with given-year weights it is in the other, a combination of these two sets of weights will give an average free from bias.<sup>9</sup> Therefore because of the inherent nature of the average, because of the wide dispersion of relatives comprising the index, and because of the need for making allowances for fundamental changes in industrial arrangements, the weights used in this index were based upon two years rather than one.

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<sup>9</sup> For a discussion of bias, as well as of other characteristics of index-number formulae, see Irving Fisher, "The Making of Index Numbers"; U. S. Bureau of Labor Statistics, Bull. 284, "Index Numbers of Wholesale Prices in the United States and Foreign Countries," by Wesley C. Mitchell; or some recently published textbook on statistical methods.

TABLE 23.—COMPUTATION OF WEIGHTS FOR INDUSTRIES AND GROUPS, BY CENSUS YEARS: 1914 TO 1923

[Value figures expressed in thousands]

| INDUSTRY  | 1914                       |                   |          | 1919                       |                   |          | 1921                       |                   |          | 1923                       |                   |          |
|---|----------------------------|-------------------|----------|----------------------------|-------------------|----------|----------------------------|-------------------|----------|----------------------------|-------------------|----------|
|   | Value added by manufacture | Per cent of total | Weight † | Value added by manufacture | Per cent of total | Weight † | Value added by manufacture | Per cent of total | Weight † | Value added by manufacture | Per cent of total | Weight † |
| Total of all groups included in index.....              | \$8,588,471                | 100.00            | 1,020    | \$21,755,489               | 100.00            | 1,000    | \$15,768,308               | 100.00            | 1,000    | \$22,541,026               | 100.00            | 1,000    |
| <b>Food and kindred products:</b>                       |                            |                   |          |                            |                   |          |                            |                   |          |                            |                   |          |
| Group total.....  | 1,630,829                  | 12.46             | 117      | 3,421,471                  | 11.16             | 118      | 3,018,125                  | 12.80             | 118      | 3,400,769                  | 16.60             | 168      |
| Total in index.....                                     | 647,498                    |                   |          | 1,313,688                  |                   |          | 944,787                    |                   |          | 1,168,387                  |                   |          |
| Butter, cheese, and condensed and evaporated milk.....  | 49,269                     | 1.12              | 11       | 139,759                    | 1.18              | 17       | 129,296                    | 1.75              | 17       | 149,774                    | 1.38              | 13       |
| Slaughtering and meat packing.....                      | 210,302                    | 4.76              | 43       | 463,361                    | 3.92              | 40       | 332,744                    | 4.63              | 40       | 409,794                    | 3.77              | 38       |
| Flour-mill and grain-mill products.....                 | 125,410                    | 2.84              | 25       | 253,253                    | 2.14              | 20       | 185,930                    | 2.62              | 20       | 162,606                    | 1.50              | 18       |
| Sugar, beet.....  | 21,206                     | .48               | 5        | 62,127                     | .62               | 5        | 17,241                     | .23               | 5        | 47,494                     | .44               | 5        |
| Sugar refining, cane.....                               | 25,314                     | .67               | 5        | 68,843                     | .68               | 5        | 40,001                     | .64               | 5        | 44,361                     | .41               | 5        |
| Canning and preserving, fruits and vegetables, etc..... | 45,883                     | 1.04              | 11       | 136,614                    | 1.16              | 12       | 81,524                     | 1.10              | 12       | 151,870                    | 1.40              | 12       |
| Canning and preserving, fish, oysters, etc.....         | 12,657                     | .29               | 3        | 26,266                     | .22               | 2        | 14,092                     | .19               | 2        | 19,636                     | .18               | 2        |
| Corn sirup, corn oil, and starch.....                   | 12,407                     | .28               | 4        | 55,927                     | .47               | 6        | 29,180                     | .39               | 6        | 42,079                     | .38               | 5        |
| Rice cleaning and polishing.....                        | 2,423                      | .06               | 1        | 13,405                     | .11               | 1        | 7,034                      | .09               | 1        | 6,855                      | .06               | 1        |
| Ice, manufactured.....                                  | 42,631                     | .96               | 9        | 94,127                     | .80               | 10       | 107,715                    | 1.46              | 10       | 117,998                    | 1.08              | 9        |
| <b>Textiles and their products:</b>                     |                            |                   |          |                            |                   |          |                            |                   |          |                            |                   |          |
| Group total.....  | 1,433,495                  | 17.30             | 175      | 3,334,624                  | 17.60             | 190      | 3,156,921                  | 20.00             | 190      | 4,070,589                  | 18.10             | 180      |
| Total in index.....                                     | 683,790                    |                   |          | 1,036,638                  |                   |          | 1,610,087                  |                   |          | 1,180,189                  |                   |          |
| Cotton goods.....                                       | 257,778                    | 6.51              | 70       | 880,764                    | 7.61              | 78       | 598,679                    | 7.44              | 78       | 809,523                    | 6.90              | 74       |
| Knit goods.....   | 112,226                    | 2.84              | 27       | 286,044                    | 2.47              | 28       | 273,616                    | 3.40              | 30       | 364,157                    | 3.10              | 28       |
| Silk manufactures.....                                  | 109,569                    | 2.78              | 27       | 300,001                    | 2.59              | 28       | 245,860                    | 3.05              | 28       | 282,284                    | 2.40              | 25       |
| Woolen and worsted goods.....                           | 132,987                    | 3.36              | 34       | 399,838                    | 3.46              | 40       | 355,538                    | 4.41              | 40       | 439,827                    | 3.75              | 36       |
| Carpets and rugs, wool, other than rag.....             | 26,848                     | .68               | 6        | 56,136                     | .49               | 6        | 53,762                     | .67               | 6        | 102,008                    | .92               | 7        |
| Cordage and twine.....                                  | 16,157                     | .41               | 4        | 43,661                     | .38               | 4        | 28,875                     | .36               | 4        | 34,641                     | .29               | 3        |
| Hats, fur-felt.....                                     | 20,403                     | .62               | 4        | 42,887                     | .37               | 3        | 26,362                     | .33               | 3        | 40,805                     | .34               | 4        |
| Oilcloth and floor coverings.....                       | 7,822                      | .20               | 3        | 26,601                     | .23               | 3        | 27,395                     | .34               | 3        | 46,944                     | .40               | 3        |
| <b>Iron and steel and their products:</b>               |                            |                   |          |                            |                   |          |                            |                   |          |                            |                   |          |
| Group total.....  | 1,869,617                  | 20.40             | 234      | 5,717,215                  | 26.29             | 231      | 3,160,078                  | 20.00             | 231      | 5,589,931                  | 24.60             | 234      |
| Total in index.....                                     | 666,080                    |                   |          | 1,807,659                  |                   |          | 839,714                    |                   |          | 1,846,829                  |                   |          |
| Blast furnaces.....                                     | 53,074                     | 1.55              | 24       | 173,181                    | 2.62              | 21       | 58,721                     | 1.40              | 21       | 179,983                    | 2.40              | 24       |
| Steel works and rolling mills.....                      | 501,956                    | 18.45             | 210      | 1,634,372                  | 23.78             | 210      | 777,993                    | 18.60             | 210      | 1,665,845                  | 22.20             | 230      |
| <b>Lumber and its remanufactures—Group total.....</b>   | 837,361                    | 10.10             | 90       | 1,710,074                  | 7.90              | 80       | 1,240,747                  | 7.90              | 80       | 1,933,264                  | 8.60              | 83       |
| Lumber and timber products.....                         | 433,368                    |                   |          | 916,510                    |                   |          | 524,574                    |                   |          | 921,398                    |                   |          |

|   |         |       |    |           |      |           |       |    |           |      |    |
|---|---------|-------|----|-----------|------|-----------|-------|----|-----------|------|----|
| <b>Leather and its finished products:</b>   |         |       |    |           |      |           |       |    |           |      |    |
| Group total   | 851,458 | 4.80  | 48 | 896,484   | 4.10 | 609,788   | 8.99  | 48 | 798,748   | 8.80 | 88 |
| Total in index  | 874,660 |       |    | 781,845   |      | 494,681   |       |    | 836,789   |      |    |
| Leather, tanned, curried, and finished  | 82,957  | 1.80  | 17 | 282,071   | 1.60 | 105,640   | .88   | 15 | 167,148   | .61  | 13 |
| Boots and shoes   | 191,408 | 8.00  | 25 | 436,772   | 2.50 | 889,044   | 8.07  | 25 | 472,621   | 2.59 | 26 |
| <b>Paper and printing:</b>  |         |       |    |           |      |           |       |    |           |      |    |
| Group total   | 675,880 | 10.00 | 98 | 1,708,667 | 7.90 | 1,817,428 | 11.80 | 98 | 3,228,926 | 9.90 | 90 |
| Total in index  | 801,095 |       |    | 1,554,140 |      | 1,660,043 |       |    | 3,088,511 |      |    |
| Paper and wood pulp   | 118,966 | 1.58  | 25 | 820,577   | 1.62 | 221,444   | 1.60  | 25 | 838,680   | 1.68 | 25 |
| Printing and publishing   | 645,696 | 8.51  | 62 | 1,288,279 | 8.55 | 1,852,619 | 9.40  | 65 | 1,574,562 | 7.68 | 60 |
| Paper boxes   | 38,448  | .51   | 5  | 108,284   | .68  | 85,980    | .60   | 5  | 120,129   | .59  | 6  |
| <b>Chemicals and allied products:</b>   |         |       |    |           |      |           |       |    |           |      |    |
| Group total   | 713,289 | 8.60  | 86 | 1,863,624 | 6.60 | 1,466,638 | 8.80  | 86 | 3,002,783 | 8.90 | 86 |
| Total in index  | 588,469 |       |    | 1,448,840 |      | 1,131,687 |       |    | 1,541,808 |      |    |
| Chemicals and acids   | 77,084  | 1.24  | 10 | 309,456   | 1.84 | 211,959   | 1.74  | 18 | 326,679   | 1.89 | 18 |
| Coke  | 80,187  | .49   | 5  | 92,249    | .65  | 62,822    | .43   | 5  | 162,893   | .94  | 5  |
| Gas   | 148,459 | 2.31  | 17 | 171,728   | 1.02 | 208,943   | 1.71  | 14 | 268,977   | 1.80 | 13 |
| Fertilizers   | 45,241  | .73   | 7  | 96,103    | .67  | 85,897    | .29   | 4  | 55,190    | .32  | 4  |
| Explosives  | 15,806  | .25   | 3  | 45,894    | .28  | 28,831    | .22   | 3  | 35,833    | .20  | 3  |
| Paint and varnish   | 67,159  | .92   | 8  | 123,284   | .73  | 102,912   | .85   | 8  | 158,180   | .90  | 8  |
| Petroleum refining  | 71,098  | 1.15  | 17 | 384,625   | 2.28 | 845,270   | 2.86  | 25 | 868,647   | 2.18 | 22 |
| Oil and cake, cottonseed  | 81,151  | .60   | 5  | 86,063    | .61  | 22,361    | .18   | 4  | 28,878    | .16  | 4  |
| Turpentine and rosin  | 15,454  | .25   | 2  | 39,121    | .23  | 17,102    | .14   | 2  | 26,194    | .15  | 2  |
| Salt  | 7,797   | .13   | 1  | 21,480    | .12  | 16,751    | .13   | 1  | 20,360    | .12  | 1  |
| Soap  | 39,075  | .63   | 5  | 78,221    | .47  | 99,889    | .74   | 6  | 102,867   | .59  | 5  |
| <b>Stone, clay, and glass products:</b>   |         |       |    |           |      |           |       |    |           |      |    |
| Group total   | 375,427 | 4.80  | 40 | 676,958   | 8.10 | 597,125   | 8.80  | 38 | 971,751   | 4.80 | 36 |
| Total in index  | 430,869 |       |    | 487,488   |      | 371,556   |       |    | 617,187   |      |    |
| Brick and tile, terra-cotta, and fire-clay products                                       | 63,198  | 1.81  | 15 | 140,935   | 1.08 | 126,063   | 1.28  | 13 | 230,098   | 1.60 | 13 |
| Lime  | 10,888  | .21   | 2  | 19,674    | .14  | 16,801    | .17   | 1  | 27,544    | .19  | 1  |
| Cement  | 49,769  | .97   | 9  | 95,755    | .69  | 101,267   | 1.04  | 10 | 163,332   | 1.14 | 10 |
| Glass   | 77,069  | 1.51  | 14 | 171,104   | 1.24 | 127,465   | 1.31  | 12 | 196,183   | 1.37 | 12 |
| <b>Metals and metal products, other than iron and steel:</b>                              |         |       |    |           |      |           |       |    |           |      |    |
| Group total   | 383,690 | 4.70  | 41 | 880,358   | 8.90 | 580,878   | 8.70  | 38 | 947,128   | 4.70 | 40 |
| Total in index  | 801,767 |       |    | 680,897   |      | 801,095   |       |    | 667,680   |      |    |
| Brass, bronze, and other nonferrous alloys, and manufacture of these alloys and of copper | 46,712  | .72   | 10 | 177,489   | 1.11 | 84,277    | 1.04  | 10 | 179,714   | 1.15 | 10 |
| Smelting and refining   | 105,045 | 1.04  | 10 | 132,908   | .84  | 66,818    | .82   | 8  | 148,216   | .95  | 10 |
| Other industries  | 160,000 | 2.34  | 21 | 310,000   | 1.95 | 150,000   | 1.84  | 20 | 330,000   | 2.10 | 20 |

<sup>1</sup> Computed as described in text from averages of corresponding percentages for 1919 and for given year.

<sup>2</sup> Liquors and beverages are included only in 1914, and in order to make the figures comparable with those for 1919 the percentages and weights for 1914 have been made to

<sup>3</sup> Includes manufactured ice, which was not included in the published census figures for this group prior to 1923.

<sup>4</sup> equal more than 100 and 1,000, respectively.

<sup>5</sup> Includes data for the entire iron and steel group, as classified prior to 1923, less locomotives and plus one-half of the value added for vehicles and shipbuilding.

TABLE 23.—COMPUTATION OF WEIGHTS FOR INDUSTRIES AND GROUPS, BY CENSUS YEARS: 1914 TO 1923—Continued

[Value figures expressed in thousands]

| INDUSTRY   | 1914                       |                   |                     | 1919                       |                   |                     | 1921                       |                   |                     | 1923                       |                   |                     |
|--|----------------------------|-------------------|---------------------|----------------------------|-------------------|---------------------|----------------------------|-------------------|---------------------|----------------------------|-------------------|---------------------|
|  | Value added by manufacture | Per cent of total | Weight <sup>1</sup> | Value added by manufacture | Per cent of total | Weight <sup>1</sup> | Value added by manufacture | Per cent of total | Weight <sup>1</sup> | Value added by manufacture | Per cent of total | Weight <sup>1</sup> |
| <b>Tobacco manufactures:</b>                                 |                            |                   |                     |                            |                   |                     |                            |                   |                     |                            |                   |                     |
| Group total <sup>2</sup> .....                               | \$293,000                  | 2.46              | 20                  | \$322,363                  | 1.50              |                     | \$184,600                  | 1.20              | 12                  | \$219,311                  | 1.00              | 12                  |
| Total in index.....  | 282,906                    |                   |                     | 529,368                    |                   |                     | 459,801                    |                   |                     | 528,327                    |                   |                     |
| Tobacco, chewing and smoking, and snuff.....                 | 98,677                     | .84               | 6                   | 109,001                    | .31               |                     | 85,284                     | .23               | 3                   | 76,692                     | .14               | 2                   |
| Tobacco, cigars.....   | 135,508                    | 1.15              | 9                   | 201,681                    | .57               |                     | 177,937                    | .49               | 5                   | 182,422                    | .35               | 4                   |
| Tobacco, cigarettes.....                                     | 48,720                     | .41               | 5                   | 212,784                    | .62               |                     | 176,600                    | .48               | 5                   | 269,313                    | .51               | 6                   |
| <b>Vehicles for land transportation:</b>                     |                            |                   |                     |                            |                   |                     |                            |                   |                     |                            |                   |                     |
| Group total <sup>3</sup> .....                               | 223,772                    | 2.76              | 31                  | 757,410                    | 2.50              |                     | 491,639                    | 2.10              | 23                  | 965,150                    | 4.00              | 23                  |
| Total in index.....  | 417,690                    |                   |                     | 1,454,911                  |                   |                     | 949,169                    |                   |                     | 1,763,968                  |                   |                     |
| Motor vehicles.....  | 276,623                    | 1.79              | 23                  | 1,139,395                  | 2.75              |                     | 758,377                    | 2.47              | 26                  | 1,464,871                  | 3.32              | 31                  |
| Carriages, wagons, and repairs.....                          | 54,524                     | .35               | 2                   | 43,101                     | .10               |                     | 16,583                     | .05               | 1                   | 17,305                     | .04               | 1                   |
| Railway equipment.....                                       |                            |                   | 6                   |                            |                   |                     |                            |                   | 6                   |                            |                   | 6                   |
| Cars.....  | 66,721                     | .43               |                     | 188,521                    | .45               |                     | 128,698                    | .42               |                     | 190,691                    | .43               |                     |
| Locomotives.....   | 19,828                     | .12               |                     | 83,894                     | .20               |                     | 46,611                     | .16               |                     | 91,181                     | .21               |                     |
| <b>Ship and boat building:</b>                               |                            |                   |                     |                            |                   |                     |                            |                   |                     |                            |                   |                     |
| Group total <sup>4</sup> .....                               | 25,043                     | .30               | 12                  | 455,920                    | 2.10              |                     | 115,733                    | .70               | 14                  | 64,337                     | .30               | 12                  |
| Total in index.....  | 63,085                     |                   |                     | 911,839                    |                   |                     | 231,469                    |                   |                     | 128,674                    |                   |                     |
| <b>Rubber products—Group total.....</b>                      | 137,959                    | 1.76              | 20                  | 642,872                    | 2.50              |                     | 327,024                    | 2.10              | 22                  | 457,355                    | 2.00              | 22                  |
| Rubber boots and shoes.....                                  | 29,866                     | .37               | 4                   | 66,570                     | .31               |                     | 61,900                     | .39               | 4                   | 86,471                     | .37               | 4                   |
| Rubber tires and inner tubes.....                            | 106,093                    | 1.33              | 15                  | 477,303                    | 2.19              |                     | 265,124                    | 1.71              | 18                  | 370,884                    | 1.63              | 18                  |
| <b>Liquors and beverages—Group total<sup>5, 6</sup>.....</b> | 310,000                    | 2.50              | 20                  | 160,900                    | 1.40              |                     |                            |                   |                     |                            |                   |                     |

<sup>1</sup> Computed as described in text from averages of corresponding percentages for 1919 and for given year.<sup>2</sup> Liquors and beverages are included only in 1914, and in order to make the figures comparable with those for 1919 the percentages and weights for 1914 have been made to equal more than 100 and 1,000, respectively.<sup>3</sup> Amount of internal revenue tax deducted.<sup>4</sup> One-half of value added for vehicles and shipbuilding assigned to iron and steel.<sup>5</sup> Not included in the total except for comparison with 1914, in which case the 1919 total equals 100.40.

## DESCRIPTION OF INDIVIDUAL SERIES

In most cases the designation of the products included in the index, as given in Table 26, is sufficient to explain their nature without further detailed description, and in general this section is limited to a discussion of small details and of special cases. Further information regarding the individual series may be obtained from the census reports and also from the description of the original Harvard census index in "The Review of Economic Statistics," Preliminary Vol. II, No. 11, November, 1920.

## GROUP I.—FOOD AND KINDRED PRODUCTS

The weight for this group is based upon value added by manufacture according to the old classification and does not include nonalcoholic beverages, which under the 1923 classification were assigned to this group. It includes, on the other hand, manufactured ice, not assigned to this group under the old classification.

*Butter, cheese, and condensed and evaporated milk.*—The figures used cover only factory production made by establishments engaged primarily in their manufacture. A small amount made by factories classified in other industries is excluded, as well as that produced at home or in small establishments.

*Slaughtering and meat packing.*—For this industry the figures for materials—dressed weight of animals slaughtered—were published in 1921 and 1923, as in prior censuses, and were included in the index. Meat, fresh and cured, includes beef, veal, mutton and lamb, pork, edible offal, and other fresh meat, pickled and other cured beef, smoked pork, and pork, not smoked, all of which are reported separately by the census. Lard and lard compounds, reported separately, are totaled to make this series. The figures for cattle hides in 1921 and 1923 include the weight of hides received as payment for custom slaughtering. Sheep and lamb skins are not included because their weight in pounds was not reported, and the series is not comparable throughout the period covered. Relatively important products of this industry not included in the index are canned meats, sausage, scrapple, etc., and by-products such as fertilizers and glue. Weights for the individual series are based upon value of product.

*Flour-mill and grain-mill products.*—Censuses of this industry in 1914, 1921, and 1923 covered only merchant mills and, in order to preserve comparability, data for custom mills in 1919 have been excluded from the figures used. Some custom business of merchant mills, however, is included in all years. The figures for 1921 and 1923 are probably not directly comparable with those for earlier years because of the exclusion of establishments with value of product of less than \$5,000. For the same reason, and because of the exclusion of custom mills, the census figures for wheat-flour production are somewhat smaller than those reported from trade sources. The figures for grain milled, which are totals for all types of grain, make one of the few series of materials consumed given by the census since 1919.

*The sugar industries.*—For beet sugar, figures are available for materials—tons of beets treated—as well as for products—granulated and raw sugar produced. Output of refined cane sugar has been reported by the census only since 1914. In the Harvard index, for the lack of better data, quantities were estimated from statistics of production and imports of raw sugar.

*Canning and preserving.*—The data for these industries include products of establishments engaged primarily in other industries. The figures for fruits, vegetables, fish, and oysters are totals of several varieties expressed in terms



of standard cases, which contain 24 cans. Cases of canned soup contain 48 cans. The figures for dried fruits in 1923 are not strictly comparable with those for earlier years because of some enlargement in the scope of the canvass for prunes and apricots. Data for eanned soups and for fish and oysters were not included in the earlier Harvard index.

*Corn sirup and starch, Rice cleaning and polishing, and Ice manufacturing* were added to the new index by the use, respectively, of figures for the production of starch, of clean rice, and of manufactured ice. The industries are not very important but are worthy of inclusion under the standard adopted (value of product of over \$10,000,000) and in the case of the ice industry because of its increasing importance.

Important industries in this group for which quantitative statistics are not available over a period of years are bread and bakery products (collection of data was commenced in 1923), confectionery, ice cream (figures reported in 1923), and food preparations, not elsewhere classified. This last industry includes chiefly "breakfast-foods" or "cereal" preparations, and also lard compounds, macaroni, peanut butter, malted milk, and others. These industries are of such a nature that they are not adequately represented by the other industries in the group, and the lack of satisfactory quantity statistics for them is unfortunate.

#### GROUP II.—TEXTILES AND THEIR PRODUCTS

Weight was assigned to this group on the basis of value added by manufacture for all industries in the group and was distributed among those industries represented. Owing to the basic nature of the products included in the index, they are probably fairly representative of the more finished commodities not represented—mostly wearing apparel and dyeing and finishing textiles.

*Cotton manufactures.*—The weight for this industry includes cotton small wares and lace, as well as cotton goods. The principal products series, woven goods (over 12 inches in width), is a total of several types of cloth—sheetings, tire fabrics, print cloth, gingham, twills, sateens, etc., shirtings, cotton flannel, and a number of others.

Statistics of yarns include only those manufactured for sale, as total production or consumption data are not published. Because of the lack of data for materials used, it is now impossible to measure the extent to which other materials than cotton are included in the goods produced by cotton mills.

*Hosiery and knit goods.*—Products are totaled irrespective of materials used. The underwear figures have been divided into two series—union suits and shirts and drawers—because if they are added together the decrease in recent years in the total number of shirts and drawers produced appears to more than offset the increase in the production of union suits, whereas actually one union suit should be considered as replacing one of each of the separate garments. The treatment of these products as separate series with weight based on relative values of total output, avoids this possible error.

*Silk.*—Broad silks are the most important products of this industry. Velvets, plushes, upholstery, and tapestry were totaled to form a single series. Other silk goods are largely thrown silk, organzine, tram, and crêpe twist, with spun silk and machine twist important additions. The extent to which raw materials and yarns other than silk have been used in recent years is not indicated in the census reports.

*Woolen and worsted goods.*—The classification of goods as all-wool woven goods, union or cotton-mixed woven goods, and cotton-warp woven goods, as used in the index, has not been clear cut in recent census reports. It was therefore necessary to classify certain minor products such as shawls and carriage cloths,

for which fibers were not reported, as like products of the same establishments were classified in 1919. Figures for yarns and tops refer only to those made for sale, and are totals of many different kinds.

*Oilcloth and floor coverings* are represented by figures in square yards for the production of linoleum and asphalted-felt-base piece goods and rugs and of various kinds of oilcloth. The figures had to be totaled because changes in classification of the products from one census to the other prohibited comparable separation.

Data for the other industries included—Carpets and rugs, Fur-felt hats, and Cordage and twine, jute goods, and linen goods—need no explanation. The figures are totals of several different kinds of products, individually small in magnitude, but collectively worthy of consideration.

### GROUP III.—IRON AND STEEL AND THEIR PRODUCTS

This group, with the largest weight of all the groups, is represented by only two series of figures, which, however, cover products that are basic for all the industries in the group. In computing the weights, in addition to value added by manufacture for the iron and steel group proper, which as classified in censuses prior to 1923 includes a number of machinery industries, one-half of the values added for vehicles for land transportation and for shipbuilding were assigned to iron and steel. This procedure, as explained in the discussion of weights, was followed in order to avoid giving undue weight to vehicles, which happen to be represented in the index, while the machinery industries, also large consumers of steel, remain unrepresented. With the readjustment of weights, iron and steel represents in the index steel works and rolling mills, industries making a number of miscellaneous iron and steel products, the machinery industries, and in part, the vehicles industries.

*Blast furnaces* are represented by figures including castings made direct from blast furnaces and ferro-alloys, as well as all types of pig iron. About three-fourths of the pig iron produced is consumed in works of the producing company; therefore this series can also be considered as a raw material for the steel industry.

*Steel works and rolling mills.*—Rolled, forged, and other classified iron and steel products include a variety of finished and semifinished products, made in rolling mills for sale or for consumption by the producing company. Some duplication undoubtedly results from such a grouping, as a portion of these products are used by the same company for further production, but the effect of this duplication upon comparisons between census years is slight. This series is assigned a weight for steel works and rolling mills and for industries manufacturing products largely made by steel works and rolling mills.

As in the case of textiles, quantitative statistics are not available for a number of important industries in the iron and steel groups—notably hardware, plumbers' supplies, heating apparatus, tools and cutlery, and also certain machinery industries, which prior to 1923 were classified by the census under iron and steel. These are foundry and machine shops—a heterogeneous collection of establishments, generally closely associated with companies producing a wide variety of products—engines and water wheels, machine tools, textile machinery, cash registers, pumps, and typewriters. In the 1923 census these industries were classified with agricultural implements, electrical apparatus, and others in a separate machinery group.

In recent censuses quantitative statistics have been published for engines and water wheels, machine tools, textile machinery, agricultural implements, and electrical apparatus. Certain characteristics of these data, however, disqualify them for use in the production index. In the first place, the units in which the figures are expressed are of questionable comparability between census years.

Important shifts may occur in the character of machines produced in 2, 4, or 5 years. In fact, within a year the demand for different types may change to such an extent that totals become noncomparable. In the second place, these industries have passed through some extreme variations of activity in the past decade, and it is impossible to determine whether any single industry or any group of industries may be considered as at all representative of the group as a whole. The figures, however, are worthy of investigation, are undoubtedly of value for certain purposes, and may in time become increasingly significant.

Experimental indexes were computed for these industries and are given for those who may be interested. The extent of their accuracy and representativeness can not be stated.<sup>1</sup>

TABLE 24.—INDEXES OF PRODUCTION OF MACHINERY: 1914 TO 1923

|  | 1914 | 1919 | 1921 | 1923 |
|--|------|------|------|------|
| Engines and water wheels.....                      | 27   | 100  | 43   | 80   |
| Machine tools.....                                 |      | 100  | 33   | 45   |
| Textile machinery and parts.....                   |      | 100  | 118  | 132  |
| Agricultural implements.....                       | 89   | 100  | 67   | 74   |
| Electrical machinery, apparatus, and supplies..... | 48   | 100  | 96   | 157  |

#### GROUP IV.—LUMBER AND ALLIED PRODUCTS

*Lumber and timber products.*—The physical quantity of hardwoods and softwoods cut in each year since 1921 has been compiled by the Bureau of the Census in cooperation with the Forest Service, Department of Agriculture. The figures for 1919 include data from custom mills and from mills with an annual cut of less than 50,000 feet, whereas custom mills were not included in 1914, 1921, and 1923, and furthermore in 1923 figures for mills reporting less than 50,000 feet were omitted. The 1919 figures were adjusted for use in the index to make them comparable with those of other years. Statistics of quantity output of planing-mill products, such as flooring, sash, doors, interior woodwork, and moldings are needed. Of the other industries in this group, furniture is by far the most important, and for it physical quantity statistics are not only unavailable but would be difficult to obtain. Comparable statistics of wage earners and of horsepower indicate that the lumber and timber products industry alone is not representative of changes for the group as a whole. In view of this fact and of the possibility that the production statistics used are not entirely comparable from year to year, owing to differences in the types of canvass conducted, the index for lumber is not considered to be as satisfactory as those for the other groups. Weights for the two series used—softwoods and hardwoods—were computed on the basis of relative values of products.

#### GROUP V.—LEATHER AND ITS FINISHED PRODUCTS

*Leather, tanned, curried, and finished.*—Statistics of the physical production of upper leather made from hides and skins of various animals, other than cattle, were first published in 1914 and have been added to other series representing this industry in the Harvard index—sole leather, harness leather, and upper leather from cattle hides. The importance of these additional types of leather is attested by the fact that their total value in 1919 exceeded that of sole leather and was double that of upper leather from cattle hides. Quantity statistics of leather production are now collected monthly in great detail by the Bureau of the Census. *Boot and shoe* production has also been reported monthly since late 1921, and the 1923 figures in the census of manufactures reports are the totals of these monthly

<sup>1</sup> For actual quantity figures, see Table 37, pp. 185 and 190.

canvases. *Gloves and mittens*. These statistics were not reported in 1923, and for this reason and because their importance in the group was relatively slight the series was omitted for all the four years from 1914 to 1923.

As indicated by value added by manufacture, the industries from this group represented in the index make up a dominant proportion of the group total. The other industries not represented are of minor importance. The entire weight for the group, less that for boots and shoes, was assigned to the tanning industry.

#### GROUP VI.—PAPER AND PRINTING

*Paper and wood pulp*.—Pulp-wood consumption statistics have been compiled annually by the Bureau of the Census in cooperation with the Forest Service of the Department of Agriculture, and are published in the pamphlet "Pulp-Wood Consumption and Wood-Pulp Production." Wood-pulp production, given in the same pamphlet and also in the census of manufactures reports, represents total production, including that consumed in the producing mill. Paper production is shown in great detail by types according to use, and some of these are further divided into kinds according to process of manufacture. For use in index the totals for the most important types—newsprint, book paper (including cover paper), fine paper, wrapping paper, and paper board—have been separately included, while all others—chiefly building, tissue, bag, and hanging papers—have been grouped under the heading of "Miscellaneous."

*Printing and publishing*.—No adequate figures are available for measuring production in the important printing and publishing industries. Paper production may be considered as the closest indication of the output of newspapers and books and of activity in job printing and may be weighted accordingly, but paper consumption is more accurate, and, therefore, allowance has been made for imports and exports of paper, which in the case of newsprint have been of increasing importance. In 1914 imports of newsprint equaled less than 20 per cent of domestic production, whereas in 1923 the totals were 85 per cent of production. In other words, 46 per cent of estimated consumption of newsprint in the United States in 1923 was imported, as compared with 16 per cent in 1914. Obviously, figures showing only the production of newsprint in this country can not be said to indicate growth in newspaper printing. The production of book and fine paper, less net exports of printing paper other than newsprint, was used to represent periodical and book publishing and job printing. Unquestionably, such statistics are inexact, but they probably give more accurate results than could be obtained from the use of paper-production figures.

*Paper boxes*.—Paper-board production was considered as representative of the paper-box industry. Imports and exports of box board are negligible.

In assigning weights, wood pulp and paper was weighted in accordance with value added by manufacture for industries in the group not represented in the index, in addition to that for the wood-pulp and paper industry proper. Weights for the individual pulp and paper series were based upon value of output, while those for the two series representing printing were based upon the relative importance of the newspaper and the periodical and book and job printing industries.

#### GROUP VII.—LIQUORS AND BEVERAGES

Under prohibition laws these industries have become of decreasing importance, and in the 1923 census of manufactures this group was abolished and its industries were divided among the food and chemical groups. No figures for these industries were included in the new index for years subsequent to 1919 for several reasons, of which the first is their relative unimportance and the next is that physical production statistics of their products are not given in the census reports.

The data used in the Harvard index were secured from the Annual Reports of the Commissioner of Internal Revenue and represented output in fiscal years ending June 30. In earlier periods these data for every five years probably represented with reasonable accuracy trends in the industry, but since 1919, when production has been decreasing at an exceedingly rapid rate and when comparisons are made every two years instead of every five years, fiscal-year statistics are hardly indicative of trends in calendar-year production. Furthermore, the figures formerly used covered only alcoholic beverages, and since data are not available for nonalcoholic beverages, which have shown an increase in production during recent years, an index based only upon the figures available would not be representative of the group.

#### GROUP VIII.—CHEMICALS AND ALLIED PRODUCTS

Several series of considerable importance were added to the industries in this group, and a number of others were revised in the new computation of the index.

*Chemicals and acids.*—This industry is a combination of two industries—Sulphuric, nitric, and mixed acids and Chemicals, not elsewhere classified—and is weighted accordingly. The statistics for this industry have been enlarged somewhat in recent years, and whereas the Harvard index was made up only of data for sulphuric acid, soda ash, and glycerin, the revised index includes, in addition, statistics showing the production of ammonium sulphate, acetylene, oxygen, pyroxylin plastics, and others of less importance. A representative index for this industry should be particularly serviceable, as monthly and annual statistics indicating the production of chemicals and acids are scarce. The figures used include products made in establishments classified in other industries. The value of the products included in this index equals about one-third of the value of all chemical products reported in the 1923 census. Weights are based upon values of products.

The *Coke* industry is represented by figures for coal consumed and coke produced. *Gas, illuminating and heating* is also represented by data for materials consumed—coal and oil, benzol, and benzine—as well as by gas produced for sale.

*Fertilizers and Explosives* are shown only in the form of products, as data for materials are not available in later censuses. In *Cottonseed oil and cake* the figures for hulls and linters have been omitted as too insignificant to be assigned weights. Crude oil and cake and meal are considered sufficiently representative.

*Paint and varnish.*—The data for this industry, which are given by the census in detail, are grouped into totals for index purposes. All colors or pigments produced and sold are combined into a total. The paints in oil, in paste form, include white and red lead and zinc oxide and are shown in pounds, while those mixed for use are given in gallons. Varnishes, japans, and lacquers are almost equally divided into oleoresinous varnishes and all other.

*Petroleum-refining* products have been reclassified since the census of 1909 in order to separate gasoline from other products, and in this respect the figures used differ from those employed in the Harvard index. In addition to the output of the important refinery products, statistics are also included showing production and refinery consumption of crude petroleum. These figures were not collected by the census in 1921, but were procured from Geological Survey reports.

*Salt and Soap* industries were added to those included in the Harvard index for this group. The latter is a rather important industry, and the production of hard soap, which is the series used in the index, in 1923 accounted for nearly two-thirds of the value of all products of the industry.

The industries in this group are rather heterogeneous in nature, and although those represented in the index accounted in 1923 for over three-fourths of the value added by manufacture for the entire group, it is hardly correct to say that

they are representative of the others in respect to changes in production. Some of the more important industries for which no physical production data are available are Patent medicines, Perfumery and toilet preparations, and Drug-gists' preparations—all producing commodities which are destined for personal consumption rather than for use in further production.

#### GROUP IX.—STONE, CLAY, AND GLASS PRODUCTS

*Brick and tile, terra-cotta, and fire-clay products* include a large number of products, for many of which production statistics have been collected annually in recent years by the Geological Survey. The series selected for the index are, however, only the most important and include figures for face brick in addition to those for common brick and fire brick used in the Harvard index. *Glass:* Statistics showing the amount of bottles and jars and of pressed and blown glass produced have not been published in census reports since 1919, and therefore these series, which were used in the Harvard index, were necessarily omitted. Data for window and plate glass, however, have been continued. Production of *Cement*, including a number of minor by-products, and of *Lime* have been added to the series for this group of industries. The lime statistics are totals of the output of quicklime and hydrated lime. The tonnage of the latter equals about one-half that of quicklime. Marble, slate, and stone work, Artificial stone products, and Pottery are the important industries in this group not represented in the index. The value of the production of various articles of pottery are given, but no statistics expressed in physical units are available. In value added by manufacture, the industries included in the index comprised in 1923 over 60 per cent of the group total.

#### GROUP X.—METALS AND METAL PRODUCTS, OTHER THAN IRON AND STEEL

*Brass, bronze, and other nonferrous alloys, and manufactures of these alloys and of copper* is the name applied to an important industry, or group of establishments, manufacturing a wide variety of products, largely from copper or copper alloys. The production of semifinished products is reported in pounds with a cross classification according to (1) raw material—brass, bronze, copper, and other metals and alloys—and (2) form—ingots, bars, plates, sheets, rods, tubing, wire, and castings. Brass plates and sheets, as indicated by total weight, were the most important products, with copper wire, copper rods, brass castings, and brass rods next in order. The figure used in the index is the total production in pounds of all these semifinished products. These figures have been available only since 1914 and were therefore not included in the old index. The output of products more nearly finished is reported only in value terms.

In computing indexes for the other industries in this group the procedure followed in the Harvard index was somewhat changed. In the earlier index estimates of the consumption of important nonferrous metals were used as indicating the productivity of the entire group, whereas in the new index, the group is represented by the industry mentioned in the preceding paragraph, by the smelting and refining industries, and finally by certain consumption estimates. For *smelting and refining* the following statistics were used: The refinery production of new copper in the United States from both domestic and foreign ores, total production of refined primary lead from domestic ores and from foreign ores and base bullion, smelter production of primary zinc from foreign and domestic ores, refinery production of gold and silver from United States mines. The figures for copper, lead, and zinc were compiled by the Geological Survey and those for gold and silver by the Director of the Mint.

Consumption statistics for these minerals have been estimated by the same authorities. The copper figures represent the amount of both new and old copper withdrawn on domestic account from the total supply. No account was taken of consumers' stocks. The lead data indicate apparent consumption of refined primary lead, disregarding both refinery and consumers' stocks; i. e., taking into account only those stocks in bonded warehouses. In the case of zinc, stocks at smelters were considered in estimating annual consumption. The figures, however, cover only primary slab zinc. For gold and silver consumption figures show the amounts issued for use in the industrial arts as reported by the Director of the Mint.

The extent to which these figures actually represent production of this group of industries can not be determined. Variations of the actual production from that indicated by the computed figures may be caused by any of a number of factors, such as differences in the uncounted stocks of metals, changes in the use of these materials by industries in other groups, and likewise variations in the consumption of other materials by industries in this group. Important industries of this group not directly represented in the index are Copper, tin, and sheet-iron work; Jewelry; Stamped and enameled ware, not elsewhere classified; Aluminum manufactures; and Gas and electric fixtures.

The weight for this group was distributed among its components on the following basis: Weights for the two industries directly represented—brass, bronze, etc., and smelting and refining—were based upon value added by manufacture as, respectively, reported for these two industries; and the value added for the other industries in the group was distributed among the series measuring the consumption of the various metals in accordance with their relative values.

#### GROUP XI.—TOBACCO MANUFACTURES

On the basis of products for which production statistics are available, this is the most adequately represented of all groups of industries, as practically every product of the industry is covered. The figures are taken from "the annual abstract of tobacco manufacturers' accounts prepared by the collector of internal revenue at the close of each calendar year." Tobacco and snuff include plug, twist, fine cut, and smoking tobacco, and snuff. The statistics for cigarettes weighing more than 3 pounds per 1,000 and for cigars weighing less than 3 pounds per 1,000 were excluded from the index as being too small to be significant. In weighting this group the large portion of the value added by manufacture, which is made up of revenue taxes, was excluded. This amounted to about \$310,000,000 out of a total of nearly \$530,000,000 in 1923.

#### GROUP XII.—VEHICLES FOR LAND TRANSPORTATION

Assignment of weights to the various industries in this group was explained above under Iron and steel.

*Motor vehicles.*—Automobile production is now reported by the Bureau of the Census in detail by classes and types. The industry included, according to the 1923 census of manufactures, "all manufacturing establishments whose principal products are four-wheeled, motor-propelled (internal-combustion, electric, or steam) steerable vehicles." The production figures used include products made in establishments engaged in other industries. Owing to the rapid increase in the proportion of closed cars to the total number produced, and the essential difference between open and closed cars, the production figures for this industry have been divided into three series—(1) open passenger cars, (2) closed passenger cars, and (3) all others, including public conveyances, business vehicles, government vehicles, chassis, tractors, and trailers. The last series is a heterogeneous assortment, but it is relatively unimportant as compared with the other groups, and further separation would have no significant effect upon the industry

index. The three series were weighted in accordance with the relative values of their products. The index as thus computed was 25 in 1914 and 232 in 1923, whereas a comparison of unweighted totals for all types of vehicles gave relatives of 30 in 1914 and 206 in 1923. The weight for this industry as a whole was based upon the combined value added by manufacture for the Motor-vehicles and Motor-vehicle bodies and parts industries, reduced as explained above under Iron and steel.

*Carriages, wagons, and repairs* are represented by figures comprising completed carriages, wagons, buggies, public conveyances, sleighs, and sleds produced in establishments devoted primarily to the manufacture of such horse-drawn vehicles. The total does not include automobiles manufactured by the same establishments.

*Railway equipment.*—Products of several industries have been included in this category. Passenger-car production represents the total number of both steam and electric railroad cars produced by establishments engaged primarily in the manufacture of railroad cars, by railroad repair shops, and by other establishments. Freight cars are those made by all reporting industries for steam railroads. The number of electric freight cars produced is relatively negligible. *Locomotives* were not included in the Harvard index, as figures have been given in census reports only since 1919. The data include steam locomotives made by establishments engaged primarily in their production, by railroad repair shops, and by establishments in other industries. The figure used for 1914 represents locomotives built in American and Canadian plants and in railroad repair shops as reported by The Railway Age. A comparison of the corresponding figure for 1919 with the census figure indicates that the former is too small rather than too large, despite the inclusion of Canadian output. The figures are not exactly comparable, but the difference is not appreciable. This industry prior to 1923 was classified in the Iron and steel group, but for the purposes of the index it was considered better suited for this group.

From the standpoint of the proportion of its industries included in the index, this industrial group is exceptionally well represented. Motor cycles and bicycles, Aircraft and parts, and a few other relatively unimportant industries are omitted. Motor-vehicle bodies and parts are not directly included but are represented with a reasonable degree of adequacy by automobile production. The chief defect of the figures for the industries in this group is the noncomparability of units—both those which in a single year are combined into totals and those which from one census year to the next bear the same name but are really different. The automobiles of 1914 were different from those of 1923 to an extent not entirely indicated by the change from open to closed cars, and perhaps to a smaller degree the same is true of railroad cars and of locomotives. The index is, therefore, only an indication of what has taken place, but is probably a more nearly correct indication than can be obtained from any other series of available statistics.

#### GROUP XIII.—RAILROAD REPAIR SHOPS

New products manufactured by railroad repair shops have been included in the figures for Group XII, but the largest proportion of the output of this industry, consisting of repairs, is essentially unmeasurable on a physical basis and therefore is not included in the index.

#### GROUP XIV.—MISCELLANEOUS

No figures were used in the Harvard index from the industries in this group, in part because they were not then available, in part because the industries were not especially important, and perhaps to some extent because the statistics available were unsatisfactory. Within the past decade, however, the two industries shown in the new index—Shipbuilding and Rubber products—have become of great importance, and in some instances the reporting of serviceable quantitative statistics has been started. Most of these statistics are in certain



respects unsatisfactory for index-number purposes because of the difficulty of defining units, but, as was the case with the transportation industries, the indexes give an approximate indication of what has occurred and for that reason should be of value.

*Ship and boat building.*—As was stated earlier in this chapter (p. 95) any comparison of the volume of manufacturing which includes 1919 would not be accurate, unless consideration were given to shipbuilding, in view of its unusual activity in that year. The statistics employed in measuring production in the Shipbuilding industry show total gross tonnage of all vessels of 5 gross tons and over completed during the year. Two sets of figures are given—one for steel vessels and the other for wooden vessels. They cover only the production of private establishments engaged primarily in shipbuilding. Production by other private establishments engaged in other lines and by Government shipyards have not been given regularly in census reports. For those years in which reported, they were unimportant relative to the figures used. Distribution of the weights for the industry between the two series was based upon value of output. Assignment of the total weight to this industry was explained above under Iron and steel.

*Rubber products,* in the new classification of industries instituted by the Bureau of the Census in 1923, were given the dignity of a separate main group, made up of three industries—Rubber boots and shoes, Rubber tires and inner tubes, and Rubber goods, not elsewhere classified. Until 1921 the last two industries were combined in the census reports. Physical production statistics are available for two of these industries. In *Tires and tubes* the figures used represent production of pneumatic tires and inner tubes for use on automobiles. Motor-cycle and bicycle pneumatic tires and solid tires were omitted as of negligible importance. The figures for the *Rubber boots and shoes* industry since 1919 include, in addition to boots and shoes, data for rubber heels made for sale and for canvas shoes with rubber soles. These two products have been of increasing importance in the past decade. Value figures are given in the census reports for a number of other rubber products, but no other data of great importance are reported in terms of physical units. The products included in the index, however, comprised three-fourths of the total value of rubber products manufactured in 1923.

The only other industries of importance in this group are Agricultural implements, Textile machinery and parts, and Musical instruments. The first two were assigned in the 1923 census reports to the Machinery group of industries and are discussed above under Iron and steel. Musical instruments were given in the 1923 reports as a separate group. Quantitative production figures are reported for a number of instruments and other products and an index was computed for this group but because of the doubtful comparability of the figures over a period of years and the relatively slight importance of the group, it was not included in the index for all industries. The results, which are based upon products with a value equaling about 70 per cent of the aggregate value for all products in the group, are as follows:

TABLE 25.—INDEXES OF PRODUCTION OF MUSICAL INSTRUMENTS: 1914 TO 1923<sup>1</sup>

|                              | 1914 | 1919 | 1921 | 1923 |
|------------------------------|------|------|------|------|
| Total.....                   | 48   | 100  | 52   | 73   |
| Pianos.....                  | 96   | 100  | 65   | 102  |
| Phonographs and records..... | 24   | 100  | 45   | 60   |

<sup>1</sup> Quantity figures are given in Table 37, p. 189.

TABLE 26.—DATA USED IN THE INDEX, WEIGHTS, RELATIVES, AND INDUSTRY AND GROUP INDEXES, BY CENSUS YEARS: 1914 TO 1925<sup>1</sup>

| GROUP AND INDUSTRY                                     | Unit               | QUANTITY OF PRODUCTS |          |          |          |          | WEIGHTS |       |       |       | INDEXES AND RELATIVES<br>[1919=100] |       |       |       |
|--|--------------------|----------------------|----------|----------|----------|----------|---------|-------|-------|-------|-------------------------------------|-------|-------|-------|
|  |                    | 1914                 | 1919     | 1921     | 1923     | 1925     | 1914    | 1921  | 1923  | 1925  | 1914                                | 1921  | 1923  | 1925  |
| All industries.....                                    |                    |                      |          |          |          |          | 1,020   | 1,000 | 1,000 | 1,000 | 79.3                                | 79.4  | 123.9 | 123.5 |
| Food and kindred products.....                         |                    |                      |          |          |          |          | 117     | 118   | 106   | 110   | 96.9                                | 93.5  | 111.6 | 113.4 |
| Butter, cheese, and condensed and evaporated milk..... |                    |                      |          |          |          |          | 11      | 17    | 13    | 14    | 67.3                                | 104.9 | 122.4 | 131.6 |
| Butter.....  | Mill. lbs.         | 769.8                | 920.6    | 1,118.2  | 1,303.5  | 1,443.9  | 6       | 10    | 8     | 9     | 83.6                                | 121.5 | 141.6 | 156.5 |
| Cheese.....  | Mill. lbs.         | 370.3                | 473.6    | 423.4    | 563.0    | 554.3    | 2       | 3     | 2     | 2     | 78.2                                | 89.4  | 119.0 | 117.0 |
| Condensed and evaporated milk.....                     | Mill. lbs.         | 873.4                | 2,150.2  | 1,753.5  | 1,821.1  | 1,808.0  | 3       | 4     | 3     | 3     | 40.6                                | 51.8  | 84.7  | 84.1  |
| Slaughtering and meat packing.....                     |                    |                      |          |          |          |          | 43      | 40    | 38    | 33    | 75.7                                | 80.1  | 113.0 | 105.9 |
| Materials—   |                    |                      |          |          |          |          |         |       |       |       |                                     |       |       |       |
| Beeves, dressed weight.....                            | Mill. lbs.         | 3,786.4              | 5,118.7  | 4,358.0  | 5,151.4  | 5,434.4  | 6       | 6     | 6     | 6     | 74.0                                | 85.1  | 100.6 | 106.2 |
| Calves, dressed weight.....                            | Mill. lbs.         | 206.3                | 457.5    | 438.0    | 535.7    | 623.6    | 1       | 1     | 1     | 1     | 45.1                                | 95.7  | 117.1 | 136.3 |
| Sheep and lambs, dressed weight.....                   | Mill. lbs.         | 629.7                | 499.7    | 568.0    | 515.0    | 531.8    | 1       | 1     | 1     | 1     | 126.0                               | 113.7 | 103.1 | 106.4 |
| Hogs, dressed weight.....                              | Mill. lbs.         | 5,476.2              | 7,368.9  | 6,873.3  | 9,439.1  | 7,864.7  | 10      | 10    | 10    | 10    | 74.4                                | 93.4  | 128.3 | 108.9 |
| Products—  |                    |                      |          |          |          |          |         |       |       |       |                                     |       |       |       |
| Meat, fresh and cured.....                             | Mill. lbs.         | 9,660.3              | 12,634.0 | 10,974.0 | 13,603.2 | 12,910.8 | 21      | 18    | 16    | 10    | 73.5                                | 86.9  | 107.7 | 102.3 |
| Lard and lard compounds.....                           | Mill. lbs.         | 1,515.6              | 1,894.0  | 1,952.4  | 2,419.7  | 2,123.2  | 3       | 3     | 3     | 3     | 80.0                                | 103.1 | 127.8 | 112.1 |
| Hides and skins, cattle and calf.....                  | Mill. lbs.         | 434.5                | 627.5    | 524.1    | 626.5    | 677.5    | 1       | 1     | 1     | 1     | 69.2                                | 83.5  | 99.8  | 108.0 |
| Flour-mill and grain-mill products.....                |                    |                      |          |          |          |          | 25      | 20    | 18    | 18    | 95.4                                | 86.9  | 91.1  | 87.6  |
| Material—  |                    |                      |          |          |          |          |         |       |       |       |                                     |       |       |       |
| Grain, ground or milled.....                           | Mill. bushels      | 818.9                | 830.0    | 713.6    | 743.2    | 708.0    | 7       | 6     | 4     | 4     | 98.7                                | 88.0  | 99.5  | 85.3  |
| Products—  |                    |                      |          |          |          |          |         |       |       |       |                                     |       |       |       |
| Wheat flour.....                                       | Mill. bbls.        | 116.4                | 132.5    | 110.8    | 114.4    | 114.2    | 12      | 10    | 10    | 10    | 87.8                                | 83.6  | 86.3  | 86.2  |
| Corn meal and corn flour.....                          | Mill. bbls.        | 16.3                 | 10.7     | 10.9     | 12.2     | 9.0      | 1       | 1     | 1     | 1     | 152.3                               | 101.9 | 114.0 | 84.1  |
| Bran, middlings, feed, and offal.....                  | Thous. tons.       | 9,419.8              | 9,327.1  | 8,936.9  | 9,663.4  | 9,058.0  | 5       | 5     | 5     | 9     | 101.0                               | 95.8  | 103.6 | 97.1  |
| Sugar, beet.....                                       |                    |                      |          |          |          |          | 5       | 5     | 5     | 5     | 101.7                               | 141.4 | 103.7 | 148.3 |
| Material—  |                    |                      |          |          |          |          |         |       |       |       |                                     |       |       |       |
| Beets.....   | Thous. short tons. | 5,639.1              | 5,648.6  | 7,872.8  | 5,786.1  | 7,422.8  | 2       | 2     | 2     | 2     | 99.8                                | 139.4 | 102.4 | 131.4 |
| Product—   |                    |                      |          |          |          |          |         |       |       |       |                                     |       |       |       |
| Beet sugar.....  | Thous. short tons. | 743.5                | 721.9    | 1,029.9  | 754.5    | 1,082.8  | 3       | 3     | 3     | 3     | 103.0                               | 142.7 | 104.5 | 150.0 |
| Sugar refining, cane:                                  |                    |                      |          |          |          |          |         |       |       |       |                                     |       |       |       |
| Refined sugar.....                                     | Thous. short tons. | 3,333.1              | 3,521.5  | 3,770.2  | 4,429.1  | 5,411.7  | 5       | 5     | 5     | 5     | 94.7                                | 107.1 | 125.8 | 153.7 |

<sup>1</sup> For sources and other details of quantity figures given in this table, see section on "Description of Individual Series," Appendix A. For quantity figures for earlier years, see Table 37. Indexes for earlier years by groups and for certain important industries are given in Table 38.

TABLE 26.—DATA USED IN THE INDEX, WEIGHTS, RELATIVES, AND INDUSTRY AND GROUP INDEXES, BY CENSUS YEARS: 1914 TO 1925—  
Continued

| GROUP AND INDUSTRY                                  | Unit                  | QUANTITY OF PRODUCTS |         |         |         |         | WEIGHTS |      |      |      | INDEXES AND RELATIVES<br>[1919=100] |       |       |       |
|---|-----------------------|----------------------|---------|---------|---------|---------|---------|------|------|------|-------------------------------------|-------|-------|-------|
|   |                       | 1914                 | 1919    | 1921    | 1923    | 1925    | 1914    | 1921 | 1923 | 1925 | 1914                                | 1921  | 1923  | 1925  |
| Food and kindred products—Continued.                |                       |                      |         |         |         |         |         |      |      |      |                                     |       |       |       |
| Canning and preserving, fruits and vegetables, etc. |                       |                      |         |         |         |         | 11      | 18   | 18   | 15   | 77.3                                | 69.6  | 126.7 | 153.5 |
| Canned vegetables.....                              | Mill. cases.....      | 50.3                 | 58.1    | 38.2    | 75.8    | 94.7    | 6       | 6    | 6    | 7    | 86.6                                | 65.7  | 130.5 | 163.3 |
| Canned fruits.....                                  | Mill. cases.....      | 9.4                  | 21.4    | 12.5    | 20.3    | 25.4    | 2       | 3    | 3    | 3    | 43.9                                | 58.4  | 94.9  | 118.7 |
| Dried fruits.....                                   | Mill. lbs.....        | 568.6                | 615.4   | 504.9   | 791.8   | 1,054.1 | 2       | 2    | 2    | 2    | 92.4                                | 82.0  | 128.7 | 171.3 |
| Canned soups.....                                   | Mill. cases.....      | 4.9                  | 5.8     | 6.9     | 14.2    | 10.0    | 1       | 1    | 1    | 1    | 84.5                                | 119.0 | 244.8 | 172.4 |
| Canned fish, oysters, etc.....                      | Mill. cases.....      | 8.8                  | 10.3    | 4.9     | 7.4     | 9.8     | 3       | 2    | 2    | 2    | 85.4                                | 47.6  | 71.8  | 95.1  |
| Corn sirup, corn oil, and starch:                   |                       |                      |         |         |         |         |         |      |      |      |                                     |       |       |       |
| Starch.....   | Mill. lbs.....        | 620.8                | 783.5   | 894.1   | 858.4   | 874.3   | 4       | 6    | 5    | 5    | 79.2                                | 114.1 | 109.6 | 111.6 |
| Rice cleaning and polishing:                        |                       |                      |         |         |         |         |         |      |      |      |                                     |       |       |       |
| Clean rice.....                                     | Mill. lbs.....        | 674.9                | 1,062.8 | 1,154.2 | 1,171.6 | 947.8   | 1       | 1    | 1    | 1    | 63.5                                | 108.6 | 110.2 | 89.2  |
| Ios, manufactured.....                              | Mill. tons.....       | 21.04                | 27.95   | 31.38   | 35.84   | 40.16   | 9       | 10   | 9    | 9    | 75.3                                | 112.3 | 128.2 | 143.7 |
| Textiles and their products.....                    |                       |                      |         |         |         |         | 175     | 190  | 180  | 170  | 96.8                                | 96.8  | 122.9 | 119.3 |
| Cotton goods.....                                   |                       |                      |         |         |         |         | 70      | 76   | 74   | 70   | 101.6                               | 88.6  | 122.8 | 117.8 |
| Woven goods (over 12 inches in width).....          | Mill. sq. yds.....    | 6,813.5              | 6,817.4 | 6,703.8 | 8,264.2 | 7,775.7 | 54      | 57   | 55   | 51   | 107.9                               | 106.1 | 130.8 | 123.1 |
| Yarns manufactured for sale.....                    | Mill. lbs.....        | 498.0                | 618.0   | 484.2   | 620.7   | 626.4   | 14      | 17   | 17   | 17   | 80.6                                | 78.3  | 100.4 | 101.4 |
| Thread.....   | Mill. lbs.....        | 26.5                 | 26.4    | 23.3    | 31.6    | 37.6    | 2       | 2    | 2    | 2    | 100.2                               | 88.0  | 119.7 | 142.4 |
| Knit goods.....                                     |                       |                      |         |         |         |         | 87      | 80   | 88   | 88   | 92.9                                | 94.0  | 115.2 | 115.5 |
| Hosiery.....  | Thous. doz. prs.....  | 75,165               | 84,646  | 80,241  | 97,433  | 103,707 | 13      | 16   | 15   | 15   | 88.3                                | 94.8  | 116.1 | 122.5 |
| Underwear.....                                      |                       |                      |         |         |         |         |         |      |      |      |                                     |       |       |       |
| Shirts and drawers.....                             | Thous. doz.....       | 21,759               | 17,180  | 11,712  | 12,747  | 11,262  | 6       | 4    | 4    | 4    | 126.6                               | 68.2  | 74.2  | 65.6  |
| Union suits.....                                    | Thous. doz.....       | 6,273                | 9,211   | 9,284   | 10,746  | 11,500  | 5       | 5    | 4    | 4    | 68.1                                | 100.8 | 118.7 | 124.9 |
| Gloves and mittens.....                             | Thous. doz. prs.....  | 2,470                | 3,571   | 2,685   | 2,094   | 1,301   | 1       | 1    | 1    | 1    | 69.2                                | 75.2  | 68.6  | 36.4  |
| Sweaters, jerseys, hoods, scarfs, shawls, etc.....  | Thous. doz.....       | 3,300                | 2,989   | 3,618   | 5,278   | 5,011   | 3       | 4    | 4    | 4    | 110.4                               | 121.1 | 210.1 | 187.6 |
| Silk manufactures.....                              |                       |                      |         |         |         |         | 87      | 88   | 85   | 85   | 73.2                                | 92.6  | 116.9 | 137.0 |
| Broad silks.....                                    | Mill. linear yds..... | 216.03               | 310.13  | 273.59  | 357.03  | 472.52  | 20      | 21   | 19   | 19   | 69.7                                | 88.2  | 115.1 | 152.4 |
| Velvets, plushes, upholstery, and tapes-tries.....  | Mill. linear yds..... | 25.91                | 22.53   | 18.03   | 26.38   | 9.68    | 3       | 2    | 2    | 2    | 115.0                               | 80.0  | 117.1 | 43.0  |
| Other silk goods.....                               | Thous. lbs.....       | 7,240                | 10,853  | 13,056  | 13,671  | 15,976  | 4       | 5    | 4    | 4    | 66.7                                | 120.3 | 126.0 | 147.2 |

|  |                       |        |        |        |        |        |     |     |     |     |       |       |       |       |
|--|-----------------------|--------|--------|--------|--------|--------|-----|-----|-----|-----|-------|-------|-------|-------|
| Woolen and worsted goods.....  |                       |        |        |        |        |        | 54  | 40  | 39  | 38  | 104.3 | 88.6  | 122.2 | 115.6 |
| All-wool woven goods.....  | Mill. sq. yds.....    | 323.04 | 326.71 | 326.66 | 399.09 | 345.96 | 20  | 25  | 20  | 18  | 98.9  | 100.0 | 122.2 | 105.9 |
| Union or cotton-mixed woven goods.....   | Mill. sq. yds.....    | 46.2   | 47.8   | 24.9   | 47.4   | 52.9   | 1   | 1   | 2   | 2   | 96.8  | 52.1  | 99.3  | 110.7 |
| Cotton-warp woven goods.....   | Mill. sq. yds.....    | 195.2  | 161.4  | 142.2  | 181.5  | 180.9  | 4   | 4   | 4   | 3   | 121.5 | 88.1  | 112.4 | 112.1 |
| Yarns and tops.....  | Mill. lbs.....        | 141.5  | 128.2  | 136.0  | 200.6  | 169.5  | 9   | 10  | 10  | 9   | 110.4 | 106.1 | 156.4 | 131.9 |
| Carpets and rugs, wool, other than rag:<br>Carpets and rugs.....                                       | Mill. sq. yds.....    | 66.84  | 52.17  | 52.91  | 83.24  | 72.10  | 6   | 6   | 7   | 6   | 127.2 | 101.4 | 159.6 | 138.2 |
| Cordage and twine, jute goods and linen goods:<br>Rope and binder twine, exclusive of cotton rope..... | Mill. lbs.....        | 487.4  | 443.2  | 368.3  | 432.9  | 443.0  | 8   | 8   | 2   | 2   | 110.0 | 80.6  | 97.7  | 100.0 |
| Twine, other than binder.....  | Mill. lbs.....        | 105.2  | 92.4   | 80.4   | 120.1  | 83.3   | 1   | 1   | 1   | 1   | 114.0 | 87.0  | 130.0 | 90.2  |
| Hats, fur-felt.....  | Thous. doz.....       | 2,119  | 2,100  | 1,756  | 1,970  | 1,733  | 4   | 8   | 4   | 8   | 100.9 | 83.6  | 93.8  | 82.5  |
| Oilcloth and floor coverings:<br>Piece goods, rugs, etc.....   | Mill. sq. yds.....    | 119.5  | 109.9  | 135.8  | 205.2  | 211.7  | 3   | 3   | 3   | 3   | 103.7 | 123.5 | 186.7 | 192.6 |
| Iron and steel and their products.....   |                       |        |        |        |        |        | 234 | 231 | 254 | 254 | 71.1  | 56.6  | 131.2 | 131.5 |
| Blast furnaces:<br>Pig iron, including ferro-alloys.....   | Thous. long tons..... | 23,270 | 30,543 | 16,618 | 40,163 | 36,688 | 24  | 21  | 24  | 24  | 76.2  | 54.4  | 131.5 | 120.1 |
| Steel works and rolling mills:<br>Rolled, forged, and other classified iron and steel products.....    | Thous. long tons..... | 25,523 | 36,212 | 20,572 | 47,513 | 43,100 | 210 | 210 | 230 | 230 | 70.5  | 56.8  | 131.2 | 132.8 |
| Lumber and its remanufactures.....   |                       |        |        |        |        |        | 90  | 80  | 83  | 83  | 110.6 | 79.9  | 110.1 | 113.6 |
| Lumber:<br>Softwoods.....  | Mill. M ft. b. m..... | 29.41  | 26.80  | 22.19  | 30.90  | 31.71  | 70  | 65  | 67  | 67  | 109.7 | 82.8  | 115.3 | 118.3 |
| Hardwoods.....   | Mill. M ft. b. m..... | 7.94   | 6.99   | 4.78   | 6.36   | 6.63   | 20  | 15  | 15  | 15  | 113.7 | 68.4  | 89.6  | 94.3  |
| Leather and its finished products.....   |                       |        |        |        |        |        | 42  | 40  | 38  | 36  | 87.4  | 85.2  | 105.6 | 93.4  |
| Leather, tanned, curried, and finished:<br>Sole leather.....   | Thous. sides.....     | 18,098 | 19,716 | 18,063 | 18,993 | 15,020 | 17  | 15  | 13  | 11  | 86.0  | 85.0  | 104.7 | 84.3  |
| Harness leather.....   | Thous. sides.....     | 2,944  | 1,721  | 811    | 1,555  | 1,288  | 8   | 6   | 4   | 4   | 91.8  | 91.6  | 96.2  | 76.2  |
| Upper leather (other than patent)—<br>Skins, total.....  | Thous. skins.....     | 66,269 | 78,443 | 66,960 | 88,147 | 72,218 | 6   | 6   | 5   | 4   | 84.5  | 85.4  | 112.4 | 92.1  |
| Cattle sides.....  | Thous. sides.....     | 8,268  | 16,693 | 12,596 | 18,571 | 15,338 | 2   | 2   | 2   | 2   | 49.5  | 75.5  | 111.3 | 91.0  |
| Boots and shoes, leather:<br>Boots, shoes, and slippers.....   | Mill. prs.....        | 292.7  | 331.2  | 286.8  | 351.1  | 323.6  | 25  | 25  | 26  | 26  | 88.4  | 86.6  | 106.0 | 97.7  |

TABLE 26.—DATA USED IN THE INDEX, WEIGHTS, RELATIVES, AND INDUSTRY AND GROUP INDEXES, BY CENSUS YEARS: 1914 TO 1925—  
Continued

| GROUP AND INDUSTRY  | Unit                   | QUANTITY OF PRODUCTS |         |         |         |         | WEIGHTS |      |      |      | INDEXES AND RELATIVES<br>[1919=100] |       |       |       |
|---|------------------------|----------------------|---------|---------|---------|---------|---------|------|------|------|-------------------------------------|-------|-------|-------|
|   |                        | 1914                 | 1919    | 1921    | 1923    | 1925    | 1914    | 1921 | 1923 | 1925 | 1914                                | 1921  | 1923  | 1925  |
| Paper and printing.....                                       |                        |                      |         |         |         |         | 92      | 95   | 90   | 90   | 87.5                                | 98.4  | 137.1 | 152.8 |
| Paper and wood pulp.....                                      |                        |                      |         |         |         |         | 85      | 85   | 85   | 85   | 88.4                                | 85.9  | 124.3 | 141.9 |
| Material—   |                        |                      |         |         |         |         |         |      |      |      |                                     |       |       |       |
| Pulpwood.....   | Thous. cords.....      | 4,470                | 5,478   | 4,557   | 5,872   | 6,094   | 2       | 2    | 2    | 2    | 81.6                                | 83.2  | 107.2 | 111.2 |
| Products—   |                        |                      |         |         |         |         |         |      |      |      |                                     |       |       |       |
| News paper, in rolls and sheets.....                          | Thous. short tons..... | 1,313                | 1,324   | 1,237   | 1,521   | 1,563   | 3       | 3    | 3    | 3    | 99.2                                | 93.4  | 114.9 | 118.1 |
| Book paper.....   | Thous. short tons..... | 904                  | 951     | 792     | 1,208   | 1,343   | 4       | 4    | 4    | 4    | 95.0                                | 83.8  | 127.0 | 141.2 |
| Fine paper.....   | Thous. short tons..... | 248                  | 325     | 231     | 877     | 474     | 3       | 3    | 3    | 3    | 76.3                                | 71.1  | 116.0 | 145.8 |
| Wrapping paper.....   | Thous. short tons..... | 882                  | 831     | 704     | 1,027   | 1,292   | 4       | 4    | 4    | 4    | 105.1                               | 84.7  | 123.6 | 155.5 |
| Boards.....   | Thous. short tons..... | 1,291                | 1,867   | 1,740   | 2,793   | 3,287   | 5       | 5    | 5    | 5    | 69.1                                | 93.2  | 149.6 | 176.1 |
| Miscellaneous papers.....                                     | Thous. short tons..... | 632                  | 301     | 727     | 1,103   | 1,223   | 4       | 4    | 4    | 4    | 73.9                                | 90.8  | 137.7 | 162.7 |
| Wood pulp, total production.....                              | Thous. short tons..... | 2,893                | 3,513   | 2,876   | 3,789   | 3,982   | 2       | 2    | 2    | 2    | 82.3                                | 81.8  | 107.7 | 112.7 |
| Printing and publishing.....                                  |                        |                      |         |         |         |         | 67      | 65   | 60   | 60   | 89.7                                | 96.7  | 141.8 | 156.3 |
| Newsprint consumed.....                                       | Thous. short tons..... | 1,567                | 1,842   | 2,018   | 2,814   | 2,984   | 32      | 35   | 30   | 30   | 85.0                                | 109.6 | 162.8 | 182.0 |
| Other printing paper consumed.....                            | Thous. short tons..... | 1,140                | 1,201   | 1,004   | 1,680   | 1,817   | 30      | 30   | 30   | 30   | 94.9                                | 83.6  | 131.6 | 151.0 |
| Paper boxes:  |                        |                      |         |         |         |         |         |      |      |      |                                     |       |       |       |
| Box board produced.....                                       | Thous. short tons..... | 1,291                | 1,867   | 1,740   | 2,793   | 3,287   | 5       | 5    | 5    | 5    | 69.1                                | 93.2  | 149.6 | 176.1 |
| Liquors and beverages.....                                    |                        |                      |         |         |         |         | 80      |      |      |      | 83.9                                |       |       |       |
| Liquors, distilled:   |                        |                      |         |         |         |         |         |      |      |      |                                     |       |       |       |
| Distilled spirits, plus alcohol produced<br>industrially..... | Thous. gals.....       | 181.9                | 100.8   |         |         |         | 2       |      |      |      | 180.5                               |       |       |       |
| Liquors, malt:  |                        |                      |         |         |         |         |         |      |      |      |                                     |       |       |       |
| Fermented liquors.....  | Thous. bbls.....       | 66.2                 | 27.7    |         |         |         | 18      |      |      |      | 238.8                               |       |       |       |
| Chemicals and allied products.....                            |                        |                      |         |         |         |         | 95      | 90   | 88   | 90   | 70.7                                | 94.5  | 125.1 | 146.6 |
| Chemicals and acids.....                                      |                        |                      |         |         |         |         | 16      | 18   | 18   | 19   | 68.6                                | 84.1  | 119.6 | 136.1 |
| Acetylene.....  | Mill. cu. ft.....      | 121.7                | 811.4   | 290.8   | 522.3   | 525.7   | 1       | 1    | 1    | 1    | 39.1                                | 93.4  | 167.7 | 168.8 |
| Ammonium sulphate.....  | Mill. lbs.....         | 179.6                | 590.4   | 536.0   | 894.4   | 1,017.0 | 1       | 2    | 2    | 2    | 80.4                                | 90.8  | 151.5 | 172.3 |
| Anhydrous ammonia.....  | Mill. lbs.....         | 16.7                 | 27.5    | 27.6    | 23.5    | 81.7    | 1       | 1    | 1    | 1    | 60.7                                | 100.4 | 85.5  | 115.3 |
| Carbonic acid.....  | Mill. lbs.....         | 50.4                 | 59.8    | 54.6    | 51.1    | 59.7    | 1       | 1    | 1    | 1    | 84.3                                | 91.3  | 85.6  | 99.8  |
| Caustic soda.....   | Thous. short tons..... | 291.5                | 312.7   | 238.0   | 436.6   | 497.3   | 2       | 1    | 1    | 2    | 93.2                                | 76.1  | 139.6 | 159.0 |
| Glycerin, refined.....  | Mill. lbs.....         | 60.9                 | 69.5    | 68.8    | 76.0    | 97.3    | 2       | 2    | 2    | 3    | 87.6                                | 99.0  | 109.4 | 140.0 |
| Oxygen.....   | Mill. cu. ft.....      | 104.7                | 1,173.4 | 1,059.8 | 2,057.5 | 2,073.8 | 1       | 1    | 1    | 1    | 8.9                                 | 90.3  | 173.3 | 176.7 |
| Pyroxylin plastics.....                                       | Mill. lbs.....         |                      | 40.1    | 24.1    | 27.7    | 17.9    |         | 2    | 2    | 2    |                                     | 60.1  | 69.1  | 44.8  |
| Soda ash.....   | Thous. short tons..... | 935.8                | 1,038.5 | 959.6   | 1,708.0 | 1,907.8 | 2       | 2    | 2    | 2    | 90.5                                | 92.8  | 165.3 | 184.6 |
| Sulphuric acid (basis 500).....                               | Thous. short tons..... | 4,071.6              | 5,552.6 | 4,369.9 | 6,555.5 | 7,012.3 | 5       | 5    | 5    | 5    | 73.3                                | 78.7  | 118.1 | 126.3 |

|                                       |                   |       |         |       |         |         |    |    |    |       |       |       |       |       |
|---------------------------------------|-------------------|-------|---------|-------|---------|---------|----|----|----|-------|-------|-------|-------|-------|
| Coke, not including gas-house coke    |                   |       |         |       |         | 8       | 8  | 8  | 7  | 78.4  | 87.1  | 129.0 | 118.7 |       |
| Material—                             |                   |       |         |       |         |         |    |    |    |       |       |       |       |       |
| Coal                                  | Mill. short tons  | 51.6  | 65.6    | 87.8  | 84.4    | 74.5    | 1  | 1  | 1  | 78.7  | 86.7  | 128.7 | 118.6 |       |
| Product—                              |                   |       |         |       |         |         |    |    |    |       |       |       |       |       |
| Coke                                  | Mill. short tons  | 84.6  | 44.2    | 25.3  | 87.0    | 51.3    | 4  | 4  | 7  | 78.3  | 87.2  | 129.0 | 116.1 |       |
| Fertilizers:                          |                   |       |         |       |         |         |    |    |    |       |       |       |       |       |
| Fertilizers                           | Thous. short tons | 8,432 | 8,237   | 5,994 | 7,549   | 8,091   | 7  | 4  | 4  | 102.4 | 72.8  | 91.6  | 98.2  |       |
| Gas, illuminating and heating         |                   |       |         |       |         |         | 17 | 14 | 19 | 19    | 82.3  | 98.4  | 118.4 | 118.8 |
| Materials—                            |                   |       |         |       |         |         |    |    |    |       |       |       |       |       |
| Coal                                  | Thous. short tons | 6,117 | 7,858   | 6,972 | 7,339   | 7,564   | 2  | 1  | 1  | 79.9  | 91.0  | 95.8  | 98.8  |       |
| Oil, benzol, and benzina              | Mill. gals        | 716.8 | 881.8   | 841.9 | 874.3   | 891.6   | 1  | 1  | 1  | 81.3  | 95.5  | 99.1  | 101.1 |       |
| Product—                              |                   |       |         |       |         |         |    |    |    |       |       |       |       |       |
| Gas for sale                          | Bill. cu. ft.     | 203.6 | 308.4   | 306.1 | 356.6   | 359.4   | 14 | 12 | 11 | 11    | 66.0  | 99.3  | 116.6 | 116.5 |
| Explosives:                           |                   |       |         |       |         |         |    |    |    |       |       |       |       |       |
| Explosives, total                     | Mill. lbs.        | 481.8 | 506.1   | 407.4 | 577.2   | 551.2   | 3  | 3  | 3  | 3     | 95.2  | 80.5  | 114.0 | 103.9 |
| Paint and varnish                     |                   |       |         |       |         |         |    |    |    |       |       |       |       |       |
| Colors (pigments)                     | Mill. lbs.        | 459.1 | 1,039.7 | 743.5 | 1,309.5 | 1,555.3 | 8  | 8  | 8  | 8     | 73.7  | 88.4  | 136.0 | 139.8 |
| Paints in oil—                        |                   |       |         |       |         |         |    |    |    |       |       |       |       |       |
| In paste form                         | Mill. lbs.        | 420.0 | 398.3   | 428.2 | 425.9   | 411.3   | 2  | 1  | 1  | 1     | 105.4 | 107.5 | 106.9 | 103.3 |
| Mixed for use                         | Mill. gals        | 40.7  | 59.6    | 48.1  | 71.3    | 68.8    | 3  | 3  | 3  | 3     | 68.3  | 80.7  | 119.6 | 116.4 |
| Varnishes, japans, and lacquers—      |                   |       |         |       |         |         |    |    |    |       |       |       |       |       |
| Oleoresinous varnishes                | Mill. gals        | 17.8  | 28.1    | 22.2  | 40.4    | 38.3    | 1  | 1  | 1  | 1     | 63.3  | 79.0  | 143.8 | 136.3 |
| Other varnishes, japans, and lacquers | Mill. gals        | 18.6  | 21.2    | 22.9  | 39.9    | 45.0    | 1  | 2  | 2  | 2     | 87.7  | 108.0 | 188.2 | 212.3 |
| Petroleum refining                    |                   |       |         |       |         |         | 17 | 25 | 28 | 24    | 49.4  | 120.9 | 168.7 | 208.4 |
| Crude petroleum—                      |                   |       |         |       |         |         |    |    |    |       |       |       |       |       |
| Domestic production                   | Mill. bbls.       | 265.6 | 378.4   | 472.2 | 732.4   | 763.7   | 2  | 3  | 3  | 3     | 70.2  | 124.8 | 193.6 | 201.8 |
| Refinery consumption                  | Mill. bbls.       | 191.3 | 365.3   | 443.4 | 601.7   | 739.5   | 3  | 4  | 4  | 4     | 52.4  | 121.4 | 164.7 | 202.4 |
| Products—                             |                   |       |         |       |         |         |    |    |    |       |       |       |       |       |
| Gasoline                              | Mill. gals        | 1,195 | 3,649   | 5,098 | 7,332   | 10,726  | 5  | 9  | 7  | 9     | 32.7  | 139.7 | 200.9 | 293.9 |
| Other light products of distillation  | Mill. gals        | 205   | 557     | 275   | 518     | 684     | 1  | 1  | 1  | 1     | 47.6  | 49.4  | 93.0  | 104.8 |
| Illuminating oils                     | Mill. gals        | 1,935 | 2,306   | 1,939 | 2,239   | 2,365   | 2  | 2  | 2  | 2     | 83.9  | 84.1  | 97.1  | 102.6 |
| Fuel oils                             | Mill. gals        | 3,734 | 7,768   | 9,749 | 11,976  | 14,590  | 3  | 4  | 3  | 3     | 48.1  | 125.5 | 184.2 | 187.8 |
| Lubricating oils                      | Mill. gals        | 518   | 822     | 949   | 1,151   | 1,361   | 1  | 2  | 2  | 2     | 63.0  | 115.5 | 140.0 | 166.0 |
| Oil and cake, cottonseed              |                   |       |         |       |         |         | 5  | 4  | 4  | 4     | 127.0 | 87.5  | 67.9  | 104.5 |
| Crude oil                             | Mill. gals        | 229.3 | 190.7   | 170.3 | 129.8   | 201.6   | 2  | 3  | 3  | 3     | 129.8 | 89.3  | 68.1  | 105.7 |
| Cake and meal                         | Thous. short tons | 2,648 | 2,192   | 1,790 | 1,475   | 2,368   | 3  | 1  | 1  | 1     | 122.0 | 81.7  | 67.3  | 108.0 |
| Turpentine and rosin                  |                   |       |         |       |         |         | 8  | 8  | 8  | 8     | 131.3 | 126.8 | 160.0 | 149.8 |
| Turpentine                            | Mill. gals        | 27.6  | 19.2    | 24.8  | 29.8    | 29.3    | 1  | 1  | 1  | 1     | 143.8 | 129.2 | 155.2 | 162.6 |
| Rosin                                 | Thous. bbls.      | 2,937 | 2,451   | 3,020 | 3,555   | 3,064   | 1  | 1  | 1  | 1     | 119.8 | 123.2 | 145.0 | 147.0 |
| Salt:                                 |                   |       |         |       |         |         |    |    |    |       |       |       |       |       |
| Salt produced                         | Thous. short tons | 4,873 | 6,883   | 4,981 | 7,131   | 7,397   | 1  | 1  | 1  | 1     | 70.8  | 72.4  | 103.6 | 107.5 |
| Soap:                                 |                   |       |         |       |         |         |    |    |    |       |       |       |       |       |
| Hard soaps                            | Mill. lbs.        | 1,697 | 1,836   | 1,752 | 2,000   | 2,019   | 5  | 6  | 5  | 5     | 92.4  | 95.4  | 108.9 | 110.0 |

TABLE 26.—DATA USED IN THE INDEX, WEIGHTS, RELATIVES, AND INDUSTRY AND GROUP INDEXES, BY CENSUS YEARS: 1914 TO 1925—  
Continued

| GROUP AND INDUSTRY  | Unit                   | QUANTITY OF PRODUCTS |         |       |         |         | WEIGHTS |      |      |      | INDEXES AND RELATIVES<br>[1919=100] |       |       |       |
|---|------------------------|----------------------|---------|-------|---------|---------|---------|------|------|------|-------------------------------------|-------|-------|-------|
|   |                        | 1914                 | 1919    | 1921  | 1923    | 1925    | 1914    | 1921 | 1923 | 1925 | 1914                                | 1921  | 1923  | 1925  |
| Stone, clay, and glass products.....  |                        |                      |         |       |         |         | 40      | 86   | 86   | 88   | 113.5                               | 93.3  | 155.8 | 179.1 |
| Brick and tile, terra-cotta, and fire-clay products.....                                    |                        |                      |         |       |         |         | 15      | 19   | 19   | 14   | 122.6                               | 88.1  | 154.8 | 167.8 |
| Common brick.....   | Mill. brick.....       | 7,146                | 4,752   | 4,448 | 7,282   | 7,562   | 9       | 8    | 8    | 8    | 150.4                               | 93.6  | 153.2 | 150.1 |
| Fire brick.....   | Mill. brick.....       | 817                  | 963     | 621   | 1,134   | 999     | 4       | 8    | 3    | 3    | 84.8                                | 64.5  | 117.8 | 103.7 |
| Face brick.....   | Mill. brick.....       | 810                  | 791     | 873   | 1,931   | 2,475   | 2       | 2    | 2    | 3    | 102.4                               | 110.4 | 244.1 | 312.9 |
| Glass.....  |                        |                      |         |       |         |         | 14      | 19   | 12   | 19   | 107.6                               | 83.6  | 151.7 | 178.3 |
| Window glass.....   | Mill. sq. ft.....      | 401.0                | 368.9   | 260.0 | 510.2   | 567.2   | 7       | 6    | 6    | 6    | 108.7                               | 70.5  | 138.3 | 153.8 |
| Plate glass, polished.....  | Mill. sq. ft.....      | 60.4                 | 56.8    | 56.2  | 94.5    | 117.4   | 7       | 6    | 6    | 6    | 106.3                               | 98.9  | 166.4 | 206.7 |
| Cement.....   | Mill. bbls.....        | 89.0                 | 81.3    | 99.4  | 138.8   | 163.4   | 9       | 10   | 10   | 11   | 109.5                               | 122.3 | 170.7 | 201.0 |
| Lime:   |                        |                      |         |       |         |         |         |      |      |      |                                     |       |       |       |
| Quicklime and hydrated lime, total.....   | Thous. tons.....       | 3,381                | 3,071   | 2,391 | 3,766   | 4,062   | 2       | 1    | 1    | 1    | 110.1                               | 77.9  | 122.6 | 132.3 |
| Metals and metal products, other than iron and steel.....                                   |                        |                      |         |       |         |         | 41      | 88   | 40   | 88   | 64.9                                | 66.5  | 135.7 | 129.8 |
| Brass, bronze, and other nonferrous alloys, and manufactures of these alloys and of copper: |                        |                      |         |       |         |         |         |      |      |      |                                     |       |       |       |
| Semifinished products.....  | Mill. lbs.....         | 449.4                | 1,434.3 | 782.9 | 1,937.6 | 1,772.9 | 10      | 10   | 10   | 10   | 31.3                                | 54.6  | 135.1 | 123.6 |
| Smelting and refining.....  |                        |                      |         |       |         |         | 10      | 8    | 10   | 10   | 98.0                                | 61.6  | 113.7 | 124.4 |
| Copper, primary.....  | Thous. short tons..... | 766.9                | 885.1   | 475.4 | 989.9   | 1,102.3 | 4       | 3    | 4    | 4    | 86.6                                | 53.7  | 111.8 | 124.5 |
| Lead, primary.....  | Thous. short tons..... | 542.1                | 482.2   | 448.6 | 618.3   | 767.0   | 2       | 1    | 2    | 2    | 112.4                               | 93.0  | 128.2 | 159.1 |
| Zinc, primary.....  | Thous. short tons..... | 353.0                | 466.7   | 200.5 | 510.4   | 572.9   | 2       | 2    | 2    | 2    | 75.8                                | 43.1  | 109.6 | 123.0 |
| Gold production in United States.....   | Thous. fine ozs.....   | 4,573                | 2,919   | 2,422 | 2,503   | 2,412   | 1       | 1    | 1    | 1    | 156.7                               | 85.9  | 85.7  | 82.6  |
| Silver production in United States.....   | Mill. fine ozs.....    | 72.46                | 56.68   | 53.05 | 73.34   | 66.16   | 1       | 1    | 1    | 1    | 127.8                               | 93.6  | 126.4 | 116.7 |
| Other industries.....   |                        |                      |         |       |         |         | 81      | 80   | 80   | 18   | 75.7                                | 75.7  | 126.4 | 136.6 |
| Consumption of—   |                        |                      |         |       |         |         |         |      |      |      |                                     |       |       |       |
| Copper (new and old).....   | Thous. short tons..... | 479.0                | 744.5   | 523.0 | 1,061.0 | 1,120.5 | 8       | 8    | 8    | 8    | 64.3                                | 70.2  | 142.5 | 150.5 |
| Lead.....   | Thous. short tons..... | 452.5                | 434.1   | 444.9 | 573.5   | 655.7   | 4       | 3    | 3    | 3    | 104.2                               | 102.5 | 132.1 | 151.0 |
| Zinc.....   | Thous. short tons..... | 300.0                | 324.0   | 203.6 | 446.5   | 500.1   | 3       | 3    | 3    | 3    | 92.6                                | 62.8  | 137.8 | 154.4 |
| Gold in industry.....   | Thous. fine ozs.....   | 2,202                | 3,652   | 2,452 | 3,352   | 3,191   | 4       | 4    | 4    | 3    | 60.3                                | 67.1  | 91.8  | 87.4  |
| Silver in industry.....   | Mill. fine ozs.....    | 29.31                | 22.70   | 25.87 | 36.82   | 39.83   | 2       | 2    | 2    | 1    | 89.6                                | 109.7 | 112.6 | 121.8 |

|  |                   |         |         |         |         | 20      | 19  | 18  | 17  | 78.4 | 95.3  | 109.3 | 124.4 |         |
|--|-------------------|---------|---------|---------|---------|---------|-----|-----|-----|------|-------|-------|-------|---------|
| <b>Tobacco manufactures</b>                      |                   |         |         |         |         |         |     |     |     |      |       |       |       |         |
| Tobacco, chewing and smoking, and snuff:         |                   |         |         |         |         |         |     |     |     |      |       |       |       |         |
| Tobacco and snuff                                | Mill. lbs.        | 440.9   | 424.1   | 387.0   | 412.8   | 410.2   | 6   | 9   | 2   | 2    | 104.0 | 91.8  | 97.8  | 98.7    |
| Tobacco, cigars:                                 |                   |         |         |         |         |         |     |     |     |      |       |       |       |         |
| Cigars, weighing more than 8 lbs. per 1,000.     | Millions          | 7,174   | 7,072   | 6,728   | 4,950   | 6,601   | 9   | 5   | 4   | 4    | 101.4 | 95.1  | 98.8  | 91.0    |
| Tobacco, cigarettes:                             |                   |         |         |         |         |         |     |     |     |      |       |       |       |         |
| Cigarettes, weighing more than 8 lbs. per 1,000. | Billions          | 16.86   | 58.12   | 52.09   | 66.72   | 79.98   | 5   | 5   | 6   | 9    | 81.7  | 98.1  | 126.6 | 160.5   |
| <b>Vehicles for land transportation</b>          |                   |         |         |         |         |         |     |     |     |      |       |       |       |         |
| Automobiles                                      |                   |         |         |         |         |         | 23  | 29  | 31  | 37   | 24.9  | 31.7  | 238.4 | 303.9   |
| Passenger cars—open                              | Thous. cars       | 536.0   | 1,399.6 | 1089.6  | 2,217.8 | 1,485.0 | 17  | 16  | 17  | 16   | 38.3  | 78.6  | 158.4 | 106.1   |
| Passenger cars—closed                            | Thous. cars       | 10.0    | 186.5   | 304.2   | 1,201.6 | 2,060.0 | 2   | 6   | 8   | 14   | 6.4   | 194.4 | 767.8 | 1,329.1 |
| Other  | Thous. cars       | 27.0    | 336.9   | 199.3   | 471.4   | 592.8   | 4   | 5   | 6   | 7    | 8.0   | 59.2  | 139.9 | 176.0   |
| Carriages, wagons, and repairs:                  |                   |         |         |         |         |         |     |     |     |      |       |       |       |         |
| Complete vehicles of all classes                 | Thousands         | 1,124.9 | 608.8   | 107.3   | 236.1   | 178.2   | 2   | 1   | 1   | 1    | 184.8 | 17.6  | 38.8  | 28.4    |
| Railway equipment                                |                   |         |         |         |         |         | 6.0 | 6.0 | 6.0 | 5.0  | 84.6  | 15.5  | 119.0 | 69.3    |
| Passenger service                                | Number            | 6,138   | 2,068   | 2,848   | 4,908   | 3,800   | 5   | 5   | 5   | 5    | 294.8 | 187.7 | 237.8 | 183.8   |
| Freight service                                  | Thous. cars       | 127.3   | 155.7   | 56.3    | 179.8   | 97.7    | 8.5 | 8.5 | 8.5 | 3.0  | 81.8  | 36.2  | 115.5 | 62.7    |
| Locomotives, steam                               | Number            | 2,235   | 3,411   | 1,737   | 3,595   | 1,81    | 2.0 | 2.0 | 1.5 | 65.5 | 51.5  | 105.5 | 88.4  |         |
| <b>Ship and boat building</b>                    |                   |         |         |         |         |         |     |     |     |      |       |       |       |         |
| Vessels of 5 gross tons and over launched:       |                   |         |         |         |         |         | 12  | 14  | 12  | 10   | 7.3   | 30.7  | 7.9   | 7.0     |
| Steel  | Thous. gross tons | 243.0   | 8,734.2 | 1,206.9 | 281.8   | 242.0   | 11  | 13  | 11  | 9    | 6.5   | 32.3  | 7.5   | 6.5     |
| Wooden   | Thous. gross tons | 182.1   | 765.6   | 119.0   | 112.8   | 109.7   | 1   | 1   | 1   | 1    | 24.1  | 15.7  | 14.9  | 14.5    |
| <b>Rubber products</b>                           |                   |         |         |         |         |         |     |     |     |      |       |       |       |         |
| Rubber tires and inner tubes                     |                   |         |         |         |         |         | 16  | 18  | 18  | 20   | 24.8  | 79.5  | 185.9 | 175.8   |
| Casing, pneumatic, automobile and truck          | Millions          | 8.02    | 32.84   | 27.80   | 45.48   | 58.78   | 13  | 15  | 15  | 17   | 24.4  | 83.1  | 138.8 | 179.0   |
| Inner tubes, pneumatic, automobile and truck     | Millions          | 7.91    | 33.26   | 32.08   | 57.23   | 77.89   | 2   | 2   | 2   | 2    | 23.8  | 96.5  | 172.1 | 232.7   |
| Solid tires, truck                               | Thousands         |         | 1,455   | 401     | 944     | 1,035   | 1   | 1   | 1   | 1    |       | 27.6  | 64.9  | 71.1    |
| Rubber boots and shoes                           |                   |         |         |         |         |         | 5   | 4.0 | 4.0 | 4.0  | 75.8  | 88.7  | 110.3 | 86.4    |
| Rubber boots                                     | Thous. prs        | 4,024   | 9,208   | 6,532   | 9,098   | 4,739   | 1   | 7   | 7   | 6    | 43.7  | 70.9  | 98.8  | 51.5    |
| Shoes and overshoes                              | Mill. prs         | 57.21   | 66.15   | 67.19   | 26.10   | 52.34   | 4   | 2.0 | 2.0 | 2.0  | 86.5  | 86.5  | 90.9  | 79.1    |
| Canvas shoes with rubber soles                   | Mill. prs         |         | 21.03   | 15.24   | 25.11   | 25.06   |     | 7   | 7   | 7    |       | 72.5  | 124.2 | 118.1   |
| Heels for sale                                   | Mill. prs         |         | 138.5   | 137.5   | 289.2   | 342.2   |     | 5   | 5   | 7    |       | 99.3  | 208.9 | 247.1   |



## APPENDIX B

### GENERAL TABLES

*Data.*—Actual figures upon which this study was based are given in detail in the following general tables. The first two tables (27 and 28) show the number of wage earners employed and the amount of primary horsepower installed for certain major groups and important subgroups of industries. Tables 29, 30, and 31, respectively, give data for wage earners, horsepower, and value added by manufacture for a number of selected industries, arranged by industrial groups. Number of wage earners and primary horsepower from 1899 to 1923 and total value of products from 1869 to 1923 for all industries, arranged in alphabetical order, are given in Tables 32, 33, and 34. In Tables 35 and 36 the wage earners and horsepower data are shown for the various States and geographic divisions. Table 37 provides data on physical quantity of production of all products for which such information has been given in the census reports, and Table 38 gives the index of production for the more important industries and groups from 1899 to 1923.

*Changes in data.*—Comparability between figures has not been maintained throughout the entire period for all industries. There have been changes in definition, designation, and classification; new industries have grown up, old ones have become of negligible importance; and the grouping of industries has changed from time to time. These changes as they refer to individual industries are indicated in the tables by means of footnotes.

In computing the percentages attempts have been made, wherever these shifts were important, to compare only homogeneous sets of data in adjoining census years, and the percentages for the entire 24-year period in such cases are derived indirectly by linking together the percentages for the separate intercensal periods.

There have been several important changes of a general nature which affect all tables. These are as follows:

1. For the census years 1899 to 1919, inclusive, factories having products valued at \$500 or more were included, but the statistics for 1921 and for 1923 relate only to establishments having products valued at \$5,000 or more. In the tables, two sets of data are given for 1919, one comparable with the earlier years and the other with the later years.

2. The horsepower figures for the census years prior to 1919 include data for rented power other than electric, whereas the statistics for

1923 do not include such data. Data for primary horsepower were not collected in 1921.

3. The statistics for 1921 and 1923 do not include data for establishments engaged in automobile repairing, and although these data were collected in 1919 and were included in the figures as given in the right-hand column for that year, they were not included in those given in the left-hand column.

4. Owing to the lack of comparability between figures for the censuses since 1919 and those for earlier censuses, the percentages of change for the period 1899-1923 were not computed directly but are combinations of two sets of percentages computed from comparable data, one set covering the period from 1899 to 1919, the other the period from 1919 to 1923.

5. The grouping of industries is that followed in the census reports prior to 1923. The data for 1923 were regrouped, as nearly as possible, on the basis of the earlier classification. This was necessary in order to preserve comparability, as it was not feasible to regroup data for all the earlier years on the basis of the new classification. See Chapter IV.

TABLE 27.—AVERAGE NUMBER OF WAGE EARNERS EMPLOYED IN INDUSTRIAL GROUPS, BY CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923

[Because of the omission of certain minor industries and the transfer of a few others from one group to another, some of the group totals and some of the items given in this table differ somewhat from the corresponding totals and items as they appear in the census reports. As to the comparability of 1921 and 1923 figures with those of previous years, see general remarks preceding the tables, par. 4, p. 125]

| GROUP  | AVERAGE NUMBER OF WAGE EARNERS  |           |           |   |           |           |           |           | PER CENT OF INCREASE OR DECREASE (-) |                    |           |           |           |           |           |           |
|--|---|-----------|-----------|---|-----------|-----------|-----------|-----------|--------------------------------------|--------------------|-----------|-----------|-----------|-----------|-----------|-----------|
|  | Excluding data for establishments with products valued at less than \$5,000 |           |           | Including data for establishments with products valued at \$500 or more |           |           |           |           | 24-year period, 1899-1923            | Intercensal period |           |           |           |           |           |           |
|  | 1923  | 1921      | 1919      | 1919  | 1914      | 1909      | 1904      | 1899      |                                      | 1919-1923          | 1921-1923 | 1919-1921 | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |
| Food and kindred products.....   | 625,524   | 568,734   | 681,031   | 684,672   | 496,234   | 411,578   | 354,046   | 301,888   | 108.2                                | -8.2               | 10.0      | -16.5     | 38.0      | 20.6      | 16.2      | 17.3      |
| Animal products.....   | 183,410   | 164,622   | 217,039   | 217,268   | 137,894   | 119,385   | 100,768   | 96,392    | 90.5                                 | -15.5              | 11.4      | -24.2     | 57.6      | 15.5      | 18.5      | 4.5       |
| Vegetable products.....  | 442,114   | 404,112   | 463,992   | 467,404   | 256,350   | 292,190   | 253,278   | 205,476   | 116.8                                | -4.7               | 9.4       | -12.9     | 30.4      | 22.6      | 15.4      | 23.3      |
| Textiles and their products.....   | 1,716,646   | 1,510,876 | 1,608,131 | 1,611,309   | 1,507,374 | 1,445,720 | 1,163,497 | 1,028,706 | 67.1                                 | 6.7                | 13.6      | -6.0      | 6.9       | 4.3       | 24.3      | 13.1      |
| Textile fabrics and materials.....   | 1,164,638   | 993,557   | 1,051,984 | 1,052,327   | 950,880   | 909,507   | 764,757   | 683,772   | 70.4                                 | 10.7               | 17.2      | -5.6      | 10.7      | 4.6       | 18.9      | 11.8      |
| Articles from textile fabrics for personal wear.....   | 499,413   | 473,574   | 505,293   | 507,700   | 510,595   | 508,138   | 373,337   | 318,587   | 56.7                                 | -1.2               | 5.5       | -6.3      | -6        | 5         | 36.1      | 17.2      |
| Other articles from textile fabrics.....   | 52,595  | 43,745    | 60,854    | 51,282  | 45,899    | 28,076    | 25,403    | 26,347    | 101.2                                | 3.4                | 20.2      | -14.0     | 11.7      | 63.5      | 10.5      | -3.6      |
| Iron and steel and their products.....   | 1,527,120   | 1,031,523 | 1,583,928 | 1,585,712   | 1,061,058 | 1,024,353 | 868,634   | 745,235   | 105.1                                | -3.6               | 48.0      | -34.9     | 49.4      | 3.4       | 18.2      | 16.6      |
| Crude iron and steel and rolled products, including products not made in rolling-mill establishments (though largely made therein), plus wire and wirework, not elsewhere specified..... | 608,447   | 374,521   | 587,491   | 587,742   | 406,634   | 395,584   | 321,291   | 282,949   | 115.2                                | 8.0                | 62.5      | -36.3     | 44.5      | 2.8       | 23.1      | 13.6      |
| Other iron and steel products.....   | 918,673   | 657,002   | 996,437   | 997,970   | 654,424   | 630,969   | 547,343   | 462,286   | 99.1                                 | 7.8                | 39.8      | -34.1     | 52.5      | 3.7       | 15.3      | 18.4      |
| Lumber and its manufactures.....   | 896,236   | 675,069   | 825,884   | 839,008   | 833,529   | 911,593   | 734,136   | 671,696   | 85.5                                 | -8.5               | 32.8      | -18.3     | .7        | -8.6      | 24.2      | 9.3       |
| Lumber and timber products, plus planing-mill products.....  | 598,940   | 442,280   | 555,679   | 567,901   | 576,000   | 659,570   | 502,237   | 486,767   | 25.8                                 | 7.8                | 35.4      | -29.4     | -1.4      | -12.7     | 31.3      | 3.2       |
| Other manufactures of lumber.....  | 297,296   | 232,789   | 270,205   | 271,107   | 257,529   | 252,023   | 231,899   | 184,929   | 61.3                                 | 10.0               | 27.7      | -13.8     | 5.3       | 2.2       | 8.7       | 25.4      |

|  |         |         |         |         |         |         |         |         |          |       |       |       |       |       |       |       |
|--|---------|---------|---------|---------|---------|---------|---------|---------|----------|-------|-------|-------|-------|-------|-------|-------|
| Leather and its finished products.....   | 844,545 | 280,071 | 348,715 | 349,362 | 307,060 | 300,766 | 264,459 | 248,626 | 88.8     | -1.2  | 23.0  | -19.7 | 18.8  | -0.9  | 17.1  | 6.4   |
| Leather, tanned, curried, and finished.....  | 59,708  | 48,955  | 72,465  | 72,476  | 55,936  | 62,202  | 57,239  | 52,109  | 14.6     | -17.0 | 22.0  | -32.4 | 29.0  | -10.1 | 8.7   | 9.8   |
| Finished products of leather.....  | 284,842 | 231,116 | 276,250 | 276,886 | 251,124 | 247,564 | 207,220 | 196,517 | 45.3     | 3.1   | 23.2  | -16.3 | 10.3  | 1.4   | 19.5  | 6.4   |
| Paper and printing.....  | 526,795 | 467,072 | 502,298 | 509,876 | 452,900 | 415,990 | 351,640 | 298,744 | 79.1     | 4.9   | 12.8  | -7.0  | 12.6  | 8.9   | 18.3  | 17.7  |
| Paper and wood pulp.....   | 129,677 | 105,294 | 113,752 | 113,750 | 88,457  | 75,978  | 65,964  | 49,646  | 143.1    | 6.1   | 14.6  | -7.4  | 28.6  | 16.4  | 15.2  | 82.9  |
| Manufactures of paper, plus wall paper.....  | 99,278  | 80,278  | 94,633  | 94,769  | 79,368  | 69,733  | 66,320  | 45,455  | 118.7    | 4.9   | 23.7  | -15.2 | 19.4  | 13.8  | 23.8  | 23.9  |
| Printing and publishing, plus industries relating to printing and publishing.....      | 306,840 | 281,500 | 293,913 | 301,367 | 285,075 | 270,279 | 229,356 | 203,643 | 54.5     | 4.4   | 9.0   | -4.2  | 5.7   | 5.5   | 17.8  | 12.6  |
| Liquors and beverages.....   | 81,338  | 85,374  | 54,493  | 55,442  | 68,152  | 77,827  | 68,338  | 55,120  | -42.2    | -42.5 | -11.4 | -35.1 | -37.1 | 13.3  | 13.9  | 24.0  |
| All except mineral and soda waters.....  | 13,278  | 20,723  | 37,961  | 38,002  | 72,646  | 64,680  | 57,459  | 46,332  | -71.3    | -65.0 | -35.9 | -45.4 | -47.7 | 12.3  | 12.6  | 24.0  |
| Mineral and soda waters.....   | 18,062  | 14,651  | 16,532  | 17,440  | 16,506  | 13,147  | 10,879  | 8,788   | 117.0    | 9.3   | 23.3  | -11.4 | 12.5  | 17.9  | 20.8  | 23.8  |
| Chemicals and allied products.....   | 404,786 | 329,472 | 425,990 | 427,008 | 299,569 | 267,261 | 227,326 | 196,538 | 106.4    | -5.0  | 22.9  | -22.7 | 42.5  | 12.1  | 17.6  | 15.7  |
| Stone, clay, and glass products.....   | 345,370 | 250,812 | 296,229 | 298,659 | 334,612 | 342,827 | 285,346 | 231,716 | 50.3     | 16.6  | 37.7  | -15.3 | -10.7 | -2.4  | 20.1  | 23.1  |
| Industries using stone as a material.....  | 111,900 | 82,166  | 88,145  | 89,723  | 114,122 | 124,512 | 87,731  | 62,673  | 81.7     | 26.9  | 30.2  | -8.8  | -21.4 | -8.3  | 41.9  | 40.0  |
| Industries using clay as a material.....   | 151,514 | 106,849 | 121,888 | 122,337 | 134,736 | 137,048 | 122,618 | 108,756 | 40.2     | 24.6  | 41.8  | -12.1 | -9.2  | -1.7  | 11.8  | 12.7  |
| Glass and manufactures of glass.....   | 81,956  | 61,798  | 86,466  | 86,599  | 85,753  | 81,267  | 74,997  | 60,287  | 36.1     | -5.2  | 32.6  | -28.6 | 1.0   | 5.5   | 8.4   | 24.4  |
| Metals and metal products, other than iron and steel.....                              | 327,627 | 235,170 | 338,383 | 339,469 | 262,154 | 249,607 | 198,581 | 161,463 | 108.5    | -8.2  | 39.3  | -30.5 | 29.5  | 5.0   | 25.7  | 23.0  |
| Metals, including smelting and refining.....   | 108,663 | 63,083  | 120,646 | 120,706 | 79,700  | 74,627  | 63,235  | 54,020  | 101.3    | -9.9  | 72.3  | -47.7 | 51.5  | 6.8   | 18.0  | 17.1  |
| Metal products, plus "related industries".....   | 218,974 | 172,087 | 217,737 | 218,763 | 182,454 | 174,980 | 135,296 | 107,443 | 104.6    | .5    | 27.2  | -21.0 | 19.9  | 4.3   | 29.3  | 25.9  |
| Tobacco manufactures.....  | 146,337 | 149,985 | 154,969 | 157,097 | 178,872 | 166,810 | 159,406 | 132,526 | 11.9     | -5.6  | -2.4  | -3.2  | -12.2 | 7.2   | 4.6   | 20.3  |
| Vehicles for land transportation.....  | 510,468 | 281,350 | 440,008 | 440,878 | 250,514 | 202,719 | 136,625 | 133,663 | 382.6    | -16.0 | 81.4  | -36.1 | 76.0  | 23.6  | 48.4  | 2.2   |
| Automobiles, plus "automobile bodies and parts".....                                   | 404,586 | 212,777 | 342,876 | 343,115 | 127,092 | 75,721  | 12,049  | 2,241   | 18,082.1 | 18.1  | 90.3  | -37.9 | 170.6 | 67.8  | 528.4 | 437.7 |
| Cars, steam and electric railroad, not including operations of railroad companies..... | 80,590  | 48,033  | 55,218  | 55,218  | 58,128  | 46,689  | 38,768  | 37,038  | 117.5    | 45.9  | 67.8  | -13.0 | -5.0  | 24.6  | 20.3  | 4.7   |
| Railroad repair shops.....   | 523,430 | 418,285 | 515,535 | 515,709 | 365,902 | 304,592 | 247,922 | 180,620 | 189.8    | 1.5   | 25.1  | -13.9 | 40.9  | 20.1  | 22.9  | 37.3  |

1. See footnotes at end of Table 26, p. 129.

**TABLE 28.—AMOUNT OF PRIMARY HORSEPOWER INSTALLED IN INDUSTRIAL GROUPS, BY CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923**

[No data in regard to prime movers were collected for 1921. Because of the omission of certain minor industries and the transfer of a few others from one group to another, some of the group totals and some of the items given in this table differ somewhat from the corresponding totals and items as they appear in the census reports. As to the comparability of 1921 and 1923 figures with those of previous years, see general remarks preceding tables, pars. 2 and 4, pp. 124 and 125]

| GROUP   | PRIMARY HORSEPOWER                                  |           |   |           |           |           |           | PER CENT OF INCREASE OR DECREASE (-) |                        |                        |           |           |           |
|---|---|-----------|---|-----------|-----------|-----------|-----------|--------------------------------------|------------------------|------------------------|-----------|-----------|-----------|
|   | Excluding data for rented power other than electric |           | Including data for rented power other than electric |           |           |           |           | 24-year period, 1899-1923            | Intercensal period     |                        |           |           |           |
|   | 1923  | 1919      | 1919  | 1914      | 1909      | 1904      | 1899      |                                      | 1919-1923 <sup>1</sup> | 1914-1919 <sup>2</sup> | 1909-1914 | 1904-1909 | 1899-1904 |
| Food and kindred products.....  | 2,641,916   | 2,564,874 | 2,571,157   | 1,994,963 | 1,725,985 | 1,405,567 | 1,182,902 | 123.9                                | 8.0                    | 28.9                   | 15.6      | 22.8      | -18.8     |
| Animal products.....  | 621,686   | 579,408   | 580,520   | 412,106   | 323,050   | 223,107   | 182,969   | 240.5                                | 7.3                    | 40.9                   | 27.6      | 44.8      | 21.9      |
| Vegetable products.....   | 2,020,230   | 1,985,466 | 1,990,637   | 1,582,877 | 1,402,935 | 1,182,460 | 999,933   | 102.7                                | 1.8                    | 25.8                   | 12.8      | 18.6      | 18.3      |
| Textiles and their products.....  | 3,794,443   | 3,258,788 | 3,274,090   | 2,752,054 | 1,288,031 | 1,745,309 | 1,395,967 | 173.0                                | 16.4                   | 19.0                   | 20.3      | 31.1      | 25.0      |
| Textile fabrics and materials.....  | 3,556,440   | 3,024,486 | 3,037,732   | 1,543,238 | 2,127,979 | 1,634,777 | 1,316,705 | 171.3                                | 17.6                   | 19.4                   | 19.5      | 30.2      | 24.2      |
| Articles from textile fabrics for personal wear.....  | 132,317   | 131,965   | 133,000   | 120,314   | 90,800    | 59,121    | 42,828    | 211.5                                | 0.3                    | 10.5                   | 32.5      | 53.5      | 38.0      |
| Other articles from textile fabrics.....  | 105,686   | 102,337   | 103,358   | 881502    | 69,252    | 51,411    | 36,436    | 193.1                                | 3.3                    | 16.8                   | 27.8      | 34.7      | 41.1      |
| Iron and steel and their products.....  | 8,934,585   | 8,071,629 | 8,082,692   | 5,537,842 | 4,561,284 | 3,326,702 | 2,188,594 | 308.8                                | 10.7                   | 46.0                   | 41.4      | 37.1      | 52.0      |
| Crude iron and steel and rolled products, including products not made in rolling-mill establishments (though largely made therein), plus wire and wire-work, not elsewhere specified..... | 6,632,365   | 6,006,565 | 6,010,688   | 4,275,692 | 3,554,191 | 2,586,446 | 1,685,882 | 293.6                                | 10.4                   | 40.6                   | 20.3      | 37.4      | 53.4      |
| Other iron and steel products.....  | 2,302,220   | 2,065,064 | 2,072,004   | 1,262,150 | 1,007,094 | 740,256   | 502,712   | 359.6                                | 11.5                   | 64.2                   | 26.3      | 36.0      | 47.3      |
| Lumber and its remanufactures.....  | 3,323,262   | 3,397,178 | 3,417,941   | 3,185,861 | 3,250,298 | 2,218,266 | 2,113,856 | 58.1                                 | -2.2                   | 7.3                    | -2.0      | 46.5      | 4.9       |
| Lumber and timber products, plus planing-mill products.....   | 2,425,515   | 2,772,415 | 2,778,608   | 2,607,209 | 2,727,584 | 1,800,673 | 1,003,870 | 51.6                                 | -12.5                  | 6.6                    | -4.4      | 51.5      | 12.3      |
| Other manufactures of lumber.....   | 897,747   | 624,763   | 639,333   | 578,652   | 522,712   | 417,593   | 609,986   | 80.2                                 | 43.7                   | 10.5                   | 10.7      | 25.2      | -18.1     |
| Leather and its finished products.....  | 412,998   | 382,537   | 389,130   | 317,887   | 281,117   | 203,620   | 159,833   | 163.0                                | 8.0                    | 22.4                   | 13.1      | 28.1      | 27.4      |
| Leather, tanned, curried, and finished.....   | 230,187   | 217,761   | 218,239   | 172,712   | 148,140   | 117,450   | 88,890    | 159.6                                | 5.7                    | 26.4                   | 16.6      | 26.1      | 32.2      |
| Finished products of leather.....   | 182,811   | 164,776   | 170,892   | 145,175   | 132,977   | 86,170    | 70,973    | 167.0                                | 10.9                   | 17.7                   | 9.2       | 54.3      | 21.4      |

|  |           |           |           |           |           |           |         |          |       |       |       |       |       |
|--|-----------|-----------|-----------|-----------|-----------|-----------|---------|----------|-------|-------|-------|-------|-------|
| Paper and printing.....  | 2,742,697 | 2,845,949 | 2,848,999 | 2,051,984 | 1,674,061 | 1,807,761 | 913,448 | 200.7    | 16.9  | 14.5  | 22.6  | 28.0  | 43.2  |
| Paper and wood pulp.....   | 2,178,623 | 1,849,699 | 1,851,014 | 1,621,154 | 1,304,265 | 1,093,708 | 762,118 | 184.1    | 17.8  | 14.2  | 24.8  | 19.9  | 43.5  |
| Manufactures of paper, plus wall paper.....  | 185,910   | 117,815   | 118,415   | 87,222    | 62,504    | 40,816    | 27,048  | 405.2    | 15.4  | 35.8  | 39.4  | 55.2  | 49.1  |
| Printing and publishing, plus industries relating to printing and publishing.....      | 428,164   | 378,435   | 379,570   | 343,608   | 307,232   | 178,757   | 124,279 | 345.4    | 13.1  | 10.5  | 11.8  | 76.8  | 89.8  |
| Liquors and beverages.....   | 247,161   | 412,463   | 415,861   | 525,769   | 446,450   | 347,723   | 254,615 | -2.3     | -40.1 | -21.0 | 17.8  | 28.4  | 36.6  |
| All except mineral and soda waters.....  | 182,380   | 371,296   | 373,597   | 500,605   | 427,058   | 335,509   | 246,578 | -25.6    | -50.9 | -23.4 | 17.2  | 27.8  | 36.1  |
| Mineral and soda waters.....   | 64,781    | 41,167    | 41,764    | 25,164    | 19,392    | 12,214    | 8,037   | 717.9    | 57.4  | 66.0  | 29.8  | 58.8  | 52.0  |
| Chemicals and allied products.....   | 2,708,070 | 2,039,994 | 2,043,525 | 1,467,831 | 1,025,676 | 729,627   | 460,790 | 487.6    | 32.5  | 39.2  | 43.1  | 40.6  | 58.3  |
| Stones, clay, and glass products.....  | 1,906,499 | 1,567,815 | 1,569,719 | 1,490,975 | 1,240,908 | 775,718   | 510,013 | 274.2    | 21.6  | 5.8   | 20.2  | 60.0  | 52.1  |
| Industries using stone as a material.....  | 1,040,023 | 782,144   | 783,142   | 801,073   | 635,615   | 298,770   | 180,973 | 475.5    | 33.0  | -2.2  | 26.0  | 112.7 | 65.1  |
| Industries using clay as a material.....   | 615,494   | 569,058   | 569,709   | 516,551   | 473,402   | 378,704   | 271,650 | 123.9    | 8.2   | 10.3  | 9.1   | 25.0  | 39.4  |
| Glass and manufactures of glass.....   | 250,982   | 216,613   | 216,868   | 173,351   | 131,891   | 98,244    | 57,374  | 333.1    | 15.6  | 25.1  | 31.4  | 34.2  | 71.2  |
| Metals and metal products, other than iron and steel.....                              | 1,210,529 | 982,720   | 988,688   | 575,025   | 468,136   | 290,932   | 214,687 | 467.5    | 23.2  | 71.9  | 24.2  | 59.2  | 85.5  |
| Metals, including smelting and refining.....   | 874,595   | 744,574   | 747,928   | 401,919   | 330,569   | 211,893   | 148,778 | 490.7    | 17.5  | 86.1  | 21.6  | 56.0  | 42.4  |
| Metal products, plus "related industries".....   | 335,934   | 238,146   | 240,762   | 173,106   | 132,567   | 79,039    | 65,859  | 415.9    | 41.1  | 39.1  | 30.6  | 67.7  | 20.0  |
| Tobacco manufactures.....  | 43,515    | 43,390    | 43,397    | 84,337    | 28,514    | 24,604    | 22,296  | 95.2     | 3     | 24.2  | 22.5  | 15.9  | 10.4  |
| Vehicles for land transportation <sup>1</sup> .....                                    | 1,210,099 | 791,517   | 797,805   | 438,541   | 327,239   | 189,961   | 148,286 | 722.8    | 52.9  | 81.9  | 34.0  | 72.3  | 28.1  |
| Automobiles, plus "automobile bodies and parts".....                                   | 898,625   | 539,093   | 544,242   | 173,684   | 75,550    | 10,109    | 3,164   | 28,407.5 | 66.7  | 213.4 | 129.9 | 647.4 | 219.5 |
| Cars, steam and electric railroad, not including operations of railroad companies..... | 250,102   | 167,180   | 167,255   | 136,701   | 112,968   | 63,048    | 38,260  | 554.1    | 49.6  | 22.4  | 21.0  | 79.2  | 64.8  |
| Railroad repair shops.....   | 806,435   | 644,875   | 648,345   | 478,953   | 329,155   | 171,127   | 101,530 | 698.9    | 25.1  | 35.4  | 45.5  | 92.3  | 68.5  |

<sup>1</sup> Based on figures shown in left-hand column for 1919.

<sup>2</sup> The figures shown in the right-hand column for 1919 were used in calculating the percentages in this column.

<sup>3</sup> Includes sewing-machine cases.

<sup>4</sup> Does not include sewing-machine cases; see "Other iron and steel products," footnote 2.

<sup>5</sup> "Carriages and wagons"; "carriage and wagon materials"; "motor cycles and bicycles and parts"; "carriages and sleds, children's"; "wheelbarrows," included in total but not shown in detail.

TABLE 29.—AVERAGE NUMBER OF WAGE EARNERS EMPLOYED IN SELECTED INDUSTRIES, BY CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923

[Because of the omission of certain minor industries and the transfer of a few others from one group to another, some of the group totals and some of the items given in this table differ somewhat from the corresponding totals and items as they appear in the census reports. The italic figures indicate that establishments with products valued less than \$5,000 are included to avoid disclosing operations of individual establishments. As to the comparability of 1921 and 1923 figures with those of previous years, see general remarks preceding tables, par. 4, p. 125.]

| INDUSTRY  | AVERAGE NUMBER OF WAGE EARNERS  |           |           |   |           |                  |                  |                  | 24-year period, 1899-1923 | PER CENT OF INCREASE OR DECREASE (-) |           |                        |                        |           |           |           |
|---|---|-----------|-----------|---|-----------|------------------|------------------|------------------|---------------------------|--------------------------------------|-----------|------------------------|------------------------|-----------|-----------|-----------|
|   | Excluding data for establishments with products valued at less than \$5,000 |           |           | Including data for establishments with products valued at \$500 or more |           |                  |                  |                  |                           | Intercensal period                   |           |                        |                        |           |           |           |
|   | 1923  | 1921      | 1919      | 1919  | 1914      | 1909             | 1904             | 1899             |                           | 1919-1923 <sup>1</sup>               | 1921-1923 | 1919-1921 <sup>1</sup> | 1914-1919 <sup>2</sup> | 1909-1914 | 1904-1909 | 1899-1904 |
| All industries.....   | 8,778,166   | 6,946,670 | 9,000,059 | 9,096,372   | 7,036,247 | 6,615,046        | 5,468,388        | 4,712,763        | 88.2                      | -2.5                                 | 26.4      | -22.8                  | 29.3                   | 6.4       | 21.0      | 16.0      |
| Food and kindred products.....  | 625,524   | 568,734   | 681,831   | 684,672   | 496,234   | 411,575          | 354,046          | 301,868          | 108.2                     | -8.2                                 | 10.0      | -16.5                  | 38.0                   | 20.6      | 16.9      | 17.3      |
| Slaughtering and meat packing.....  | 132,792   | 117,042   | 160,980   | 160,996   | 98,832    | 87,813           | 74,134           | 68,366           | 94.2                      | -17.5                                | 13.5      | -27.8                  | 62.9                   | 12.5      | 18.5      | 8.4       |
| Bread and other bakery products.....  | 162,613   | 148,500   | 140,477   | 141,592   | 124,052   | 100,216          | 81,278           | 60,192           | 172.4                     | 15.8                                 | 9.5       | 5.7                    | 14.1                   | 23.8      | 23.3      | 35.0      |
| Confectionery, chewing gum, and ice cream.....                              | 88,609  | 83,207    | 98,239    | 98,838  | 64,084    | 44,638           | 36,229           | 26,866           | 232.2                     | -9.7                                 | 6.0       | -15.3                  | 54.4                   | 43.5      | 23.2      | 34.9      |
| Flour-mill and grain-mill products.....                                     | 35,194  | 35,378    | 45,295    | 45,481  | 39,718    | 39,453           | 39,110           | 32,226           | 9.6                       | -22.3                                | -5        | -21.9                  | 14.6                   | 7         | 9         | 21.4      |
| Canning and preserving, fruits and vegetables.....                          | 57,178  | 38,668    | 59,771    | 60,865  | 50,325    | 40,492           | 39,988           | 37,189           | 56.7                      | -4.3                                 | 47.9      | -35.3                  | 20.9                   | 24.3      | 1.3       | 7.5       |
| Sugar, beet, and cane sugar and its refining.....                           | 25,645  | 31,783    | 36,054    | 36,084  | 22,882    | 20,730           | 17,512           | 16,099           | 59.3                      | -23.9                                | -19.3     | -11.8                  | 57.7                   | 10.4      | 18.4      | 8.8       |
| Butter and cheese.....  | 25,165  | 22,004    | 21,594    | 21,638  | 17,057    | 14,267           | 12,182           | 12,799           | 97.3                      | 16.7                                 | 14.4      | 2.0                    | 26.9                   | 19.6      | 17.1      | -4.9      |
| Coffee and spice, roasting and grinding.....                                | 9,665   | 8,822     | 10,523    | 10,540  | 8,549     | 7,490            | 5,959            | 6,387            | 51.5                      | -8.2                                 | 8.8       | -15.6                  | 23.3                   | 14.1      | 26.7      | -6.7      |
| Condensed milk.....   | 8,723   | 9,482     | 13,676    | 13,675  | 6,002     | 4,164            | 3,375            | ( <sup>1</sup> ) |                           | -36.2                                | -7.8      | -30.8                  | 127.8                  | 44.1      | 23.4      | -21.3     |
| Glucose and starch.....   | 6,573   | 6,131     | 7,794     | 7,795   | 4,509     | 4,773            | 4,070            | 5,943            | 10.1                      | -16.1                                | 6.6       | -21.3                  | 72.9                   | -5.5      | 2.0       | -33.0     |
| Canning and preserving, fish and oysters.....                               | 9,144   | 7,945     | 12,364    | 12,437  | 11,156    | 9,928            | 8,445            | 12,598           | -37.0                     | -26.0                                | 15.1      | -35.7                  | 11.5                   | 12.4      | 17.5      | -33.0     |
| Pickles, preserves, and sauces.....   | 16,356  | 13,961    | 16,555    | 16,521  | 12,650    | 9,550            | 8,511            | 7,225            | 113.4                     | -7.2                                 | 17.6      | -21.1                  | 32.0                   | 31.8      | 12.2      | 17.8      |
| Breadstuff preparations, such as cereals and breakfast foods.....           | 6,410   | 5,749     | 7,634     | 7,624   | 5,177     | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) |                           | -16.0                                | 11.5      | -24.7                  | 47.5                   |           |           |           |
| Chocolate and cocoa products.....   | 6,876   | 6,652     | 9,083     | 9,083   | 4,160     | 2,826            | 2,090            | 1,314            | 423.2                     | -24.3                                | 3.4       | -26.8                  | 118.3                  | 47.2      | 35.2      | 69.1      |
| Textiles and their products.....  | 1,716,646   | 1,510,876 | 1,608,131 | 1,611,309   | 1,507,374 | 1,445,720        | 1,163,497        | 1,028,706        | 67.1                      | 6.7                                  | 13.6      | -6.0                   | 6.9                    | 4.3       | 24.3      | 13.1      |
| Cotton goods and cotton lace.....   | 478,810   | 418,454   | 437,436   | 437,456   | 386,806   | 371,182          | 310,458          | 297,929          | 60.7                      | 9.5                                  | 14.4      | -4.3                   | 13.1                   | 4.2       | 10.6      | 4.2       |
| Clothing, men's.....  | 194,820   | 165,200   | 174,588   | 175,270   | 173,747   | 191,183          | 137,190          | 120,827          | 61.7                      | 11.6                                 | 17.9      | -5.4                   | 9                      | -9.1      | 39.4      | 13.4      |
| Clothing, women's.....  | 133,105   | 144,865   | 164,903   | 165,649   | 168,907   | 163,743          | 116,795          | 83,730           | 59.6                      | -19.3                                | -8.1      | -12.2                  | -1.9                   | 9.9       | 32.9      | 38.2      |
| Woolen and worsted goods.....   | 194,552   | 162,364   | 166,757   | 166,787   | 158,692   | 163,192          | 141,988          | 125,901          | 54.6                      | 16.7                                 | 19.8      | -2.6                   | 5.1                    | -2.8      | 14.9      | 12.8      |
| Silk goods, including throwsters.....                                       | 125,234   | 121,378   | 126,715   | 126,782   | 108,170   | 99,637           | 79,601           | 65,416           | 91.5                      | -1.2                                 | 3.2       | -4.2                   | 17.2                   | 9.2       | 24.4      | 31.7      |
| Knit goods.....   | 194,244   | 161,880   | 172,459   | 172,572   | 150,520   | 129,275          | 104,092          | 83,691           | 132.2                     | 12.6                                 | 20.0      | -6.1                   | 14.7                   | 16.4      | 24.2      | 34.4      |
| Dyeing and finishing textiles, exclusive of that done in textile mills..... | 63,414  | 51,510    | 55,914    | 55,936  | 48,467    | 44,046           | 35,666           | 20,776           | 113.2                     | 13.4                                 | 23.1      | -7.9                   | 15.5                   | 10.0      | 23.8      | 19.4      |

|  |                  |                  |                  |                  |                  |                  |                |                |              |             |             |              |             |             |             |             |
|--|------------------|------------------|------------------|------------------|------------------|------------------|----------------|----------------|--------------|-------------|-------------|--------------|-------------|-------------|-------------|-------------|
| Millinery and lace goods, not elsewhere specified.....   | 54,246           | 53,701           | 50,378           | 50,850           | 45,274           | 39,301           | 27,500         | 16,871         | 224.6        | 7.7         | 1.0         | 6.6          | 12.3        | 15.5        | 42.5        | 63.0        |
| Carpets and rugs, other than rag.....  | 35,217           | 22,922           | 29,493           | 22,933           | 31,300           | 33,307           | 83,221         | 28,411         | 94.0         | 53.6        | 53.6        | -28.8        | -6.0        | .8          | 16.9        |             |
| Cordage and twine.....   | 16,382           | 14,563           | 17,617           | 17,622           | 15,769           | 14,629           | 14,614         | 13,114         | 25.0         | -7.0        | 12.3        | -17.2        | 11.8        | 7.8         | 11.4        |             |
| Hats, fur-felt.....  | 16,722           | 13,880           | 18,497           | 18,510           | 21,318           | 25,064           | 22,047         | 18,880         | -11.4        | -9.6        | 30.6        | -25.0        | -19.2       | -14.9       | 18.7        | 16.8        |
| Bags, other than paper, not including bags made in textile mills.....  | 11,548           | 10,324           | 10,746           | 10,756           | 9,358            | 7,968            | 5,722          | 3,922          | 194.8        | 7.5         | 11.9        | -3.9         | 14.9        | 17.4        | 89.3        | 45.9        |
| Shirts.....  | 51,672           | 45,427           | 39,245           | 39,503           | 51,972           | 48,513           | 35,499         | 36,622         | 42.4         | 31.7        | 13.7        | 15.8         | -23.8       | 7.1         | 32.9        | 1.3         |
| Furnishing goods, men's, including cloth gloves and mittens, other than those made in textile mills.....   | 27,822           | 21,679           | 27,821           | 27,930           | 22,459           | 15,920           | 16,399         | 13,187         | 211.6        | 28.3        | -22.1       | 24.4         | 41.1        | -2.9        | 24.4        |             |
| Corsets.....   | 16,104           | 17,084           | 18,391           | 18,415           | 20,496           | 17,564           | 10,975         | 12,297         | 81.2         | -12.4       | -5.7        | -7.1         | -10.2       | 16.7        | 60.0        | -10.8       |
| Collars and cuffs, men's.....  | 10,449           | 9,285            | 11,098           | 11,103           | 10,100           | 12,421           | 10,786         | 17,135         | -39.0        | -5.8        | 12.5        | -15.3        | 9.9         | -18.7       | 15.2        | -37.1       |
| <b>Iron and steel and their products.....</b>  | <b>1,527,120</b> | <b>1,081,523</b> | <b>1,583,928</b> | <b>1,585,712</b> | <b>1,061,058</b> | <b>1,026,553</b> | <b>868,634</b> | <b>745,235</b> | <b>105.1</b> | <b>-8.0</b> | <b>48.0</b> | <b>-34.9</b> | <b>49.4</b> | <b>8.4</b>  | <b>18.2</b> | <b>16.6</b> |
| Crude iron and steel and rolled products, including products not made in rolling-mill establishments (though largely made therein), plus wire and wirework, not elsewhere specified..... | 608,447          | 374,521          | 537,491          | 587,742          | 406,634          | 398,584          | 321,201        | 282,949        | 115.2        | 3.6         | 62.6        | -36.3        | 44.5        | 2.9         | 23.1        | 13.5        |
| Foundry and machine-shop products.....   | 448,777          | 321,363          | 481,701          | 572,858          | 302,471          | 388,911          | 345,378        | 350,103        | 99.8         | -6.9        | 39.6        | -32.3        | 58.0        | 2.4         | 15.1        | 15.1        |
| Engines, steam, gas, and water.....  | 48,495           | 35,567           | 77,596           | 77,617           | 29,567           | (*)              | (*)            | (*)            | -37.6        | -37.1       | 56.6        | -39.9        | 161.7       |             |             |             |
| Machine tools.....   | 33,373           | 21,367           | 53,092           | (*)              | (*)              | (*)              | (*)            | (*)            | (*)          | (*)         | (*)         | (*)          | (*)         | (*)         | (*)         | (*)         |
| Tools, not elsewhere specified.....  | 29,100           | 19,453           | 35,425           | 35,585           | 16,866           | 15,999           | 11,643         | 7,674          | 283.7        | -17.9       | 49.6        | -45.1        | 111.0       | 5.4         | 37.4        | 52.9        |
| Hardware.....  | 49,894           | 33,803           | 42,449           | 42,505           | 41,213           | 38,513           | 31,713         | 26,468         | 88.7         | 17.6        | 47.6        | -20.4        | 3.1         | 7.0         | 21.4        | 19.8        |
| Stoves and hot-air furnaces.....   | 33,029           | 24,530           | 32,860           | 32,868           | 26,535           | 32,118           | 29,728         | (*)            | (*)          | (*)         | 34.6        | -25.3        | 11.3        | -8.0        | 8.0         |             |
| Steam fittings and steam and hot-water heating apparatus.....  | 44,141           | 30,808           | 36,679           | 36,686           | 26,389           | 23,378           | 11,690         | 5,252          | 377.0        | 20.8        | 43.8        | -16.0        | 39.0        | 12.9        | 100.0       | 26.4        |
| Locomotives, not made by railroad companies.....   | 30,672           | 16,583           | 26,715           | 26,716           | 17,391           | 14,908           | 24,506         | (*)            | (*)          | (*)         | 14.8        | 85.0         | -37.9       | 53.6        | 16.6        | -39.9       |
| Textile machinery and parts.....   | 35,672           | 31,025           | 31,792           | (*)              | (*)              | (*)              | (*)            | (*)            | (*)          | (*)         | 12.2        | 15.0         | -2.4        |             |             |             |
| Cash registers and calculating machines.....   | 14,971           | 9,789            | 16,335           | 16,544           | 8,956            | 7,465            | 4,079          | 2,067          | 624.4        | -9.5        | 53.0        | -40.8        | 84.7        | 20.0        | 83.0        | 97.3        |
| Cutlery and edge tools.....  | 16,671           | 14,345           | 19,822           | 19,859           | 16,561           | 16,997           | 14,545         | 12,028         | 38.8         | -15.9       | 10.2        | -27.6        | 19.9        | -2.6        | 16.9        | 20.9        |
| Ordnance and accessories.....  | (*)              | (*)              | 11,328           | 11,328           | (*)              | (*)              | 289            | 989            |              |             |             |              |             |             |             | -70.8       |
| Typewriters and supplies.....  | 14,963           | 13,381           | 15,447           | 15,699           | 11,079           | 9,578            | 6,232          | 4,340          | 245.1        | -4.4        | 11.8        | -14.5        | 41.3        | 15.8        | 53.7        | 43.6        |
| Plumbers' supplies, not elsewhere specified.....   | 27,201           | 16,670           | 13,685           | 13,692           | 18,479           | 19,257           | 10,753         | 8,024          | 239.1        | 100.2       | 63.2        | 22.7         | -26.4       | -4.0        | 79.1        | 34.0        |
| Stoves, gas and oil.....   | 16,783           | 7,921            | 10,556           | 10,565           | 7,790            | 5,012            | 3,676          | 2,471          | 579.9        | 59.0        | 111.9       | -25.0        | 35.6        | 55.4        | 36.3        | 48.8        |
| Pumps, steam and other power <sup>10</sup> .....   | 14,550           | 12,186           | 16,054           | 16,072           | 8,322            | (*)              | (*)            | (*)            | (*)          | (*)         | -9.4        | 18.3         | -24.1       | 93.1        |             |             |
| Sewing machines and attachments (including cases).....   | 13,436           | 12,569           | 19,228           | 19,230           | 15,007           | 19,299           | 17,121         | 13,355         | 5            | -30.1       | 6.7         | -34.6        | 6.8         | -6.5        | 12.5        | 23.1        |
| Screws, machine.....   | 9,126            | 5,911            | 10,255           | 10,262           | 3,643            | 1,667            | 1,955          | 486.6          |              | -11.0       | 54.4        | -42.4        | 181.7       | 118.5       | -15.2       | 28.2        |
| <b>Lumber and its remanufactures.....</b>  | <b>694,236</b>   | <b>675,069</b>   | <b>825,884</b>   | <b>839,008</b>   | <b>833,529</b>   | <b>911,593</b>   | <b>734,126</b> | <b>671,696</b> | <b>35.5</b>  | <b>8.6</b>  | <b>32.8</b> | <b>-18.3</b> | <b>.7</b>   | <b>-8.6</b> | <b>84.2</b> | <b>9.3</b>  |
| Lumber and timber products.....  | 495,932          | 364,247          | 469,297          | 490,945          | 479,786          | 547,178          | 404,563        | 413,257        | 23.0         | 5.7         | 36.2        | -22.4        | .2          | -12.3       | 35.3        | -2.1        |
| Furniture.....   | 168,089          | 124,311          | 139,950          | 138,331          | 127,681          | 123,426          | 110,133        | 87,262         | 90.4         | 20.1        | 35.2        | -11.2        | 8.2         | 3.6         | 12.1        | 26.2        |
| Lumber, planing-mill products, not including planing mills connected with sawmills.....  | 103,008          | 78,033           | 86,382           | 89,135           | 99,408           | 112,392          | 97,674         | 73,510         | 44.6         | 19.2        | 32.0        | -9.8         | -10.3       | -11.6       | 15.1        | 32.9        |

See footnotes at end of Table 31, p. 146.



TABLE 29.—AVERAGE NUMBER OF WAGE EARNERS EMPLOYED IN SELECTED INDUSTRIES, BY CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923—Continued

[See note at head of this table, p. 130]

| INDUSTRY  | AVERAGE NUMBER OF WAGE EARNERS  |         |         |   |         |         |         |         | PER CENT OF INCREASE OR DECREASE (—) |                        |           |                        |                        |           |           |           |
|---|---|---------|---------|---|---------|---------|---------|---------|--------------------------------------|------------------------|-----------|------------------------|------------------------|-----------|-----------|-----------|
|   | Excluding data for establishments with products valued at less than \$5,000 |         |         | Including data for establishments with products valued at \$500 or more |         |         |         |         | 24-year period, 1899-1923            | Intercensal period     |           |                        |                        |           |           |           |
|   | 1923  | 1921    | 1919    | 1919  | 1914    | 1909    | 1904    | 1899    |                                      | 1919-1923 <sup>1</sup> | 1921-1923 | 1919-1921 <sup>1</sup> | 1914-1919 <sup>1</sup> | 1909-1914 | 1904-1909 | 1899-1904 |
| Lumber and its remanufactures—Continued.  |   |         |         |   |         |         |         |         |                                      |                        |           |                        |                        |           |           |           |
| Boxes, wooden packing, except cigar boxes.  | 39,154  | 32,595  | 42,325  | 42,445  | 38,548  | 35,449  | 30,329  | 21,999  | 78.4                                 | -7.5                   | 20.1      | -23.0                  | 10.1                   | 8.7       | 16.9      | 37.9      |
| Coffins, burial cases, and undertakers' goods.....                                  | 11,593  | 9,956   | 11,890  | 11,890  | 9,468   | 9,339   | 8,468   | 6,840   | 69.6                                 | -2.4                   | 16.4      | -16.2                  | 25.6                   | 1.4       | 10.3      | 23.8      |
| Cooperage.....  | 12,028  | 9,876   | 13,071  | 13,219  | 17,128  | 16,489  | 21,149  | 22,117  | -45.0                                | -8.0                   | 21.8      | -24.4                  | -22.8                  | -12.1     | -7.8      | -4.4      |
| Leather and its finished products.....  | 344,645   | 280,071 | 348,715 | 349,362   | 307,060 | 309,766 | 264,459 | 248,626 | 38.8                                 | -1.2                   | 23.0      | -19.7                  | 13.8                   | -0        | 17.1      | 6.4       |
| Boots and shoes, not including rubber boots and shoes.....                          | 225,216   | 183,502 | 210,991 | 211,049   | 191,555 | 185,116 | 149,924 | 141,830 | 58.8                                 | 6.7                    | 22.7      | -13.0                  | 10.2                   | 8.5       | 23.5      | 5.7       |
| Leather, tanned, curried, and finished.....   | 59,703  | 48,955  | 72,465  | 72,478  | 55,936  | 62,202  | 57,239  | 52,109  | 14.6                                 | -17.6                  | 22.0      | -32.4                  | 29.6                   | -10.1     | 8.7       | 9.8       |
| Saddlery and harness.....   | 6,617   | 4,489   | 10,024  | 10,411  | 12,969  | 14,632  | 15,032  | 14,364  | -52.1                                | -34.0                  | 47.4      | -55.2                  | -19.7                  | -11.4     | -2.7      | 4.7       |
| Trunks and valises.....   | 11,441  | 8,712   | 11,404  | 11,470  | 9,911   | 11,122  | 9,091   | 6,964   | 65.2                                 | .3                     | 31.3      | -23.6                  | 15.7                   | -10.9     | 22.3      | 30.5      |
| Boot and shoe cut stock, exclusive of that produced in boot and shoe factories..... | 7,133   | 7,049   | 9,703   | 9,716   | 7,819   | 6,693   | 5,938   | 6,155   | 16.0                                 | -26.6                  | 1.2       | -27.4                  | 24.2                   | 16.8      | 12.8      | -3.6      |
| Paper and printing.....   | 526,795   | 467,072 | 502,298 | 509,875   | 452,900 | 415,990 | 351,640 | 298,744 | 79.1                                 | 4.9                    | 12.8      | -7.0                   | 12.6                   | 8.9       | 18.3      | 17.7      |
| Printing and publishing, newspaper and periodical.....                              | 115,646   | 107,534 | 115,102 | 120,381   | 114,375 | 108,672 | 96,857  | 94,604  | 27.8                                 | .5                     | 7.5       | -6.6                   | 5.3                    | 5.2       | 12.2      | 2.4       |
| Printing and publishing, book and job.....  | 129,890   | 121,055 | 121,255 | 123,005   | 113,121 | 108,687 | 87,746  | 67,610  | 94.8                                 | 7.1                    | 7.3       | -2                     | 8.7                    | 4.1       | 23.9      | 28.8      |
| Paper and wood pulp.....  | 120,677   | 105,294 | 113,753 | 113,759   | 88,457  | 78,976  | 65,904  | 49,646  | 143.1                                | 6.1                    | 14.6      | -7.4                   | 28.6                   | 16.4      | 15.2      | 32.9      |
| Boxes, paper and other, not elsewhere specified.....                                | 56,855  | 46,242  | 55,778  | 55,862  | 45,311  | 39,514  | 32,082  | 27,653  | 105.8                                | 1.9                    | 23.0      | -17.1                  | 23.3                   | 14.7      | 23.2      | 16.0      |
| Lithographing.....  | 16,317  | 13,971  | 15,611  | 15,618  | 15,171  | 15,073  | 12,614  | 12,994  | 25.6                                 | 4.5                    | 16.8      | -10.5                  | 2.9                    | .7        | 19.5      | -2.9      |
| Bookbinding and blank-book making.....  | 20,728  | 17,465  | 20,126  | 20,361  | 21,693  | 19,938  | 17,713  | 15,971  | 31.3                                 | 3.0                    | 18.7      | -13.2                  | -6.1                   | 8.8       | 12.6      | 10.9      |
| Paper goods, not elsewhere specified.....   | 14,724  | 11,510  | 14,122  | 14,135  | 13,495  | 12,983  | 9,842   | 6,117   | 141.0                                | 4.3                    | 27.9      | -18.6                  | 4.7                    | 3.9       | 31.9      | 60.9      |

|  |         |         |         |         |         |                   |                   |                   |                   |       |       |       |       |       |       |       |
|--|---------|---------|---------|---------|---------|-------------------|-------------------|-------------------|-------------------|-------|-------|-------|-------|-------|-------|-------|
| Liquors and beverages.....   | 81,338  | 85,974  | 84,403  | 85,442  | 88,152  | 77,827            | 68,338            | 55,120            | -42.2             | -42.5 | -11.4 | -35.1 | -37.1 | 13.8  | 13.9  | 24.0  |
| Liquors, malt, including cereal beverages.....   | 11,212  | 18,551  | 34,253  | 34,259  | 62,070  | 54,579            | 48,137            | 39,459            | -71.6             | -67.3 | -39.6 | -45.8 | -44.9 | 13.7  | 13.4  | 22.0  |
| Mineral and soda waters.....   | 15,062  | 14,651  | 16,632  | 17,440  | 15,506  | 13,147            | 10,879            | 8,788             | 117.0             | 9.3   | 23.3  | -11.4 | 12.6  | 17.9  | 20.8  | 23.8  |
| Chemicals and allied products.....   | 404,786 | 329,472 | 425,906 | 427,008 | 299,569 | 267,261           | 227,326           | 196,538           | 106.4             | -5.0  | 22.9  | -22.7 | 42.5  | 12.1  | 17.6  | 15.7  |
| Petroleum refining.....  | 66,717  | 63,189  | 58,887  | 58,880  | 25,395  | 13,929            | 16,770            | 12,199            | 448.9             | 13.3  | 5.6   | 7.3   | 132.2 | 82.1  | -16.9 | 37.5  |
| Chemicals and acids <sup>14</sup> .....  | 77,264  | 49,138  | 70,163  | 76,210  | 35,375  | 25,981            | 22,204            | 17,519            | 341.1             | 1.4   | 67.2  | -35.5 | 115.4 | 36.2  | 16.5  | 27.3  |
| Druggists' preparations, patent medicines<br>and compounds, perfumery and cos-<br>metics, and drug grinding..... | 84,830  | 81,316  | 39,334  | 39,764  | 26,561  | 23,817            | 21,453            | 19,672            | 78.9              | -11.5 | 11.2  | -20.4 | 49.7  | 11.5  | 11.0  | 9.1   |
| Gas, illuminating and heating.....   | 42,282  | 84,956  | 42,844  | 42,908  | 43,792  | 37,215            | 30,568            | 22,459            | 88.6              | -1.3  | 21.0  | -18.4 | -2.0  | 17.7  | 21.8  | 36.1  |
| Oils.....  | 19,817  | 42,071  | 85,151  | 85,190  | 25,596  | 20,582            | 18,369            | 14,008            | 41.7              | -43.6 | -10.2 | -67.2 | 37.5  | 24.4  | 12.0  | 31.1  |
| Paint and varnish.....   | 22,818  | 18,015  | 21,473  | 21,507  | 16,083  | 14,240            | 11,633            | 9,697             | 136.8             | 6.3   | 26.7  | -16.1 | 33.7  | 12.9  | 22.4  | 20.0  |
| Fertilizers.....   | 18,572  | 16,898  | 26,279  | 26,296  | 22,815  | 18,310            | 14,184            | 11,581            | 60.6              | -29.3 | 9.9   | -45.7 | 15.9  | 24.6  | 29.1  | 22.5  |
| Coke, not including gas-house coke.....  | 28,364  | 16,070  | 29,314  | 29,319  | 21,107  | 23,273            | 19,981            | 16,999            | 67.0              | -3.2  | 76.5  | -45.2 | 33.9  | -27.9 | 54.2  | 11.7  |
| Soap.....  | 17,032  | 16,538  | 20,404  | 20,436  | 14,172  | 12,969            | 11,044            | 9,487             | 79.4              | -16.7 | 2.7   | -18.3 | 44.2  | 9.0   | 17.7  | 16.4  |
| Explosives.....  | 6,388   | 4,478   | 9,249   | 9,249   | -6,306  | 6,274             | -5,800            | 4,502             | 41.9              | -30.9 | 42.7  | -51.6 | 46.7  | 5.5   | 8.2   | 28.8  |
| Turpentine and rosin.....  | 34,328  | 27,422  | 27,902  | 28,067  | 34,817  | 39,511            | 33,382            | 41,864            | -17.6             | 23.0  | 25.2  | -1.7  | -19.4 | -11.9 | 18.4  | -20.3 |
| Stone, clay, and glass products.....   | 245,370 | 250,812 | 296,229 | 298,659 | 334,612 | 342,827           | 285,346           | 231,716           | 50.3              | 16.6  | 37.7  | -15.3 | -10.7 | -2.4  | 20.1  | 23.1  |
| Glass.....   | 73,335  | 54,748  | 77,520  | 77,520  | 74,502  | 68,911            | 63,969            | 52,818            | 38.9              | -5.4  | 34.0  | -29.4 | 4.1   | 8.1   | 7.7   | 21.1  |
| Brick, tile, pottery, and other clay prod-<br>ucts <sup>15</sup> .....   | 140,129 | 97,591  | 104,724 | 105,853 | 127,444 | 132,696           | 118,449           | 105,693           | 33.4              | 33.8  | 43.6  | -6.8  | -17.3 | -4.0  | 12.0  | 12.1  |
| Cement.....  | 35,091  | 26,231  | 35,524  | 35,524  | 27,916  | 26,775            | 17,478            | ( <sup>16</sup> ) | 201.2             | 37.5  | 33.8  | 2.8   | -8.9  | 4.3   | 53.2  |       |
| Marble and stone work.....   | 40,056  | 30,260  | 32,309  | 32,768  | 54,891  | 66,603            | 51,110            | 41,686            | ( <sup>17</sup> ) | -2.5  | 24.0  | 32.4  | -6.3  | -40.3 | -16.3 | 23.4  |
| Minerals and earths, ground or otherwise<br>treated.....   | 8,707   | 6,887   | 14,357  | 14,426  | 4,707   | 1,990             | 2,157             | 2,094             | 317.5             | -89.4 | -26.4 | -52.0 | 206.5 | 136.5 | -7.7  | 3.0   |
| Nonferrous metals and their prod-<br>ucts.....   | 327,537 | 235,170 | 338,383 | 339,469 | 262,154 | 249,607           | 198,531           | 161,463           | 103.5             | -3.2  | 39.3  | -30.5 | 29.5  | 5.0   | 25.7  | 23.0  |
| Brass, bronze, and copper products.....  | 64,713  | 39,830  | 74,998  | 75,051  | 40,396  | 40,618            | 33,168            | 27,166            | 138.4             | -13.7 | 62.5  | -46.9 | 86.2  | 1.9   | 22.5  | 22.1  |
| Smelting and refining.....   | 40,691  | 20,214  | 41,787  | 41,787  | 37,318  | 31,554            | 28,565            | 25,495            | 59.6              | -2.6  | 101.3 | -51.6 | 12.0  | 17.2  | 11.5  | 12.0  |
| Cement.....  | 26,354  | 23,482  | 30,704  | 30,871  | 28,289  | 30,347            | 22,080            | 20,468            | 29.4              | -14.2 | 12.2  | -22.5 | 9.1   | -6.8  | 37.4  | 7.9   |
| Copper, tin, and sheet-iron work.....  | 28,852  | 25,172  | 26,956  | 27,640  | 28,714  | 28,448            | 22,556            | 28,315            | 4.4               | 7.0   | 14.6  | -6.6  | -3.7  | .9    | 26.1  | -20.3 |
| Stamped and enameled ware, not else-<br>where specified.....   | 35,237  | 24,192  | 34,238  | 34,248  | 28,731  | 25,413            | 18,560            | 10,002            | 262.3             | 2.9   | 45.7  | -29.3 | 19.2  | 13.1  | 67.4  | 35.6  |
| Tinware, not elsewhere specified.....  | 30,511  | 22,711  | 34,372  | 34,386  | 22,554  | 19,754            | 16,919            | ( <sup>18</sup> ) |                   | -11.2 | 54.3  | -33.9 | 52.3  | 14.3  | 16.8  |       |
| Watches.....   | 11,571  | 12,174  | 15,838  | 15,838  | 12,390  | 10,664            | 10,724            | 9,880             | 68.1              | -27.2 | -5.0  | -23.4 | 23.2  | 16.6  | -4    | 55.9  |
| Aluminum manufactures.....   | 15,288  | 9,584   | 11,402  | 11,402  | 4,614   | ( <sup>19</sup> ) | ( <sup>19</sup> ) | ( <sup>19</sup> ) |                   | 42.9  | 69.9  | -15.9 | 147.1 |       |       |       |

See footnotes at end of Table 31, p. 146.

TABLE 29.—AVERAGE NUMBER OF WAGE EARNERS EMPLOYED IN SELECTED INDUSTRIES, BY CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923—Continued

[See note at head of this table, p. 130]

| INDUSTRY  | AVERAGE NUMBER OF WAGE EARNERS  |                   |                   |   |         |         |                  |                  | PER CENT OF INCREASE OR DECREASE (-) |                    |           |           |           |           |           |           |
|---|---|-------------------|-------------------|---|---------|---------|------------------|------------------|--------------------------------------|--------------------|-----------|-----------|-----------|-----------|-----------|-----------|
|   | Excluding data for establishments with products valued at less than \$5,000 |                   |                   | Including data for establishments with products valued at \$500 or more |         |         |                  |                  | 24-year period, 1899-1923            | Intercensal period |           |           |           |           |           |           |
|   | 1923  | 1921              | 1919              | 1919  | 1914    | 1909    | 1904             | 1899             |                                      | 1919-1923          | 1921-1923 | 1919-1921 | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |
| Tobacco manufactures.....   | 146,337   | 149,985           | 154,969           | 157,097   | 178,872 | 166,810 | 159,406          | 132,526          | 11.9                                 | -5.6               | -2.4      | -3.2      | -12.2     | 7.2       | 4.6       | 20.3      |
| Tobacco, cigars and cigarettes.....   | 130,036   | 133,367           | 136,675           | 138,773   | 152,892 | 139,578 | 135,416          | 103,365          | 27.7                                 | -4.9               | -2.5      | -2.4      | -9.2      | 9.5       | 3.1       | 31.0      |
| Tobacco, chewing and smoking, and snuff.....  | 16,301  | 16,628            | 18,294            | 18,324  | 25,980  | 27,232  | 23,990           | 29,161           | -44.0                                | -10.9              | -2.0      | -9.1      | -29.5     | -4.6      | 13.5      | -17.7     |
| Vehicles for land transportation, including railroad repair shops.....                                  | 1,033,898   | 699,635           | 955,543           | 1,011,648   | 628,978 | 507,311 | 384,547          | 314,283          | 248.3                                | 8.2                | 47.8      | -26.8     | 60.8      | 24.0      | 31.9      | 22.4      |
| Automobiles.....  | 241,356   | 143,658           | 210,553           | 210,559   | 79,307  | 51,294  | 10,239           | 2,241            | 10,687.6                             | -14.6              | 68.0      | -31.8     | 165.5     | 54.6      | 401.0     | 359.9     |
| Steam-railroad repair shops.....  | 488,505   | 385,006           | 484,380           | 484,437   | 339,518 | 282,174 | 236,870          | 173,595          | 181.6                                | 9                  | 26.9      | -20.5     | 42.7      | 20.3      | 19.1      | 36.4      |
| Automobile bodies and parts.....  | 163,530   | 69,119            | 132,323           | 132,556   | 47,785  | 24,427  | 1,810            | ( <sup>1</sup> ) | ( <sup>1</sup> )                     | 23.6               | 136.6     | -47.8     | 177.4     | 95.6      | 1,249.6   |           |
| Cars, steam-railroad, not including operations of railroad companies.....                               | 76,612  | 45,121            | 52,298            | 52,298  | 54,288  | 43,068  | 34,058           | 33,453           | 129.0                                | 46.5               | 69.8      | -13.7     | -3.7      | 26.0      | 26.5      | 1.8       |
| Automobile repairing.....   | ( <sup>20</sup> )   | ( <sup>20</sup> ) | ( <sup>20</sup> ) | ( <sup>20</sup> )   | 55,061  | 12,562  | ( <sup>9</sup> ) | ( <sup>9</sup> ) | 338.3                                |                    |           |           |           |           |           |           |
| Electric-railroad repair shops.....   | 84,925  | 33,279            | 31,155            | 31,272  | 26,384  | 22,418  | 11,052           | 7,025            | 399.1                                | 12.1               | 4.9       | 6.8       | 18.5      | 17.7      | 102.8     | 57.3      |
| Carriages and wagons, including repairs <sup>1</sup> .....  | 7,740   | 7,797             | 17,583            | 18,173  | 41,304  | 52,540  | 60,722           | 58,426           | -86.3                                | -56.0              | -0.7      | -55.7     | -56.0     | -21.4     | -13.5     | 3.9       |
| Motor cycles, bicycles, and parts.....  | 6,576   | 4,308             | 10,882            | 10,886  | 6,680   | 4,437   | 3,319            | 17,525           | -62.5                                | -39.6              | 52.6      | -60.4     | 63.0      | 50.6      | 33.7      | -81.1     |
| Miscellaneous industries.....   | 852,024   | 713,777           | 1,224,496         | 1,227,111   | 558,755 | 482,206 | 408,477          | 326,242          | 154.5                                | -30.4              | 19.5      | -41.8     | 109.5     | 21.5      | 18.0      | 25.2      |
| Shipbuilding, steel.....  | 51,961  | 93,323            | 344,011           | 344,014   | 33,509  | 28,143  | 36,742           | 30,906           | 68.1                                 | -84.9              | -44.3     | -72.9     | 926.7     | 19.1      | -23.4     | 18.9      |
| Electrical machinery, apparatus, and supplies.....  | 234,892   | 161,204           | 212,294           | 212,374   | 118,078 | 87,256  | 60,466           | 42,018           | 459.1                                | 10.6               | 45.7      | -24.1     | 79.9      | 35.3      | 44.3      | 43.9      |
| Rubber tires, tubes, and rubber goods, not elsewhere specified, including belting and hose, rubber..... | 108,433   | 79,385            | 125,662           | 125,674   | 55,335  | 31,852  | 24,882           | 22,175           | 389.1                                | -13.7              | 36.6      | -36.8     | 127.1     | 74.8      | 27.2      | 12.2      |
| Agricultural implements.....  | 30,962  | 30,359            | 54,294            | 54,368  | 48,459  | 50,551  | 47,394           | 46,582           | -33.5                                | -43.0              | 2.0       | -44.1     | 12.2      | -4.1      | 6.7       | 0.7       |
| Shipbuilding, wooden, including boat building.....  | 10,326  | 13,122            | 43,290            | 43,432  | 10,981  | 12,363  | 14,012           | 15,841           | -34.5                                | -70.1              | -21.3     | -69.7     | 295.5     | -11.2     | -11.8     | -11.5     |
| Phonographs and graphophones.....   | 20,491  | 17,938            | 28,714            | 28,721  | 9,381   | 5,199   | 3,397            | 1,267            | 1,518.6                              | -28.6              | 14.2      | -37.5     | 206.2     | 80.4      | 53.0      | 163.1     |
| Ice, manufactured.....  | 26,852  | 24,066            | 29,895            | 30,247  | 23,011  | 16,114  | 10,101           | 6,890            | 294.8                                | -10.2              | 11.6      | -19.5     | 31.4      | 42.8      | 59.5      | 46.8      |
| Fur goods.....  | 14,439  | 12,052            | 13,544            | 13,639  | 9,030   | 11,927  | 9,870            | 7,768            | 87.4                                 | 6.6                | -19.8     | -11.0     | 51.0      | -24.3     | 27.9      | 20.8      |

|  |        |        |        |        |        |        |        |        |       |       |      |       |       |       |       |       |
|--|--------|--------|--------|--------|--------|--------|--------|--------|-------|-------|------|-------|-------|-------|-------|-------|
| Boots and shoes, rubber.....                             | 29,435 | 23,888 | 32,875 | 32,875 | 18,687 | 17,612 | 18,991 | 14,391 | 104.4 | -10.5 | 23.2 | -27.3 | 75.9  | 6.1   | -7.3  | 32.0  |
| Photographic materials #.....                            | 16,313 | 16,949 | 17,094 | 17,111 | 8,674  | 5,195  | 8,812  | 3,444  | 373.9 | -4.6  | -3.8 | -8    | 97.3  | 67.0  | 36.3  | 10.7  |
| Musical instruments, pianos.....                         | 22,298 | 16,836 | 22,956 | 22,957 | 23,877 | 25,497 | 21,002 | 21,300 | 4.2   | -3.3  | 40.2 | -31.0 | -3.9  | -6.4  | 21.4  | -1.4  |
| Ammunition.....  | 10,470 | 8,370  | 22,816 | 22,816 | 11,483 | 8,713  | 7,410  | 5,231  | 100.2 | -54.1 | 25.1 | -63.3 | 98.5  | 31.9  | 17.6  | 41.7  |
| Instruments, professional and scientific.....            | 12,275 | 9,864  | 15,897 | 15,931 | 7,107  | 4,817  | 3,437  | 2,775  | 343.2 | -22.8 | 30.8 | -41.0 | 124.2 | 47.5  | 40.2  | 35.9  |
| Optical goods.....                                       | 12,205 | 11,120 | 14,635 | 14,723 | 7,919  | 6,398  | 4,330  | 3,715  | 223.3 | -16.9 | 9.8  | +24.3 | 85.9  | 33.8  | 47.8  | 15.6  |
| Mattresses and bed springs, not elsewhere specified..... | 14,103 | 11,748 | 12,549 | 12,637 | 11,747 | 11,322 | 10,427 | 7,649  | 65.7  | 12.4  | 20.0 | -6.4  | 7.6   | 3.8   | 8.6   | 36.3  |
| Roofing materials.....                                   | 7,665  | 6,908  | 8,855  | 8,871  | 4,088  | 2,465  | 8,819  | 7,593  | 1.1   | -13.4 | 11.0 | -22.0 | 117.0 | 65.8  | -72.0 | 16.1  |
| Fancy articles, not elsewhere specified.....             | 13,522 | 11,534 | 13,874 | 13,961 | 7,399  | 5,729  | 6,624  | 5,718  | 138.1 | -2.5  | 17.2 | -16.9 | 88.7  | 10.0  | 1.6   | 15.8  |
| Paving materials.....                                    | 19,442 | 15,387 | 15,742 | 16,072 | 19,540 | 1,419  | 1,919  | 2,436  | 714.9 | 23.5  | 26.4 | -2.3  | -17.7 | 277.0 | -26.1 | -21.2 |
| Stationery goods, not elsewhere specified.....           | 13,314 | 11,285 | 11,247 | 11,261 | 7,728  | 6,206  | 4,296  | 3,032  | 339.7 | 18.4  | 18.0 | 3     | 45.7  | 24.5  | 44.5  | 41.7  |
| Signs and advertising novelties.....                     | 12,988 | 10,373 | 10,817 | 10,432 | 9,566  | 5,540  | (?)    | (?)    | 25.9  | 25.2  | 5    | 5     | 9.1   | 72.7  |       |       |
| Toys and games.....                                      | 14,484 | 9,448  | 14,086 | 14,201 | 7,897  | 5,305  | 4,330  | 3,816  | 340.3 | 2.8   | 53.3 | -32.9 | 80.1  | 48.7  | 22.5  | 30.6  |
| Buttons.....   | 11,890 | 9,686  | 15,439 | 15,577 | 14,511 | 16,427 | 10,567 | 8,635  | 37.8  | -23.2 | 22.4 | -37.3 | 7.8   | -11.7 | 55.5  | 21.7  |

See footnotes at end of Table 31, p. 146.

**TABLE 30.—AMOUNT OF PRIMARY HORSEPOWER INSTALLED IN SELECTED INDUSTRIES, BY CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923**

[No data in regard to prime movers were collected for 1921. Because of the omission of certain minor industries and the transfer of a few others from one group to another, some of the group totals and some of the items given in this table differ somewhat from the corresponding totals and items, as they appear in the census reports. As to the comparability of 1921 and 1923 figures with those of previous years, see general remarks preceding tables, pars. 2 and 4, pp. 124 and 125]

| INDUSTRY  | PRIMARY HORSEPOWER                                  |            |   |            |            |            |            | PER CENT OF INCREASE OR DECREASE (-) |                    |           |           |           |           |
|---|---|------------|---|------------|------------|------------|------------|--------------------------------------|--------------------|-----------|-----------|-----------|-----------|
|   | Excluding data for rented power other than electric |            | Including data for rented power other than electric |            |            |            |            | 24-year period, 1899-1923            | Intercensal period |           |           |           |           |
|   | 1923  | 1919       | 1919  | 1914       | 1909       | 1904       | 1899       |                                      | 1919-1923          | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |
| All industries.....   | 33,094,228  | 29,327,669 | 29,504,792  | 22,437,072 | 18,675,376 | 13,487,707 | 10,097,893 | 229.6                                | 12.8               | 31.5      | 20.1      | 38.5      | 33.6      |
| Food and kindred products.....  | 2,641,916   | 2,564,874  | 2,571,157   | 1,994,983  | 1,725,985  | 1,405,567  | 1,182,902  | 123.9                                | 3.0                | 28.9      | 15.6      | 22.8      | 18.8      |
| Slaughtering and meat packing.....  | 382,127   | 358,522    | 359,212   | 253,066    | 202,432    | 115,956    | 85,008     | 350.5                                | 6.6                | 41.9      | 25.0      | 74.6      | 36.4      |
| Bread and other bakery products.....  | 193,186   | 165,711    | 165,950   | 107,771    | 65,298     | 37,241     | 22,472     | 761.1                                | 16.6               | 54.0      | 65.0      | 75.3      | 65.7      |
| Confectionery, chewing gum, and ice cream.....                              | 268,090   | 185,854    | 186,069   | 101,423    | 35,870     | 24,292     | 19,410     | 1,282.3                              | 44.2               | 83.5      | 182.9     | 47.7      | 25.2      |
| Flour-mill and grain-mill products.....                                     | 709,856   | 875,464    | 876,405   | 822,384    | 853,584    | 775,318    | 670,719    | 6.0                                  | -18.9              | 6.6       | -3.7      | 10.1      | 15.6      |
| Canning and preserving, fruits and vegetables.....                          | 138,997   | 132,247    | 132,422   | 88,303     | 59,950     | 44,499     | 26,906     | 417.3                                | 5.1                | 50.0      | 47.3      | 34.7      | 65.4      |
| Sugar, beet, and cane sugar and its refining.....                           | 288,667   | 281,794    | 281,796   | 239,617    | 217,805    | 176,140    | 167,029    | 72.7                                 | 2.4                | 17.6      | 10.0      | 23.7      | 5.5       |
| Butter and cheese.....  | 148,666   | 119,373    | 119,690   | 110,847    | 89,761     | 57,889     | 48,062     | 69.2                                 | 24.5               | 8.0       | 23.5      | 2.1       | -2.2      |
| Coffee and spice, roasting and grinding.....                                | 37,858  | 29,708     | 29,750  | 26,634     | 22,594     | 15,703     | 16,270     | 130.1                                | 25.8               | 11.7      | 19.3      | 42.2      | -3.5      |
| Condensed milk.....   | 48,300  | 49,178     | 49,181  | 20,015     | 11,588     | 5,956      | (*)        | -1.8                                 | 145.7              | 72.7      | 94.6      | -----     | -----     |
| Glucose and starch.....   | 65,764  | 52,038     | 52,848  | 41,639     | 28,257     | 25,988     | 26,842     | 150.8                                | 26.4               | 28.9      | 47.4      | 31.5      | 35.1      |
| Canning and preserving, fish and oysters.....                               | 17,648  | 25,830     | 25,890  | 12,861     | 8,392      | 6,109      | 5,146      | 243.6                                | -31.7              | 101.3     | 53.3      | 37.4      | 18.7      |
| Pickles, preserves, and sauces.....   | 36,717  | 22,384     | 22,500  | 18,840     | 12,837     | 10,223     | 6,572      | 461.5                                | 64.0               | 19.4      | 46.8      | 25.6      | 55.9      |
| Breadstuff preparations, such as cereals and breakfast foods.....           | 61,312  | 46,992     | 47,372  | 25,820     | (?)        | (?)        | (?)        | -----                                | 30.5               | 83.5      | -----     | -----     | -----     |
| Chocolate and cocoa products.....   | 47,197  | 33,414     | 33,440  | 19,736     | 10,693     | 5,217      | 2,756      | 1,618.3                              | 41.2               | 69.4      | 84.3      | 103.0     | 89.3      |
| Textiles and their products.....  | 3,794,443   | 3,258,788  | 3,274,090   | 2,752,054  | 2,288,031  | 1,745,809  | 1,395,967  | 173.0                                | 16.4               | 19.0      | 20.3      | 31.1      | 25.0      |
| Cotton goods and cotton lace.....   | 2,162,844   | 1,845,376  | 1,849,279   | 1,575,853  | 1,286,105  | 979,109    | 789,858    | 174.4                                | 17.2               | 17.4      | 22.5      | 31.4      | 24.0      |
| Clothing, men's.....  | 52,642  | 40,199     | 40,577  | 35,664     | 30,669     | 21,106     | 13,347     | 298.2                                | 31.0               | 13.8      | 18.6      | 42.5      | 58.1      |
| Clothing, women's.....  | 27,704  | 32,421     | 32,622  | 25,396     | 22,294     | 14,916     | 9,962      | 180.0                                | -14.5              | 14.9      | 27.4      | 49.5      | 49.7      |
| Woolen and worsted goods.....   | 538,465   | 456,219    | 468,450   | 381,220    | 345,283    | 277,366    | 224,660    | 130.5                                | 15.5               | 22.9      | 9.5       | 25.6      | 13.2      |
| Silk goods, including throwsters.....                                       | 206,020   | 173,748    | 176,325   | 116,924    | 97,947     | 71,780     | 57,397     | 265.4                                | 18.9               | 51.2      | 19.4      | 36.5      | 25.0      |
| Knit goods.....   | 183,675   | 149,438    | 151,601   | 125,842    | 103,709    | 78,769     | 57,346     | 224.9                                | 22.9               | 20.5      | 21.3      | 31.7      | 37.4      |
| Dyeing and finishing textiles, exclusive of that done in textile mills..... | 204,128   | 159,857    | 160,430   | 130,172    | 107,746    | 84,868     | 69,238     | 195.9                                | 27.7               | 23.2      | 20.8      | 27.0      | 22.6      |
| Millinery and lace goods, not elsewhere specified.....                      | 15,661  | 12,410     | 12,482  | 12,786     | 7,915      | 4,737      | 1,852      | 756.6                                | 26.2               | -2.0      | 60.8      | 67.2      | 155.8     |

|  |                  |                  |                  |                  |                  |                  |                  |              |              |             |             |             |             |
|--|------------------|------------------|------------------|------------------|------------------|------------------|------------------|--------------|--------------|-------------|-------------|-------------|-------------|
| Carpets and rugs, other than rag.....  | 53,852           | 37,593           | 38,170           | 43,063           | 38,553           | 33,945           | 26,740           | 104.5        | 43.3         | -13.9       | 14.0        | 13.6        | 26.9        |
| Cordage and twine.....   | 72,371           | 66,556           | 66,643           | 55,377           | 47,269           | 41,041           | 33,657           | 115.2        | 8.7          | 39.3        | 17.3        | 15.2        | 21.9        |
| Hats, fur-felt.....  | 18,483           | 20,377           | 20,389           | 20,851           | 19,245           | 16,630           | 11,843           | 56.2         | -9.3         | -2.3        | 8.3         | 16.7        | 40.4        |
| Bags, other than paper, not including bags made in<br>textile mills.....   | 13,852           | 9,070            | 9,082            | 10,392           | 6,855            | 4,522            | 1,755            | 689.7        | 52.0         | -12.6       | 51.0        | 51.6        | 137.7       |
| Shirts.....  | 14,050           | 14,996           | 14,944           | 17,617           | 12,056           | 8,723            | 7,110            | 98.4         | -5.0         | -15.2       | 39.2        | 45.1        | 22.7        |
| Furnishing goods, men's, including cloth gloves and<br>mittens, other than those made in textile mills.....  | 8,613            | 9,023            | 9,029            | 5,890            | 3,983            | 3,061            | 1,250            | 589.8        | -4.5         | 53.6        | 47.6        | 30.1        | 144.9       |
| Corsets.....   | 5,901            | 6,956            | 7,156            | 7,057            | 4,581            | 3,284            | 3,638            | 66.8         | -15.2        | 1.4         | 54.0        | 39.5        | -9.7        |
| Collars and cuffs, men's.....  | 5,050            | 5,376            | 5,258            | 3,890            | 3,294            | 2,360            | 2,302            | 119.7        | -4.3         | 35.7        | 20.5        | 37.0        | 2.8         |
| <b>Iron and steel and their products.....</b>  | <b>8,934,585</b> | <b>8,071,629</b> | <b>8,082,692</b> | <b>5,537,842</b> | <b>4,561,285</b> | <b>3,526,702</b> | <b>2,188,594</b> | <b>808.8</b> | <b>10.7</b>  | <b>46.0</b> | <b>21.4</b> | <b>37.1</b> | <b>52.0</b> |
| <b>Crude iron and steel and rolled products, including<br/>products not made in rolling-mill establishments<br/>(though largely made therein) plus wire and wire-<br/>work, not elsewhere specified.....</b> | <b>6,632,365</b> | <b>6,006,565</b> | <b>6,010,688</b> | <b>4,275,692</b> | <b>3,554,191</b> | <b>2,596,446</b> | <b>1,685,882</b> | <b>293.6</b> | <b>10.4</b>  | <b>40.6</b> | <b>20.3</b> | <b>37.4</b> | <b>63.4</b> |
| Foundry and machine-shop products.....   | 1,234,326        | 1,040,265        | 1,216,628        | 770,454          | 659,601          | 487,148          | 379,900          | 387.1        | 18.7         | 57.9        | 18.9        | 52.2        | 43.6        |
| Engines, steam, gas, and water.....  | 195,137          | 190,005          | 190,021          | 63,047           | (?)              | (?)              | (?)              | (?)          | -13.1        | 201.4       |             |             |             |
| Machine tools.....   | 109,196          | 100,294          | (?)              | (?)              | (?)              | (?)              | (?)              | (?)          | 8.9          |             |             |             |             |
| Tools, not elsewhere specified.....  | 75,248           | 67,730           | 68,381           | 38,474           | 36,066           | 21,965           | 11,809           | 543.4        | 11.1         | 77.7        | 6.7         | 64.2        | 38.0        |
| Hardware.....  | 78,608           | 67,094           | 67,589           | 53,411           | 41,221           | 33,417           | 22,668           | 249.5        | 17.2         | 26.5        | 27.7        | 25.1        | 47.4        |
| Stoves and hot-air furnaces.....   | 65,366           | 49,408           | 49,479           | 41,196           | 40,248           | 28,414           | (?)              | (?)          | 32.3         | 20.1        | 2.4         | 46.1        |             |
| Steam fittings and steam and hot-water heating ap-<br>paratus.....   | 91,086           | 67,494           | 67,504           | 38,830           | 33,008           | 10,696           | 6,510            | 1,299.8      | 35.0         | 74.7        | 17.0        | 208.6       | 64.3        |
| Locomotives, not made by railroad companies.....   | 91,214           | 96,504           | 97,157           | 50,373           | 35,102           | 29,806           | (?)              | (?)          | -5.6         | 92.9        | 45.5        | 17.8        |             |
| Textile machinery and parts.....   | 56,235           | 41,744           | (?)              | (?)              | (?)              | (?)              | (?)              | (?)          | 34.9         |             |             |             |             |
| Cash registers and calculating machines.....   | 29,872           | 14,645           | 14,650           | 10,619           | 6,944            | 4,139            | 1,340            | 2,130.3      | 104.0        | 38.0        | 52.9        | 67.8        | 208.9       |
| Cutlery and edge tools.....  | 43,171           | 38,555           | 38,958           | 34,781           | 32,228           | 32,432           | 26,475           | 64.9         | -12.0        | -12.0       | 7.9         | -6.6        | 22.5        |
| Ordnance and accessories.....  | (?)              | 40,652           | 40,652           | (?)              | (?)              | 735              | 2,731            | (?)          |              |             |             |             | -73.1       |
| Typewriters and supplies.....  | 11,451           | 13,054           | 13,066           | 10,887           | 6,845            | 4,455            | 2,272            | 404.4        | -12.3        | 20.0        | 59.1        | 53.6        | 96.1        |
| Plumbers' supplies, not elsewhere specified.....   | 59,973           | 29,695           | 29,762           | 28,253           | 26,078           | 12,601           | 7,574            | 693.7        | 102.0        | 5.3         | 8.3         | 107.0       | 65.4        |
| Stoves, gas and oil.....   | 22,298           | 11,290           | 11,295           | 7,964            | 5,276            | 3,603            | 1,723            | 1,194.6      | 97.5         | 42.0        | 50.8        | 46.4        | 109.1       |
| Pumps, steam and other power.....  | 38,268           | 32,441           | 32,501           | 17,211           | (?)              | (?)              | (?)              | (?)          | 18.0         | 88.8        |             |             | 70.4        |
| Sewing machines and attachments (including cases).....   | 22,511           | 32,017           | 32,035           | 24,229           | 19,426           | 17,162           | 10,069           | 123.7        | -29.7        | 32.2        | 24.7        | 13.2        |             |
| Screws, machine.....   | 28,964           | 23,517           | 23,540           | 7,988            | 3,201            | 1,407            | (?)              | 1,959.6      | 23.1         | 194.7       | 140.7       | 8.7         | 137.5       |
| <b>Lumber and its remanufactures.....</b>  | <b>3,323,262</b> | <b>3,397,178</b> | <b>3,417,941</b> | <b>3,185,861</b> | <b>3,250,296</b> | <b>2,218,266</b> | <b>2,113,856</b> | <b>58.1</b>  | <b>-2.2</b>  | <b>7.3</b>  | <b>-2.0</b> | <b>46.5</b> | <b>4.0</b>  |
| <b>Lumber and timber products.....</b>   | <b>1,932,091</b> | <b>2,355,345</b> | <b>2,358,937</b> | <b>2,192,392</b> | <b>2,316,634</b> | <b>1,490,816</b> | <b>1,375,139</b> | <b>40.6</b>  | <b>-18.0</b> | <b>7.6</b>  | <b>-5.4</b> | <b>55.4</b> | <b>8.4</b>  |
| Furniture.....   | 1,486,347        | 1,265,094        | 1,262,703        | 240,665          | 211,438          | 163,614          | 114,568          | 319.8        | 83.1         | 9.2         | 13.8        | 29.2        | 42.8        |
| <b>Lumber, planing-mill products, not including planing<br/>mills connected with sawmills.....</b>   | <b>493,424</b>   | <b>417,070</b>   | <b>417,201</b>   | <b>423,005</b>   | <b>410,950</b>   | <b>309,887</b>   | <b>228,731</b>   | <b>121.2</b> | <b>18.9</b>  | <b>1.0</b>  | <b>2.9</b>  | <b>32.6</b> | <b>35.5</b> |
| Boxes, wooden packing, except cigar boxes.....   | 149,410          | 143,583          | 144,048          | 126,805          | 112,498          | 85,951           | 54,724           | 174.0        | 4.1          | 13.6        | 12.7        | 30.9        | 57.1        |
| Coffins, burial cases, and undertakers' goods.....   | 27,340           | 22,345           | 22,345           | 19,008           | 16,490           | 8,927            | 5,724            | 208.4        | 23.2         | 17.6        | 15.3        | 25.1        | 47.6        |
| Coopersage.....  | 33,619           | 30,688           | 30,698           | 38,290           | 42,638           | 39,110           | 30,760           | 9.0          | 9.2          | -19.8       | -10.2       | 9.0         | 27.1        |

See footnotes at end of Table 31, p. 146.

TABLE 30.—AMOUNT OF PRIMARY HORSEPOWER INSTALLED IN SELECTED INDUSTRIES, IN CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923—Continued

[See note at head of this table, p. 136]

| INDUSTRY   | PRIMARY HORSEPOWER                                  |           |   |           |           |           |         | PER CENT OF INCREASE OR DECREASE (-) |                        |                        |           |           |           |
|--|---|-----------|---|-----------|-----------|-----------|---------|--------------------------------------|------------------------|------------------------|-----------|-----------|-----------|
|  | Excluding data for rented power other than electric |           | Including data for rented power other than electric |           |           |           |         | 24-year period, 1899-1923            | Intercensal period     |                        |           |           |           |
|  | 1923  | 1919      | 1919  | 1914      | 1909      | 1904      | 1899    |                                      | 1919-1923 <sup>1</sup> | 1914-1919 <sup>2</sup> | 1909-1914 | 1904-1909 | 1899-1904 |
| Leather and its finished products.....   | 412,968   | 382,537   | 389,130   | 317,887   | 281,117   | 203,620   | 159,833 | 168.0                                | 8.0                    | 22.4                   | 13.1      | 38.1      | 27.4      |
| Boots and shoes, not including rubber boots and shoes.....   | 128,550   | 115,886   | 120,632   | 100,232   | 85,896    | 56,220    | 49,444  | 170.6                                | 10.9                   | 20.4                   | 16.7      | 52.8      | 18.7      |
| Leather, tanned, curried, and finished.....  | 230,187   | 217,761   | 218,238   | 173,712   | 148,140   | 117,450   | 88,860  | 159.6                                | 5.7                    | 26.4                   | 16.6      | 26.1      | 32.2      |
| Saddlery and harness.....  | 7,781   | 8,205     | 8,212   | 10,397    | 17,234    | 7,370     | 6,018   | 29.1                                 | -5.4                   | -21.9                  | -39.7     | 133.8     | 22.5      |
| Trunks and valises.....  | 7,269   | 7,696     | 7,703   | 7,569     | 6,865     | 5,016     | 3,314   | 119.6                                | -5.5                   | 1.8                    | 9.9       | 37.3      | 51.4      |
| Boot and shoe cut stock, exclusive of that produced in boot and shoe factories.....                      | 6,963   | 8,448     | 9,003   | 6,829     | 4,769     | 4,519     | 3,202   | 131.7                                | -17.6                  | 31.8                   | 43.2      | 5.5       | 41.1      |
| Paper and printing.....  | 2,742,697   | 2,345,949 | 2,348,999   | 2,051,984 | 1,674,061 | 1,307,781 | 913,445 | 200.7                                | 16.9                   | 14.5                   | 22.6      | 28.0      | 43.2      |
| Printing and publishing, newspaper and periodical.....   | 203,454   | 194,074   | 194,361   | 182,269   | 173,889   | 94,832    | 70,089  | 190.6                                | 4.8                    | 6.0                    | 4.8       | 83.4      | 35.3      |
| Printing and publishing, book and job.....   | 152,363   | 131,476   | 131,961   | 114,233   | 97,546    | 56,188    | 36,973  | 313.6                                | 15.9                   | 15.5                   | 17.1      | 73.6      | 52.0      |
| Paper and wood pulp.....   | 2,178,623   | 1,849,699 | 1,851,014   | 1,621,154 | 1,304,265 | 1,093,708 | 762,118 | 186.1                                | 17.8                   | 14.2                   | 24.3      | 19.3      | 43.5      |
| Boxes, paper and other, not elsewhere specified.....   | 61,687  | 54,675    | 54,955  | 38,179    | 23,323    | 15,117    | 9,286   | 567.6                                | 12.8                   | 43.9                   | 63.7      | 54.3      | 62.8      |
| Lithographing.....   | 26,869  | 18,560    | 18,624  | 15,178    | 13,132    | 8,195     | 7,063   | 281.8                                | 44.8                   | 22.7                   | 15.6      | 60.2      | 16.0      |
| Bookbinding and blank-book making.....   | 15,539  | 11,037    | 11,123  | 11,266    | 10,069    | 5,671     | 4,089   | 234.0                                | 40.8                   | -1.3                   | 11.6      | 78.1      | 20.9      |
| Paper goods, not elsewhere specified.....  | 37,840  | 35,399    | 35,538  | 27,366    | 22,436    | 13,071    | 7,855   | 384.1                                | 7.0                    | 29.9                   | 22.0      | 71.6      | 66.4      |
| Liquors and beverages.....   | 247,161   | 412,463   | 415,361   | 525,769   | 446,450   | 347,723   | 254,615 | -2.3                                 | -40.1                  | -21.0                  | 17.8      | 28.4      | 86.6      |
| Liquors, malt, including cereal beverages.....   | <sup>11</sup> 156,511                               | 322,130   | 324,431   | 405,884   | 347,726   | 266,159   | 197,901 | -20.3                                | -51.4                  | -20.1                  | 16.7      | 80.6      | 34.5      |
| Mineral and soda waters.....   | 64,781  | 41,167    | 41,794  | 25,164    | 19,392    | 12,214    | 8,037   | 717.9                                | 57.4                   | 66.0                   | 29.8      | 58.8      | 52.0      |
| Chemicals and allied products.....   | 2,703,070   | 2,069,934 | 2,043,525   | 1,467,831 | 1,025,676 | 729,627   | 460,790 | 487.6                                | 32.5                   | 39.2                   | 43.1      | 40.6      | 58.3      |
| Petroleum refining.....  | 391,154   | 238,906   | 238,906   | 128,468   | 90,268    | 46,019    | 36,127  | 982.5                                | 63.7                   | 86.0                   | 42.3      | 99.2      | 27.4      |
| Chemicals and acids <sup>14</sup> .....  | 688,468   | 475,840   | 475,919   | 307,312   | 215,151   | 137,810   | 90,429  | 861.6                                | 44.7                   | 54.9                   | 42.8      | 56.1      | 52.4      |
| Druggists' preparations, patent medicines and compounds, perfumery and cosmetics, and drug grinding..... | 52,713  | 46,998    | 47,296  | 38,844    | 28,981    | 19,874    | 17,404  | 205.0                                | 12.2                   | 39.7                   | 16.8      | 45.8      | 14.2      |

|   |                  |                  |                  |                  |                  |                |                |              |             |             |             |             |             |
|---|------------------|------------------|------------------|------------------|------------------|----------------|----------------|--------------|-------------|-------------|-------------|-------------|-------------|
| Gas, illuminating and heating.....  | 858,605          | 238,454          | 288,487          | 213,370          | 128,850          | 73,101         | 31,797         | 1,028.0      | 50.4        | 11.8        | 66.2        | 75.6        | 129.0       |
| Oils.....   | 265,236          | 830,602          | 340,165          | 278,585          | 212,028          | 166,275        | 86,302         | 207.9        | -21.9       | 22.1        | 80.8        | 28.1        | 92.7        |
| Paint and varnish.....  | 114,281          | 84,827           | 85,199           | 70,611           | 56,162           | 41,288         | 30,443         | 277.0        | 34.7        | 20.7        | 26.7        | 36.0        | 35.6        |
| Fertilizers.....  | 161,774          | 126,989          | 126,939          | 114,281          | 64,711           | 47,989         | 38,680         | 318.4        | 28.5        | 10.2        | 76.6        | 34.8        | 24.1        |
| Coke, not including gas-house coke.....   | 332,560          | 224,879          | 224,879          | 117,127          | 62,602           | 66,669         | 34,787         | 856.6        | 47.9        | 02.0        | 67.1        | -6.1        | 91.8        |
| Soap.....   | 74,820           | 33,700           | 33,710           | 85,737           | 28,860           | 20,228         | 17,514         | 327.4        | 122.0       | -5.7        | 28.0        | 40.2        | 15.5        |
| Explosives.....   | 85,231           | 81,635           | 61,635           | 45,778           | 23,601           | 29,665         | 19,195         | 83.5         | -31.8       | 12.9        | 60.1        | -3.6        | 84.5        |
| Turpentine and rosin.....   | 1,932            | 2,276            | 2,303            | 2,478            | 4,129            | 1,176          | 866            | 125.7        | -16.1       | -7.1        | -40.0       | 251.4       | 35.7        |
| <b>Stones, clay, and glass products.....</b>  | <b>1,906,499</b> | <b>1,567,815</b> | <b>1,569,719</b> | <b>1,490,975</b> | <b>1,240,908</b> | <b>775,718</b> | <b>510,013</b> | <b>274.3</b> | <b>21.6</b> | <b>5.3</b>  | <b>20.2</b> | <b>60.0</b> | <b>52.4</b> |
| Glass.....  | 240,528          | 207,338          | 207,430          | 163,139          | 123,132          | 91,476         | 52,943         | 854.5        | 16.0        | 27.1        | 82.5        | 34.6        | 72.8        |
| Brick, tile, pottery, and other clay products <sup>19</sup> .....                   | 529,440          | 438,555          | 439,194          | 470,758          | 451,186          | 360,280        | 252,502        | 109.9        | 20.7        | -6.7        | 4.3         | 25.2        | 42.7        |
| Cement.....   | 642,840          | 488,808          | 488,808          | 490,402          | 371,799          | 149,604        | (*)            | 670.0        | 31.5        | -8          | 81.9        | 148.6       | -----       |
| Marble and stone work.....  | 213,133          | 169,177          | 170,132          | 207,461          | 187,686          | 102,887        | 83,119         | 157.9        | 23.0        | -18.0       | 10.5        | 82.4        | 23.8        |
| Minerals and earths, ground or otherwise treated.....                               | 53,471           | 127,064          | 127,074          | 44,069           | 20,920           | 17,325         | 18,404         | 853.7        | -34.3       | 153.4       | 110.7       | 20.8        | -5.9        |
| <b>Nonferrous metals and their products.....</b>                                    | <b>1,210,529</b> | <b>982,720</b>   | <b>988,688</b>   | <b>575,025</b>   | <b>463,136</b>   | <b>290,932</b> | <b>214,637</b> | <b>467.5</b> | <b>28.2</b> | <b>71.9</b> | <b>24.2</b> | <b>59.2</b> | <b>35.5</b> |
| Brass, bronze, and copper products.....   | 305,839          | 285,373          | 285,688          | 122,700          | 106,120          | 69,494         | 47,257         | 547.7        | 15.2        | 116.5       | 15.6        | 62.7        | 47.1        |
| Smelting and refining.....  | 555,644          | 464,803          | 467,400          | 271,494          | 217,242          | 137,706        | 97,760         | 471.9        | 19.6        | 72.2        | 25.0        | 67.8        | 40.9        |
| Jewelry.....  | 16,851           | 15,096           | 16,389           | 15,666           | 11,204           | 7,872          | 6,656          | 174.8        | 11.6        | 4.6         | 89.8        | 42.3        | 18.3        |
| Copper, tin, and sheet-iron work.....   | 34,243           | 24,130           | 24,144           | 21,357           | 18,847           | 11,195         | 12,232         | 180.1        | 41.9        | 13.0        | 13.3        | 63.4        | -8.6        |
| Stamped and enameled ware, not elsewhere specified.....                             | 98,326           | 51,283           | 51,441           | 34,797           | 27,829           | -10,098        | 16,597         | 312.6        | 33.2        | -48.0       | 24.9        | 175.9       | -39.2       |
| Tinware, not elsewhere specified.....   | 41,232           | 30,234           | 30,490           | 19,139           | 15,690           | 8,946          | (*)            | 22.0         | 38.4        | 69.4        | 22.0        | 75.4        | -----       |
| Watches.....  | 7,396            | 7,202            | 7,202            | 6,624            | 5,649            | 3,172          | 1,762          | 319.7        | 2.7         | 8.7         | 17.3        | 78.1        | 80.0        |
| Aluminum manufactures.....  | 68,273           | 30,280           | 30,280           | 12,338           | (*)              | (*)            | (*)            | -----        | 92.4        | 145.4       | -----       | -----       | -----       |
| <b>Tobacco manufactures.....</b>  | <b>43,515</b>    | <b>43,390</b>    | <b>43,397</b>    | <b>34,937</b>    | <b>28,514</b>    | <b>24,604</b>  | <b>22,296</b>  | <b>95.2</b>  | <b>.3</b>   | <b>24.2</b> | <b>22.5</b> | <b>15.9</b> | <b>10.4</b> |
| Tobacco, cigars and cigarettes.....   | 24,894           | 24,497           | 24,504           | 13,664           | 9,261            | 6,069          | 4,563          | 445.6        | 1.6         | 79.8        | 47.5        | 82.6        | 33.0        |
| Tobacco, chewing and smoking, and snuff.....  | 18,621           | 18,893           | 18,893           | 21,273           | 19,253           | 18,535         | 17,733         | 5.0          | -1.4        | -11.2       | 10.5        | 6.9         | 4.5         |
| <b>Vehicles for land transportation, including rail-<br/>road repair shops.....</b> | <b>2,016,534</b> | <b>1,436,392</b> | <b>1,528,841</b> | <b>933,004</b>   | <b>656,394</b>   | <b>361,088</b> | <b>249,796</b> | <b>759.2</b> | <b>40.4</b> | <b>63.7</b> | <b>42.3</b> | <b>81.8</b> | <b>44.6</b> |
| Automobiles.....  | 435,545          | 282,323          | 287,323          | 104,933          | 50,641           | 7,624          | 3,164          | 13,912.0     | 54.3        | 173.7       | 107.3       | 564.2       | 141.0       |
| Steam-railroad repair shops.....  | 744,055          | 591,070          | 594,515          | 433,994          | 293,361          | 167,973        | 95,087         | 687.1        | 25.9        | 37.0        | 47.9        | 74.6        | 76.7        |
| Automobile bodies and parts.....  | 463,080          | 266,770          | 266,919          | 68,701           | 24,909           | 2,485          | (*)            | -----        | 80.3        | 274.0       | 176.8       | 902.4       | -----       |
| Cars, steam-railroad, not including operations of rail-<br>road companies.....      | 240,074          | 157,790          | 157,865          | 126,687          | 97,797           | 55,994         | 33,395         | 619.0        | 52.1        | 24.6        | 29.5        | 74.7        | 67.7        |
| Automobile repairing.....   | (*)              | 82,691           | 16,380           | (*)              | (*)              | (*)            | (*)            | -----        | -----       | 404.8       | -----       | -----       | -----       |
| Electric-railroad repair shops.....   | 62,370           | 53,805           | 53,830           | 44,989           | 35,794           | 3,154          | 6,443          | 868.3        | 15.9        | 19.7        | 25.7        | 1,034.9     | -51.0       |
| Carriages and wagons, including repairs <sup>21</sup> .....                         | 25,064           | 40,316           | 40,966           | 74,324           | 78,785           | 68,024         | 51,755         | -50.8        | -37.9       | -44.9       | -5.6        | 25.0        | 21.8        |
| Motor cycles, bicycles, and parts.....  | 14,840           | 14,420           | 14,506           | 8,753            | 5,932            | 5,720          | 19,847         | -23.2        | 2.9         | 69.2        | 47.6        | 3.5         | -71.1       |

See footnotes at end of Table 31, p. 146.



**TABLE 30.—AMOUNT OF PRIMARY HORSEPOWER INSTALLED IN SELECTED INDUSTRIES, IN CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923—Continued**

[See note at head of this table, p. 136]

| INDUSTRY  | PRIMARY HORSEPOWER                                  |             |   |             |             |          |          | PER CENT OF INCREASE OR DECREASE (-) |                        |                        |           |           |           |
|---|---|-------------|---|-------------|-------------|----------|----------|--------------------------------------|------------------------|------------------------|-----------|-----------|-----------|
|   | Excluding data for rented power other than electric |             | Including data for rented power other than electric |             |             |          |          | 24-year period, 1899-1923            | Intercensal period     |                        |           |           |           |
|   | 1923  | 1919        | 1919  | 1914        | 1909        | 1904     | 1899     |                                      | 1919-1923 <sup>1</sup> | 1914-1919 <sup>2</sup> | 1909-1914 | 1904-1909 | 1899-1904 |
| Miscellaneous industries.....   | 3, 115, 689   | 2, 823, 846 | 2, 831, 252   | 1, 568, 020 | 1, 032, 238 | 739, 042 | 424, 023 | 636.5                                | 10.3                   | 80.6                   | 51.9      | 39.7      | 74.3      |
| Shipbuilding, steel.....  | 280, 373  | 475, 567    | 475, 567  | 83, 706     | 57, 697     | 51, 029  | 38, 862  | 622.0                                | -41.0                  | 468.1                  | 45.1      | 13.1      | 31.3      |
| Electrical machinery, apparatus, and supplies.....  | 480, 268  | 438, 082    | 438, 839  | 227, 731    | 158, 768    | 105, 376 | 43, 674  | 1, 001.3                             | 9.6                    | 92.7                   | 43.4      | 50.7      | 141.3     |
| Rubber tires, tubes, and rubber goods, not elsewhere specified, including belting and hose, rubber..... | 549, 450  | 379, 873    | 380, 487  | 174, 022    | 96, 633     | 60, 724  | 46, 152  | 1, 092.1                             | 44.6                   | 117.5                  | 81.2      | 59.0      | 31.6      |
| Agricultural implements.....  | 121, 975  | 128, 249    | 128, 249  | 121, 428    | 100, 601    | 89, 738  | 70, 646  | 72.6                                 | -4.9                   | 5.6                    | 20.7      | 12.1      | 37.0      |
| Shipbuilding, wooden, including boat building.....  | 37, 339   | 77, 704     | 78, 144   | 31, 627     | 30, 366     | 27, 998  | 22, 935  | 63.9                                 | -51.9                  | 147.1                  | 4.2       | 12.1      | 18.2      |
| Phonographs and graphophones.....   | 41, 160   | 40, 163     | 40, 168   | 11, 688     | 6, 371      | 2, 522   | 1, 082   | 3, 705.2                             | 2.5                    | 243.7                  | 83.5      | 152.6     | 133.1     |
| Ice, manufactured.....  | 845, 012  | 569, 925    | 572, 970  | 461, 988    | 317, 789    | 191, 660 | 100, 421 | 746.2                                | 48.3                   | 24.0                   | 45.4      | 65.8      | 90.9      |
| Fur goods.....  | 4, 299  | 5, 327      | 5, 327  | 3, 233      | 2, 120      | 1, 994   | 907      | 374.0                                | -19.3                  | 64.8                   | 52.5      | 6.3       | 119.8     |
| Boots and shoes, rubber.....  | 56, 184   | 49, 400     | 49, 400   | 24, 621     | 25, 903     | 26, 084  | 25, 017  | 124.6                                | 13.7                   | 100.6                  | -4.9      | -7        | 4.3       |
| Photographic materials <sup>3</sup> .....   | 50, 267   | 28, 779     | 28, 779   | 16, 482     | 8, 637      | 5, 061   | 3, 412   | 1, 373.6                             | 74.7                   | 74.6                   | 90.8      | 70.7      | 48.3      |
| Musical instruments, pianos.....  | 26, 859   | 28, 697     | 28, 732   | 25, 981     | 23, 246     | 17, 467  | 20, 789  | 29.4                                 | -6.4                   | 10.6                   | 11.8      | 33.1      | -16.0     |
| Ammunition.....   | 23, 172   | 39, 128     | 39, 128   | 11, 354     | 10, 317     | 5, 056   | 2, 980   | 677.3                                | -40.8                  | 244.6                  | 10.1      | 104.1     | 69.7      |
| Instruments, professional and scientific.....   | 16, 203   | 12, 981     | 13, 020   | 6, 799      | 4, 856      | 2, 110   | 2, 471   | 557.6                                | 24.8                   | 91.5                   | 40.0      | 130.1     | -14.6     |
| Optical goods.....  | 13, 397   | 15, 649     | 15, 710   | 7, 792      | 5, 725      | 3, 410   | 2, 544   | 428.6                                | -14.4                  | 101.6                  | 36.1      | 67.9      | 34.0      |
| Mattresses and bed springs, not elsewhere specified.....  | 30, 324   | 23, 387     | 23, 469   | 20, 767     | 17, 689     | 13, 220  | 7, 980   | 281.4                                | 29.7                   | 13.0                   | 17.4      | 38.8      | 65.7      |
| Roofing materials.....  | 39, 598   | 39, 247     | 39, 327   | 11, 702     | 9, 431      | 23, 022  | 15, 217  | 117.8                                | -9                     | 235.1                  | 24.1      | -58.0     | 26.4      |
| Fancy articles, not elsewhere specified.....  | 8, 098  | 8, 657      | 8, 982  | 4, 586      | 3, 219      | 3, 376   | 2, 596   | 222.8                                | -6.5                   | 95.9                   | 42.5      | -4.7      | 30.0      |
| Paving materials.....   | 197, 290  | 191, 471    | 191, 543  | 138, 026    | 5, 767      | 5, 158   | 34, 397  | 473.6                                | 9.0                    | 38.8                   | 2, 297.5  | 11.7      | -85.0     |
| Stationery goods, not elsewhere specified.....  | 11, 539   | 8, 342      | 8, 342  | 5, 703      | 6, 942      | 1, 706   | 1, 706   | 576.3                                | 38.3                   | 46.3                   | -16.6     | 101.5     | 99.1      |
| Signs and advertising novelties.....  | 11, 781   | 7, 714      | 7, 730  | 7, 370      | 3, 790      | (?)      | (?)      | -----                                | 52.7                   | 4.9                    | 94.5      | -----     | -----     |
| Toys and games.....   | 16, 111   | 14, 423     | 14, 449   | 6, 789      | 5, 323      | 4, 757   | 3, 155   | 411.6                                | 11.7                   | 112.8                  | 27.5      | 11.9      | 50.8      |
| Buttons.....  | 15, 384   | 15, 706     | 16, 201   | 14, 998     | 12, 831     | 6, 982   | 4, 165   | 280.8                                | -2.1                   | 12.5                   | 12.2      | 83.8      | 67.6      |

See footnotes at end of Table 31, p. 146.

**TABLE 31.—VALUE ADDED BY MANUFACTURE IN SELECTED INDUSTRIES, BY CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923**

[Because of the omission of certain minor industries and the transfer of a few others from one group to another, some of the group totals and some of the items given in this table differ somewhat from the corresponding totals and items as they appear in the census reports. The italic figures include establishments with products valued at less than \$5,000 to avoid disclosing operations of individual establishments. As to the comparability of 1921 and 1923 figures with those of previous years, see general remarks preceding tables, par. 4, p. 125.]

| INDUSTRY  | VALUE ADDED BY MANUFACTURE (IN THOUSANDS OF DOLLARS)                        |            |            |   |           |                  |                  |                  | PER CENT OF INCREASE OR DECREASE (—) |                       |           |           |           |           |           |           |
|---|---|------------|------------|---|-----------|------------------|------------------|------------------|--------------------------------------|-----------------------|-----------|-----------|-----------|-----------|-----------|-----------|
|   | Excluding data for establishments with products valued at less than \$5,000 |            |            | Including data for establishments with products valued at \$500 or more |           |                  |                  |                  | 24-year period, 1899-1923            | Interdecennial period |           |           |           |           |           |           |
|   | 1923  | 1921       | 1919       | 1919  | 1914      | 1909             | 1904             | 1899             |                                      | 1919-1923             | 1921-1923 | 1919-1921 | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |
| All industries.....   | 25,850,300  | 18,332,227 | 24,809,093 | 25,041,698  | 9,878,346 | 5,529,261        | 6,293,695        | 4,831,075        | 44.0                                 | 4.2                   | 41.0      | -26.1     | 153.5     | 15.8      | 85.5      | 30.3      |
| Food and kindred products.....                                    | 2,282,771   | 1,911,410  | 2,319,174  | 2,327,344   | 988,198   | 749,815          | 539,435          | 416,341          | 450.1                                | -1.6                  | 19.4      | -17.6     | 135.5     | 81.8      | 89.0      | 29.6      |
| Slaughtering and meat packing.....                                | 409,794   | 332,744    | 463,338    | 493,361   | 210,302   | 164,106          | 108,058          | 101,682          | 302.8                                | -11.6                 | 23.2      | -22.2     | 120.3     | 28.2      | 51.9      | 6.3       |
| Bread and other bakery products.....                              | 548,386   | 491,358    | 435,231    | 438,667   | 217,636   | 158,831          | 113,594          | 80,317           | 588.2                                | 26.0                  | 11.6      | 12.9      | 101.6     | 37.0      | 89.8      | 41.4      |
| Confectionery, chewing gum, and ice cream                         | 303,581   | 250,975    | 292,621    | 294,438   | 93,041    | 53,645           | 38,277           | 25,290           | 1,107.3                              | 3.7                   | 21.0      | -14.3     | 216.5     | 73.4      | 40.1      | 51.4      |
| Flour-mill and grain-mill products.....                           | 162,606   | 185,930    | 252,447    | 253,253   | 125,410   | 116,008          | 93,062           | 73,279           | 122.6                                | -85.6                 | -12.5     | -26.3     | 101.9     | 8.1       | 24.7      | 27.0      |
| Canning and preserving, fruits and vegetables.....                | 151,870   | 81,524     | 135,967    | 136,614   | 45,883    | 28,895           | 26,560           | 19,044           | 701.3                                | 11.7                  | 86.3      | -40.0     | 197.7     | 58.8      | 8.8       | 39.5      |
| Sugar, beet, and cane sugar and its refining.....                 | 88,073  | 63,262     | 144,535    | 144,598   | 52,197    | 52,524           | 42,439           | 30,846           | 370.9                                | -32.1                 | 55.0      | -56.2     | 177.0     | -         | 23.5      | 103.6     |
| Butter and cheese.....  | 114,409   | 84,984     | 85,719     | 82,847  | 35,818    | 30,594           | 21,111           | 12,942           | 422.2                                | 38.9                  | 24.6      | 2.7       | 131.9     | 17.1      | 44.9      | 8.9       |
| Coffee and spice, roasting and grinding.....                      | 72,684  | 59,810     | 60,846     | 60,893  | 34,226    | 27,328           | 18,941           | 14,414           | 404.9                                | 19.5                  | 21.5      | -1.7      | 77.9      | 25.3      | 49.0      | 27.5      |
| Condensed milk.....   | 35,365  | 44,311     | 56,911     | 56,912  | 13,441    | 8,417            | 4,151            | ( <sup>1</sup> ) | ( <sup>1</sup> )                     | -37.9                 | -20.2     | -22.1     | 323.4     | 59.7      | 102.8     | -----     |
| Glucose and starch.....   | 42,079  | 29,180     | 55,925     | 55,927  | 12,407    | 11,900           | 7,131            | 9,347            | 349.9                                | -24.8                 | 44.2      | -47.8     | 360.8     | 4.3       | 66.9      | -23.7     |
| Canning and preserving, fish and oysters.....                     | 19,536  | 14,092     | 26,194     | 26,266  | 12,657    | 10,846           | 7,098            | 7,021            | 179.1                                | -25.4                 | 38.6      | -46.2     | 107.5     | 16.7      | 40.9      | 9.6       |
| Pickles, preserves, and sauces.....                               | 64,478  | 40,511     | 52,568     | 52,748  | 25,242    | 15,537           | 13,061           | 9,802            | 574.0                                | 22.7                  | 38.6      | -11.5     | 109.0     | 62.5      | 19.0      | 35.0      |
| Breadstuff preparations, such as cereals and breakfast foods..... | 48,287  | 43,482     | 41,885     | 41,885  | 23,218    | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | -----                                | 16.7                  | 11.1      | 5.1       | 78.2      | -----     | -----     | -----     |
| Chocolate and cocoa products.....                                 | 34,689  | 32,516     | 37,604     | 37,504  | 11,230    | 6,867            | 4,667            | 3,789            | 1,143.8                              | -7.5                  | 6.7       | -13.3     | 234.0     | 63.5      | 47.1      | 67.3      |
| Textiles and their products.....                                  | 4,070,582   | 3,156,921  | 3,828,934  | 3,834,024   | 1,432,495 | 1,323,677        | 908,487          | 739,891          | 450.8                                | 6.3                   | 28.9      | -17.6     | 167.6     | 8.2       | 45.7      | 22.8      |
| Cotton goods and cotton lace.....                                 | 774,915   | 585,439    | 863,789    | 863,807   | 252,496   | 251,204          | 160,403          | 159,365          | 386.2                                | -10.3                 | 32.4      | -32.2     | 242.1     | .5        | 56.6      | .7        |
| Clothing, men's.....  | 593,911   | 487,231    | 556,156    | 557,234   | 228,179   | 223,154          | 170,004          | 131,498          | 352.6                                | 6.8                   | 21.9      | -12.4     | 144.2     | -2.1      | 37.1      | 26.3      |
| Clothing, women's.....  | 597,123   | 454,933    | 527,184    | 528,138   | 221,543   | 175,964          | 116,942          | 74,635           | 701.7                                | 13.3                  | 31.3      | -13.7     | 138.4     | 25.9      | 50.5      | 58.7      |
| Woolen and worsted goods.....                                     | 439,527   | 355,638    | 399,791    | 399,839   | 132,987   | 148,305          | 110,453          | 90,658           | 385.1                                | 10.0                  | 23.7      | -11.1     | 200.7     | -9.1      | 32.6      | 21.8      |
| Silk goods, including throwsters.....                             | 282,284   | 245,860    | 299,890    | 300,001   | 109,509   | 89,145           | 57,427           | 44,849           | 529.4                                | -5.9                  | 14.9      | -18.0     | 173.9     | -22.9     | 55.2      | 23.0      |

See footnotes at end of table, p. 146.

TABLE 31.—VALUE ADDED BY MANUFACTURE IN SELECTED INDUSTRIES, IN CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923—Continued

[See note at head of this table, p. 141]

| INDUSTRY  | VALUE ADDED BY MANUFACTURE (IN THOUSANDS OF DOLLARS)                        |             |             |   |                  |                  |                  |                  | PER CENT OF INCREASE OR DECREASE (—) |                        |           |                        |                        |           |           |           |
|---|---|-------------|-------------|---|------------------|------------------|------------------|------------------|--------------------------------------|------------------------|-----------|------------------------|------------------------|-----------|-----------|-----------|
|   | Excluding data for establishments with products valued at less than \$5,000 |             |             | Including data for establishments with products valued at \$500 or more |                  |                  |                  |                  | 24-year period, 1899-1923            | Intercensal period     |           |                        |                        |           |           |           |
|   | 1923  | 1921        | 1919        | 1919  | 1914             | 1909             | 1904             | 1899             |                                      | 1919-1923 <sup>1</sup> | 1921-1923 | 1919-1921 <sup>1</sup> | 1914-1919 <sup>2</sup> | 1909-1914 | 1904-1909 | 1899-1904 |
| Textiles and their products—Contd.  |   |             |             |   |                  |                  |                  |                  |                                      |                        |           |                        |                        |           |           |           |
| Knit goods.....   | 384, 157  | 273, 618    | 285, 823    | 286, 044  | 112, 226         | 89, 902          | 60, 287          | 44, 639          | 716.4                                | 27.4                   | 33.1      | -4.3                   | 154.9                  | 24.8      | 49.1      | 35.1      |
| Dyeing and finishing textiles, exclusive of that done in textile mills.....   | 178, 660  | 135, 552    | 149, 158    | 149, 225  | 52, 587          | 48, 295          | 31, 229          | 27, 005          | 562.0                                | 19.8                   | 31.8      | -9.1                   | 183.8                  | 8.9       | 54.6      | 16.6      |
| Millinery and lace goods, not elsewhere specified.....  | 147, 597  | 137, 507    | 121, 855    | 122, 796  | 56, 494          | 40, 854          | 24, 519          | 13, 915          | 976.6                                | 21.1                   | 7.3       | 12.8                   | 117.4                  | 38.3      | 66.6      | 77.5      |
| Carpets and rugs, other than rag.....   | 102, 008  | 53, 762     | 56, 196     | 55, 130   | 26, 848          | 31, 625          | 23, 639          | 20, 993          | 386.6                                | 81.7                   | 59.7      | -4.2                   | 109.1                  | -15.1     | 33.8      | 12.8      |
| Cordage and twine.....  | 34, 641   | 28, 875     | 43, 638     | 43, 661   | 16, 156          | 12, 627          | 11, 921          | 11, 218          | 369.8                                | -29.7                  | 20.0      | -33.9                  | 179.2                  | 27.9      | 5.9       | 6.3       |
| Hats, fur-felt.....   | 40, 805   | 29, 362     | 42, 551     | 42, 587   | 20, 403          | 25, 756          | 20, 654          | 14, 297          | 185.7                                | -4.1                   | 54.8      | -38.0                  | 108.7                  | -20.8     | 24.7      | 44.5      |
| Bags, other than paper, not including bags made in textile mills.....   | 23, 454   | 16, 014     | 38, 022     | 38, 041   | 12, 028          | 8, 518           | 6, 641           | 3, 213           | 630.5                                | -38.3                  | 46.5      | -57.9                  | 216.3                  | 41.2      | 28.3      | 106.7     |
| Shirts.....   | 101, 977  | 80, 685     | 78, 045     | 78, 239   | 45, 150          | 37, 406          | 25, 332          | 24, 171          | 323.1                                | 30.7                   | 26.4      | 3.4                    | 73.3                   | 20.7      | 47.7      | 4.8       |
| Furnishing goods, men's, including suspenders, garters, and elastic woven goods, and cloth gloves and mittens, other than those made in textile mills.....                              | 65, 912   | 53, 058     | 79, 471     | 79, 625   | 30, 102          | 27, 344          | 14, 519          | 10, 919          | 604.5                                | -17.1                  | 24.2      | -33.2                  | 164.5                  | 10.1      | 88.3      | 33.0      |
| Corsets.....  | 39, 632   | 36, 743     | 36, 687     | 36, 726   | 20, 964          | 17, 617          | 8, 727           | 8, 094           | 390.0                                | 8.0                    | 7.9       | 2                      | 75.2                   | 19.0      | 101.9     | 7.8       |
| Collars and cuffs, men's.....   | 24, 296   | 17, 197     | 28, 124     | 28, 131   | 11, 965          | 11, 241          | 7, 947           | 9, 757           | 149.1                                | -13.6                  | 41.3      | -38.9                  | 135.1                  | 6.4       | -41.4     | -18.6     |
| Iron and steel and their products.....  | 4, 661, 576   | 2, 598, 011 | 4, 582, 809 | 4, 587, 749   | 1, 460, 830      | 1, 364, 529      | 1, 008, 983      | 818, 528         | 470.0                                | 1.7                    | 79.4      | -43.3                  | 214.1                  | 7.1       | 35.2      | 23.3      |
| Crude iron and steel and rolled products, including products not made in rolling-mill establishments (though largely made therein) plus wire and wirework, not elsewhere specified..... | 1, 845, 828   | 836, 716    | 1, 806, 709 | 1, 807, 553   | 555, 030         | 547, 911         | 378, 715         | 348, 149         | 430.6                                | 2.2                    | 120.6     | -53.7                  | 225.7                  | 1.3       | 44.7      | 8.8       |
| Foundry and machine-shop products <sup>3</sup> .....  | 1, 400, 842   | 912, 163    | 1, 338, 095 | 1, 338, 095   | 508, 423         | 516, 000         | 407, 820         | 358, 326         | 515.8                                | 4.7                    | 53.6      | -31.8                  | 214.4                  | -9.3      | 29.0      | 32.7      |
| Engines, steam, gas, and water.....   | 142, 455  | 87, 801     | 247, 188    | 247, 224  | 40, 661          | ( <sup>4</sup> ) | ( <sup>4</sup> ) | ( <sup>4</sup> ) | -----                                | -42.4                  | 62.2      | -64.5                  | 508.0                  | -----     | -----     | -----     |
| Machine tools.....  | 95, 229   | 43, 751     | 153, 335    | ( <sup>4</sup> )  | ( <sup>4</sup> ) | ( <sup>4</sup> ) | ( <sup>4</sup> ) | ( <sup>4</sup> ) | -----                                | -37.2                  | 119.9     | -71.5                  | -----                  | -----     | -----     | -----     |
| Tools, not elsewhere specified.....   | 79, 952   | 44, 974     | 97, 998     | 98, 405   | 21, 658          | 19, 332          | 13, 157          | 8, 701           | 822.9                                | -18.4                  | 77.8      | -54.1                  | 354.4                  | 12.0      | 46.9      | 51.2      |
| Hardware.....   | 129, 767  | 76, 944     | 95, 899     | 95, 991   | 44, 249          | 39, 397          | 29, 139          | 21, 242          | 511.4                                | 35.3                   | 68.7      | -19.8                  | 116.9                  | 12.3      | 35.2      | 37.2      |
| Stoves and hot-air furnaces.....  | 102, 404  | 60, 573     | 90, 893     | 90, 916   | 44, 139          | 42, 469          | 35, 925          | ( <sup>4</sup> ) | -----                                | 12.7                   | 69.1      | -33.4                  | 106.0                  | 3.9       | 18.2      | -----     |
| Steam fittings and steam and hot-water heating apparatus.....   | 138, 657  | 77, 154     | 88, 253     | 88, 269   | 37, 001          | 31, 550          | 14, 486          | 11, 865          | 1, 068.7                             | 57.1                   | 79.7      | -12.6                  | 138.6                  | 17.3      | 117.8     | 22.1      |

|   |            |            |            |            |         |         |         |         |         |       |       |       |       |       |       |       |
|---|------------|------------|------------|------------|---------|---------|---------|---------|---------|-------|-------|-------|-------|-------|-------|-------|
| Locomotives, not made by railroad companies.....  | 91,182     | 46,611     | 68,894     | 88,894     | 19,828  | 16,522  | 81,849  | (7)     | .....   | 8.0   | 95.5  | -44.4 | 323.1 | 20.0  | -46.1 | ..... |
| Textile machinery and parts.....  | 90,956     | 84,031     | 76,882     | (7)        | (7)     | (7)     | (7)     | (7)     | .....   | 19.1  | 8.2   | 10.0  | ..... | ..... | ..... | ..... |
| Cash registers and calculating machines.....  | 82,623     | 44,080     | 72,641     | 72,649     | 26,528  | 20,156  | 8,859   | 4,754   | 1,637.6 | 18.7  | 87.4  | -39.3 | 173.9 | 31.6  | 141.1 | 75.8  |
| Cutlery and edge tools.....   | 55,817     | 34,367     | 47,079     | 47,153     | 17,355  | 15,654  | 12,587  | 9,699   | 471.4   | 17.5  | 61.0  | -27.0 | 171.7 | 10.9  | 24.4  | 29.8  |
| Ordnance and accessories.....   | (7)        | (7)        | 42,903     | 42,903     | (7)     | (7)     | 426     | 1,437   | .....   | ..... | ..... | ..... | ..... | ..... | ..... | 70.4  |
| Typewriters and supplies.....   | 38,521     | 31,020     | 36,573     | 36,594     | 18,999  | 15,942  | 9,770   | 5,530   | 696.8   | 5.3   | 24.2  | -15.2 | 92.6  | 21.5  | 78.4  | 58.6  |
| Plumbers' supplies, not elsewhere specified.....  | 81,186     | 45,659     | 82,241     | 82,258     | 24,716  | 22,776  | 11,618  | 7,481   | 685.8   | 161.8 | 87.8  | 84.5  | 80.6  | 6.5   | 96.0  | 35.3  |
| Stoves, gas and oil.....  | 63,290     | 31,456     | 31,287     | 31,320     | 11,296  | 7,947   | 3,937   | 2,078   | 2,949.1 | 102.8 | 194.4 | -31.3 | 177.3 | 90.8  | 70.0  | 59.5  |
| Pumps, steam and other power.....   | 58,465     | 43,168     | 49,314     | 49,332     | 14,756  | (7)     | (7)     | (7)     | .....   | 98.9  | 85.6  | ..... | 234.3 | ..... | ..... | ..... |
| Sewing machines and attachments (including cases).....                                  | 28,204     | 20,671     | 33,520     | 33,536     | 17,038  | 16,808  | 15,443  | 11,666  | 141.8   | -15.9 | 36.4  | -38.3 | 96.8  | 1.4   | 8.8   | 32.4  |
| Screws, machine.....  | 23,443     | 10,788     | 25,021     | 25,031     | 4,190   | 1,854   | 1,781   | 1,262   | 1,758.4 | -6.8  | 117.3 | -56.9 | 497.4 | 126.0 | 5.3   | 39.5  |
| Lumber and its remanufactures.....  | 1,888,264  | 1,240,747  | 1,688,789  | 1,710,074  | 837,361 | 870,441 | 702,246 | 526,602 | 372.8   | 34.8  | 36.2  | -26.5 | 104.2 | -3.8  | 24.0  | 38.4  |
| Lumber and timber products.....   | 921,398    | 524,574    | 698,628    | 916,511    | 433,858 | 487,828 | 396,069 | 312,425 | 200.7   | 2.6   | 75.6  | -41.6 | 111.6 | -11.2 | 23.2  | 26.8  |
| Furniture.....  | 11,434,259 | 11,296,818 | 11,313,456 | 11,309,833 | 444,220 | 425,334 | 360,827 | 270,856 | 509.7   | 38.6  | 46.4  | -5.4  | 114.8 | 15.1  | 29.4  | 37.6  |
| Lumber, planing-mill products, not including planing mills connected with sawmills..... | 291,610    | 190,667    | 199,978    | 207,209    | 128,351 | 131,318 | 104,304 | 68,217  | 342.8   | 45.8  | 33.0  | -4.7  | 61.4  | -2.3  | 25.9  | 52.9  |
| Boxes, wooden packing, except cigar boxes.....  | 68,778     | 49,318     | 74,664     | 74,872     | 23,727  | 26,894  | 23,669  | 15,368  | 348.7   | -7.9  | 39.6  | -3.9  | 122.0 | 16.8  | 22.5  | 63.4  |
| Coffins, burial cases, and undertakers' goods.....                                      | 84,017     | 27,779     | 32,741     | 32,782     | 13,668  | 12,662  | 10,765  | 7,007   | 388.0   | 3.9   | 22.5  | -15.2 | 150.9 | 4.0   | 16.7  | 53.6  |
| Cooperage.....  | 24,278     | 16,047     | 26,433     | 29,715     | 17,073  | 17,460  | 13,831  | 16,289  | 58.6    | -15.6 | 54.4  | -45.5 | 74.0  | -2.2  | -4.5  | 12.5  |
| Leather and its finished products.....  | 796,746    | 609,788    | 894,622    | 896,424    | 351,459 | 322,889 | 244,170 | 185,415 | 830.8   | -10.9 | 60.7  | -61.8 | 155.1 | 8.9   | 32.2  | 51.7  |
| Boots and shoes, not including rubber boots and shoes.....                              | 472,621    | 389,044    | 439,689    | 439,772    | 191,403 | 165,163 | 122,744 | 90,887  | 423.3   | 7.5   | 21.5  | -11.6 | 129.8 | 15.9  | 34.6  | 35.9  |
| Leather, tanned, curried, and finished.....   | 167,148    | 105,640    | 232,025    | 232,070    | 82,957  | 79,595  | 61,442  | 49,038  | 241.1   | -40.7 | 59.2  | -62.5 | 240.0 | 4.2   | 29.5  | 25.3  |
| Saddlery and harness.....   | 17,653     | 12,499     | 30,061     | 31,270     | 20,473  | 21,047  | 18,281  | 13,932  | 31.7    | -41.3 | 41.2  | -58.4 | 52.7  | -2.7  | 15.1  | 31.2  |
| Trunks and valises.....   | 30,186     | 22,666     | 30,546     | 30,710     | 12,847  | 13,369  | 9,536   | 6,474   | 368.7   | -1.2  | 33.2  | -25.5 | 139.0 | -4.1  | 40.5  | 47.3  |
| Boot and shoe cut stock, exclusive of that produced in boot and shoe factories.....     | 20,728     | 15,769     | 27,294     | 27,316     | 8,515   | 7,741   | 6,069   | 5,443   | 260.9   | -24.1 | 31.4  | -42.2 | 220.8 | 10.0  | 27.1  | 11.9  |
| Paper and printing.....   | 2,226,926  | 1,817,423  | 1,681,498  | 1,705,866  | 875,330 | 728,047 | 560,809 | 393,342 | 474.2   | 32.4  | 22.5  | 2.1   | 94.9  | 20.2  | 32.2  | 40.0  |
| Printing and publishing, newspaper and periodical.....                                  | 905,022    | 752,586    | 698,281    | 623,768    | 366,824 | 308,730 | 238,947 | 174,769 | 437.2   | -46.6 | -20.8 | -23.7 | 70.0  | -18.8 | 29.2  | 38.6  |
| Printing and publishing, book and job.....  | 518,024    | 473,686    | 379,661    | 386,596    | 210,878 | 173,376 | 130,037 | 85,006  | 316.0   | 39.4  | 9.3   | 24.5  | 83.3  | 21.7  | 33.3  | 51.9  |
| Paper and wood pulp.....  | 333,620    | 221,444    | 320,574    | 320,577    | 118,666 | 103,214 | 77,468  | 56,796  | 487.5   | 4.1   | 50.7  | -30.9 | 169.5 | 16.4  | 32.0  | 34.4  |
| Boxes, paper and other, not elsewhere specified.....                                    | 120,129    | 85,980     | 105,200    | 105,284    | 38,443  | 23,734  | 20,181  | 15,551  | 673.1   | 14.2  | 39.7  | -18.3 | 173.9 | 33.6  | 42.4  | 29.8  |
| Lithographing.....  | 60,662     | 48,950     | 45,347     | 45,433     | 25,119  | 22,178  | 18,895  | 14,355  | 323.5   | 33.8  | 23.9  | 7.9   | 80.9  | 13.3  | 31.3  | 17.7  |
| Bookbinding and blank-book making.....  | 53,886     | 43,968     | 42,249     | 42,738     | 24,770  | 20,112  | 16,064  | 13,098  | 316.8   | 27.5  | 22.6  | 4.1   | 72.7  | 23.2  | 25.0  | 22.9  |
| Paper goods, not elsewhere specified.....   | 49,204     | 34,267     | 41,965     | 41,990     | 20,751  | 16,924  | 9,415   | 6,965   | 607.2   | 17.3  | 43.6  | -18.4 | 102.4 | 22.6  | 79.6  | 35.2  |

See footnotes at end of table, p. 145.

TABLE 31.—VALUE ADDED BY MANUFACTURE IN SELECTED INDUSTRIES, IN CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923—Continued

[See note at head of this table, p. 141]

| INDUSTRY   | VALUE ADDED BY MANUFACTURE (IN THOUSANDS OF DOLLARS)                        |           |           |   |         |         |         |         | PER CENT OF INCREASE OR DECREASE (-) |                    |           |           |           |           |           |           |
|--|---|-----------|-----------|---|---------|---------|---------|---------|--------------------------------------|--------------------|-----------|-----------|-----------|-----------|-----------|-----------|
|  | Excluding data for establishments with products valued at less than \$5,000 |           |           | Including data for establishments with products valued at \$500 or more |         |         |         |         | 24-year period, 1899-1923            | Intercensal period |           |           |           |           |           |           |
|  | 1923  | 1921      | 1919      | 1919  | 1914    | 1909    | 1904    | 1899    |                                      | 1919-1923          | 1921-1923 | 1919-1921 | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |
| Liquors and beverages.....   | 150,537   | 134,657   | 378,539   | 381,119   | 525,891 | 488,183 | 361,405 | 289,083 | -47.5                                | -60.2              | 11.8      | 64.4      | -27.5     | 7.7       | 35.1      | 25.0      |
| Liquors, malt, including cereal beverages.....   | 149,238   | 67,034    | 285,098   | 285,112   | 312,425 | 278,134 | 223,436 | 185,317 | -73.4                                | -82.7              | -26.5     | -76.6     | -9.7      | 12.3      | 24.5      | 20.6      |
| Mineral and soda waters.....   | 79,919  | 54,492    | 64,382    | 66,743  | 31,622  | 27,042  | 20,249  | 14,704  | 463.3                                | 24.1               | 46.7      | -15.4     | 111.1     | 16.9      | 33.5      | 37.7      |
| Chemicals and allied products.....   | 2,002,782   | 1,466,633 | 1,880,007 | 1,862,624   | 712,289 | 593,555 | 441,601 | 310,235 | 546.6                                | 7.7                | 35.6      | -21.1     | 161.5     | 19.6      | 94.9      | 42.3      |
| Petroleum refining.....  | 368,647   | 345,270   | 384,623   | 384,625   | 71,096  | 37,725  | 35,618  | 21,070  | 1,648.8                              | -4.2               | 6.8       | -10.2     | 441.0     | 88.5      | 5.9       | 69.0      |
| Chemicals and acids <sup>14</sup> .....  | 326,679   | 211,959   | 309,416   | 309,456   | 77,084  | 58,093  | 37,339  | 25,629  | 1,175.0                              | 5.6                | 54.1      | -31.5     | 301.5     | 32.7      | 55.6      | 45.7      |
| Druggists' preparations, patent medicines and compounds, perfumery and cosmetics, and drug grinding..... | 261,063   | 201,260   | 220,095   | 221,646   | 103,897 | 94,118  | 80,063  | 57,835  | 354.5                                | 18.6               | 29.7      | -8.6      | 113.3     | 10.4      | 17.6      | 38.4      |
| Gas, illuminating and heating.....   | 162,893   | 52,622    | 92,243    | 92,249  | 143,459 | 87,965  | 55,112  | 369.9   | 50.8                                 | 23.9               | 21.7      | 19.7      | 25.4      | 30.0      | 59.6      |           |
| Oils.....  | 74,289  | 54,539    | 145,050   | 145,117   | 48,848  | 43,923  | 29,797  | 24,312  | 205.6                                | -48.8              | 36.2      | -62.4     | 197.1     | 11.2      | 47.4      | 22.6      |
| Paint and varnish.....   | 155,180   | 102,912   | 123,168   | 123,234   | 57,159  | 45,874  | 31,014  | 24,824  | 525.5                                | 26.0               | 50.8      | -16.4     | 115.6     | 24.6      | 47.9      | 24.9      |
| Fertilizers.....   | 55,109  | 35,397    | 96,082    | 96,103  | 45,241  | 34,438  | 17,253  | 15,699  | 251.4                                | -42.6              | 55.7      | -63.2     | 112.4     | 31.4      | 99.6      | 9.9       |
| Coke, not including gas-house coke.....  | 162,893   | 52,622    | 92,243    | 92,249  | 30,137  | 31,672  | 21,844  | 15,919  | 923.4                                | 76.6               | 210.1     | -43.1     | 206.1     | -4.8      | 45.0      | 37.2      |
| Soap.....  | 102,857   | 89,839    | 78,159    | 78,221  | 39,075  | 39,179  | 24,649  | 20,088  | 412.5                                | 31.6               | 14.5      | 14.9      | 100.2     | -3.3      | 58.9      | 22.7      |
| Explosives.....  | 35,533  | 28,531    | 46,564    | 46,564  | 15,806  | 17,323  | 12,399  | 6,780   | 423.3                                | -23.7              | 24.5      | -32.7     | 194.6     | -6.8      | 39.8      | 62.6      |
| Turpentine and rosin.....  | 26,194  | 17,102    | 38,937    | 39,121  | 15,454  | 20,384  | 20,162  | 14,159  | 85.9                                 | -82.7              | 53.2      | -56.1     | 153.1     | -24.2     | 1.1       | 42.4      |
| Stone, clay, and glass products.....   | 971,751   | 597,125   | 672,206   | 676,958   | 375,427 | 347,945 | 268,061 | 185,513 | 427.6                                | 44.6               | 62.7      | -11.2     | 80.3      | 7.9       | 29.8      | 44.5      |
| Glass.....   | 196,183   | 127,435   | 171,104   | 171,104   | 77,068  | 59,976  | 53,462  | 39,809  | 398.0                                | 14.7               | 53.9      | -25.5     | 122.0     | 28.5      | 12.2      | 34.3      |
| Brick, tile, pottery, and other clay products <sup>15</sup> .....  | 312,352   | 185,762   | 195,421   | 196,148   | 118,753 | 123,248 | 102,445 | 72,613  | 331.6                                | 59.8               | 68.1      | -4.9      | 65.2      | -3.6      | 20.3      | 41.1      |
| Cement.....  | 163,332   | 101,267   | 96,756    | 95,755  | 49,769  | 33,861  | 17,658  | (17)    | -----                                | 70.6               | 61.3      | 5.8       | 92.4      | 47.0      | 91.8      | -----     |
| Marble and stone work.....   | 124,655   | 84,174    | 78,155    | 79,941  | 69,253  | 75,696  | 58,275  | 42,121  | 201.6                                | 59.5               | 48.1      | 7.7       | 15.0      | -8.5      | 29.9      | 38.4      |
| Minerals and earths, ground or otherwise treated.....  | 24,008  | 14,652    | 29,726    | 29,797  | 5,746   | 2,639   | 2,570   | 2,071   | 964.7                                | -26.0              | 50.2      | -50.7     | 418.6     | 117.7     | 2.7       | 24.1      |

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| Nonferrous metals and their products   |           |           |           |           |         |         |         |         |          |       |       |       |         |       |         |       |
|--|-----------|-----------|-----------|-----------|---------|---------|---------|---------|----------|-------|-------|-------|---------|-------|---------|-------|
| Brass, bronze, and copper products   | 179,714   | 84,277    | 177,318   | 177,489   | 46,712  | 50,761  | 36,764  | 27,465  | 555.2    | 1.4   | 113.2 | -52.5 | 280.0   | -8.0  | 38.1    | 33.8  |
| Smelting and refining  | 148,218   | 66,818    | 158,009   | 132,908   | 105,045 | 74,603  | 72,318  | 81,016  | 83.0     | 11.5  | 121.8 | -49.7 | 26.5    | 40.8  | 3.2     | -10.7 |
| Jewelry  | 90,051    | 69,172    | 92,687    | 93,498    | 41,890  | 43,675  | 29,049  | 23,894  | 280.3    | -2.8  | 30.2  | -25.4 | 123.2   | -4.1  | 50.3    | 21.6  |
| Copper, tin, and sheet-iron work   | 95,401    | 72,880    | 77,268    | 79,416    | 44,717  | 42,455  | 28,934  | 28,544  | 243.6    | 23.5  | 80.9  | -5.7  | 77.6    | 5.3   | 46.7    | 1.4   |
| Stamped and enameled ware, not elsewhere specified   | 86,405    | 52,352    | 78,178    | 78,197    | 32,649  | 25,246  | 11,439  | 7,213   | 1,097.9  | 10.5  | 65.0  | -33.0 | 189.5   | 29.3  | 20.8    | 58.5  |
| Tinware, not elsewhere specified   | 79,991    | 56,557    | 68,749    | 68,793    | 28,000  | 19,541  | 15,645  | (?)     | (?)      | 16.4  | 34.3  | -13.4 | 144.9   | 43.7  | 24.9    |       |
| Watches  | 21,794    | 19,239    | 25,651    | 25,651    | 11,608  | 9,585   | 9,607   | 532     | 294.1    | -15.0 | 13.3  | -25.0 | 121.0   | 21.1  | -       | 73.9  |
| Aluminum manufactures  | 40,371    | 19,869    | 28,001    | 28,008    | 5,176   | (?)     | (?)     | (?)     | (?)      | 54.9  | 102.7 | -23.6 | 402.4   |       |         |       |
| Tobacco manufactures   |           |           |           |           |         |         |         |         |          |       |       |       |         |       |         |       |
| Tobacco, cigars and cigarettes   | 528,327   | 439,801   | 522,453   | 529,365   | 283,031 | 239,509 | 205,026 | 170,847 | 213.2    | 1.1   | 20.1  | -15.8 | 87.0    | 13.2  | 16.8    | 20.0  |
| Tobacco, chewing and smoking, and snuff  | 451,735   | 354,537   | 413,635   | 420,365   | 184,354 | 157,398 | 133,212 | 102,131 | 349.6    | 9.2   | 27.4  | -14.3 | 128.0   | 17.1  | 18.1    | 80.4  |
|  | 70,592    | 85,294    | 108,817   | 109,000   | 98,677  | 82,141  | 71,814  | 68,716  | 11.7     | -29.6 | -10.2 | -21.6 | 10.5    | 20.1  | 14.4    | 4.5   |
| Vehicles for land transportation, including railroad repair shops                                  |           |           |           |           |         |         |         |         |          |       |       |       |         |       |         |       |
| Automobiles  | 2,598,786 | 1,693,602 | 2,227,589 | 2,367,303 | 739,007 | 478,209 | 309,627 | 237,907 | 1,061.3  | 16.7  | 53.4  | -24.0 | 220.3   | 54.5  | 54.4    | 30.1  |
| Steam-railroad repair shops  | 1,015,865 | 564,325   | 809,243   | 809,252   | 210,632 | 86,092  | 14,987  | 2,944   | 34,397.7 | 25.5  | 80.0  | -30.3 | 284.2   | 144.7 | 474.4   | 409.1 |
| Automobile bodies and parts  | 834,303   | 707,019   | 763,353   | 763,432   | 270,212 | 206,188 | 158,670 | 108,642 | 668.1    | 9.3   | 18.0  | -7.4  | 182.5   | 81.1  | 29.9    | 46.0  |
| Cars, steam-railroad, not including operations of railroad companies                               | 449,006   | 194,052   | 329,459   | 330,143   | 65,991  | 31,465  | 1,895   | (?)     | (?)      | 36.3  | 131.4 | -41.1 | 400.3   | 109.7 | 1,560.4 |       |
| Automobile repairing   | 178,929   | 121,622   | 182,138   | 182,138   | 62,876  | 44,977  | 35,518  | 28,767  | 521.7    | -1.8  | 47.1  | -33.2 | 101.1   | 39.1  | 26.6    | 23.5  |
| Electric-railroad repair shops   | (?)       | (?)       | (?)       | 137,003   | 20,766  | (?)     | (?)     | (?)     | (?)      |       |       |       | 559.7   |       |         |       |
| Carriages and wagons, including repairs  | 54,431    | 53,752    | 43,059    | 43,186    | 20,967  | 16,795  | 7,974   | 5,034   | 984.4    | 26.4  | 1.3   | 24.8  | 106.0   | 24.3  | 110.8   | 58.4  |
| Motor cycles, bicycles, and parts  | 17,305    | 15,583    | 41,401    | 43,101    | 54,524  | 61,477  | 64,118  | 59,511  | 69.7     | -58.2 | 11.1  | -62.4 | -21.6   | -11.3 | -4.1    | 7.7   |
|  | 14,250    | 12,775    | 27,111    | 27,120    | 11,806  | 5,816   | 2,525   | 15,124  | -5.7     | -47.4 | 11.6  | -52.0 | 139.9   | 101.3 | 122.4   | -88.3 |
| Miscellaneous industries   |           |           |           |           |         |         |         |         |          |       |       |       |         |       |         |       |
| Shipbuilding, steel  | 2,674,125 | 2,070,269 | 3,306,037 | 3,312,589 | 903,339 | 672,169 | 400,990 | 338,914 | 690.7    | -19.1 | 29.2  | -37.4 | 268.7   | 84.4  | 36.9    | 44.9  |
| Electrical machinery, apparatus, and supplies  | 105,798   | 202,397   | 812,734   | 812,737   | 36,947  | 27,901  | 30,831  | 26,782  | 294.5    | -87.0 | -47.7 | -75.1 | 2,099.7 | 32.4  | 9.5     | 15.1  |
| Rubber tires, tubes, and rubber goods, not elsewhere specified, including belting and hose, rubber | 744,375   | 489,915   | 572,719   | 572,870   | 180,442 | 112,743 | 78,972  | 42,976  | 1,632.9  | 30.0  | 51.9  | -14.5 | 217.5   | 60.0  | 52.4    | 72.1  |
| Agricultural implements  | 370,884   | 285,124   | 477,285   | 477,302   | 108,093 | 54,506  | 29,949  | 21,233  | 1,675.9  | -21.0 | 39.9  | -44.5 | 341.6   | 98.3  | 82.0    | 41.0  |
| Shipbuilding, wooden, including boat building  | -87,794   | 76,550    | 160,263   | 160,389   | 90,578  | 86,022  | 63,726  | 57,262  | 53.5     | -45.2 | 14.7  | -52.2 | 77.1    | 5.3   | 35.0    | 11.3  |
| Photographs and graphophones   | 22,876    | 29,069    | 98,669    | 99,102    | 13,138  | 14,245  | 14,475  | 14,276  | 61.1     | -76.8 | -21.3 | -70.6 | 654.3   | -7.8  | -1.6    | 1.4   |
| Ice, manufactured  | 52,061    | 37,156    | 98,300    | 98,508    | 20,068  | 3,627   | 6,076   | 1,418   | 4,276.0  | -87.2 | 8.6   | -42.2 | 332.4   | 125.6 | 42.0    | 328.5 |
| Fur goods  | 117,968   | 107,715   | 89,470    | 94,127    | 42,831  | 31,636  | 10,469  | 1,934.7 | 26.2     | 9.6   | 15.2  | 120.8 | 34.8    | 77.9  | 69.8    |       |
| Boots and shoes, rubber  | 71,881    | 64,829    | 67,106    | 67,541    | 19,786  | 24,161  | 15,917  | 11,618  | 622.6    | 7.1   | 31.1  | -18.3 | 241.4   | -18.1 | 51.8    | 37.0  |
| Photographic materials   | 36,471    | 61,900    | 66,570    | 66,570    | 29,866  | 20,144  | 38,065  | 18,407  | 369.8    | 29.9  | 39.7  | -7.0  | 122.9   | 48.3  | -47.1   | 104.8 |
| Musical instruments, pianos  | 108,336   | 93,997    | 71,659    | 71,712    | 27,602  | 15,859  | 8,861   | 4,421   | 2,352.6  | 51.2  | 15.3  | 31.1  | 160.8   | 73.4  | 79.0    | 100.4 |
|  | 65,981    | 84,988    | 52,719    | 52,723    | 33,684  | 33,750  | 37,334  | 23,654  | 141.0    | 8.1   | 62.0  | -33.6 | 66.5    | -     | 23.5    | 15.6  |

See footnotes at end of table, p. 146.

TABLE 31.—VALUE ADDED BY MANUFACTURE IN SELECTED INDUSTRIES, IN CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923—Continued.

[See note at head of this table, p. 141]

| INDUSTRY   | VALUE ADDED BY MANUFACTURE (IN THOUSANDS OF DOLLARS)                        |        |        |   |        |        |        |       | PER CENT OF INCREASE OR DECREASE (—) |                        |           |                        |                        |           |           |           |  |
|--|---|--------|--------|---|--------|--------|--------|-------|--------------------------------------|------------------------|-----------|------------------------|------------------------|-----------|-----------|-----------|--|
|  | Excluding data for establishments with products valued at less than \$5,000 |        |        | Including data for establishments with products valued at \$500 or more |        |        |        |       | 24-year period, 1899-1923            | Inter-censal period    |           |                        |                        |           |           |           |  |
|  | 1923  | 1921   | 1919   | 1919  | 1914   | 1909   | 1904   | 1899  |                                      | 1919-1923 <sup>1</sup> | 1921-1923 | 1919-1921 <sup>1</sup> | 1914-1919 <sup>2</sup> | 1909-1914 | 1904-1909 | 1899-1904 |  |
| Miscellaneous industries—Contd.                          |   |        |        |   |        |        |        |       |                                      |                        |           |                        |                        |           |           |           |  |
| Ammunition.....  | 23,768  | 16,344 | 49,936 | 49,936  | 14,563 | 10,601 | 9,330  | 5,591 | -325.1                               | -52.4                  | 45.4      | -67.3                  | 242.9                  | 87.4      | 13.6      | 66.9      |  |
| Instruments, professional and scientific.....            | 45,034  | 28,806 | 38,532 | 38,642  | 11,913 | 7,586  | 4,028  | 3,490 | 1,194.3                              | -16.9                  | 56.3      | -25.2                  | 224.4                  | 87.0      | 88.3      | 15.4      |  |
| Optical goods.....                                       | 35,350  | 27,772 | 35,828 | 36,933  | 11,582 | 7,548  | 3,797  | 3,110 | 1,040.4                              | -1.3                   | 27.3      | -22.5                  | 210.2                  | 63.9      | 98.8      | 22.1      |  |
| Mattresses and bed springs, not elsewhere specified..... | 46,085  | 32,568 | 34,489 | 34,744  | 16,318 | 15,300 | 12,429 | 7,729 | 500.5                                | 33.6                   | 41.5      | -5.6                   | 112.9                  | 6.7       | 28.1      | 60.8      |  |
| Roofing materials.....                                   | 28,822  | 31,180 | 33,276 | 33,307  | 10,373 | 6,746  | 9,029  | 6,805 | 323.8                                | -13.4                  | -7.6      | -6.3                   | 221.1                  | 63.8      | -25.3     | 32.7      |  |
| Fancy articles, not elsewhere specified.....             | 34,677  | 27,022 | 31,276 | 31,463  | 9,230  | 6,967  | 7,135  | 4,985 | 600.0                                | -10.9                  | 28.3      | -13.6                  | 240.9                  | 32.5      | -2.4      | 43.1      |  |
| Paving materials.....                                    | 46,614  | 36,655 | 29,371 | 29,721  | 21,515 | 2,751  | 2,367  | 2,354 | 1,903.7                              | 58.7                   | 27.2      | -24.8                  | 38.1                   | 652.1     | 16.2      | 6         |  |
| Stationery goods, not elsewhere specified.....           | 42,975  | 34,991 | 30,150 | 30,203  | 11,140 | 8,903  | 4,947  | 2,938 | 1,364.9                              | -42.5                  | 22.8      | 16.1                   | 171.1                  | 25.1      | 80.0      | 68.4      |  |
| Signs and advertising novelties.....                     | 44,533  | 34,537 | 26,813 | 27,271  | 15,733 | 8,837  | (?)    | (?)   |                                      | 66.3                   | 29.1      | 28.8                   | 73.3                   | 78.0      |           |           |  |
| Toys and games.....                                      | 32,237  | 20,922 | 25,647 | 25,816  | 7,978  | 4,710  | 3,289  | 2,345 | 1,283.8                              | 25.7                   | 54.1      | -18.4                  | 223.6                  | 69.4      | 43.2      | 40.3      |  |
| Buttons.....   | 19,550  | 16,128 | 24,850 | 25,095  | 12,010 | 13,167 | 6,990  | 4,893 | 303.7                                | -21.3                  | 21.2      | -35.1                  | 109.0                  | -8.8      | 88.4      | 42.9      |  |

<sup>1</sup> Based on figures shown in left-hand column for 1919.

<sup>2</sup> The figures shown in the right-hand column for 1919 were used in calculating the percentages in this column.

<sup>3</sup> Prior to 1914, the manufacture of ice cream was not included except in cases where it was made a subsidiary product in the manufacture of confectionery or some other class of product for which statistics were collected.

<sup>4</sup> "Condensed milk" included in "Butter and cheese."

<sup>5</sup> "Roasting and grinding of peanuts," included in "Coffee and spice, roasting and grinding."

<sup>6</sup> Title changed to "Corn sirup, corn oil, and starch."

<sup>7</sup> Not shown separately.

<sup>8</sup> The following industries, formerly a part of "Foundry and machine-shop products," are now treated as separate industries: "Machine tools," "Steel barrels, drums, and tanks," "Textile machinery and parts," and the tempering and welding of iron and steel prior to 1919; "Engine—steam, gas, and water," and "Pumps, steam and power," prior to 1914; "Automobile repairing" in 1909 and 1904; "Iron and steel—cast-iron pipe," prior to 1909; "Locomotives," and "Stoves and furnaces," prior to 1904. The percentages have been computed from comparable figures. (See p. 124.)

<sup>9</sup> Included in "Foundry and machine-shop products."

<sup>10</sup> "Pumps, not including power pumps" included in "Pumps, steam and other power."

<sup>11</sup> Includes "Show cases."

<sup>12</sup> Includes "Window and door screens and weather strips."

<sup>13</sup> "Cereal beverages" only.

<sup>14</sup> "Coal-tar products" included 1899-1923, and "Ferro-alloys (electric-furnace)" for 1923, 1921, and 1914.

<sup>15</sup> Includes "Candles."

<sup>16</sup> Includes "Sand-lime brick."

<sup>17</sup> "Cement" included with "Lime."

<sup>18</sup> Includes "Artificial stone products."

<sup>19</sup> Because of a change in classification, statistics not comparable.

<sup>20</sup> Not called for on schedule.

<sup>21</sup> Repairing included prior to 1923.

<sup>22</sup> Includes "Airplanes, seaplanes, airships, and parts."

<sup>23</sup> Includes "Photographic apparatus," and "Motion pictures."

<sup>24</sup> Includes "Pianos," "Organs," and "Organ materials."

TABLE 32.—AVERAGE NUMBER OF WAGE EARNERS EMPLOYED IN INDIVIDUAL INDUSTRIES, BY CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923

[The italic figures include establishments with products valued at less than \$5,000 to avoid disclosing operations of individual establishments. As to the comparability of 1921 and 1923 figures with those of previous years, see general remarks preceding tables, par. 4, p. 125.]

| INDUSTRY  | AVERAGE NUMBER OF WAGE EARNERS  |                  |                  |   |                  |                  |                  |                  |           | PER CENT OF INCREASE OR DECREASE (-) |                    |           |           |           |           |           |  |
|---|---|------------------|------------------|---|------------------|------------------|------------------|------------------|-----------|--------------------------------------|--------------------|-----------|-----------|-----------|-----------|-----------|--|
|   | Excluding data for establishments with products valued at less than \$5,000 |                  |                  | Including data for establishments with products valued at \$500 or more |                  |                  |                  |                  |           | 24-year period, 1899-1923            | Intercensal period |           |           |           |           |           |  |
|   | 1923  | 1921             | 1919             | 1919  | 1914             | 1909             | 1904             | 1899             | 1919-1923 |                                      | 1921-1923          | 1919-1921 | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |  |
| All industries.....   | 8,778,168   | 8,946,870        | 9,000,059        | 9,096,872   | 7,036,247        | 6,615,046        | 5,468,883        | 4,712,763        | 88.2      | -2.5                                 | 26.4               | -22.8     | 26.3      | 6.4       | 21.0      | 16.0      |  |
| Agricultural implements.....  | 30,862  | 30,869           | 54,294           | 54,866  | 48,460           | 50,551           | 47,894           | 46,882           | -38.5     | -43.0                                | 2.0                | -44.1     | 12.2      | -4.1      | 6.7       | 1.7       |  |
| Airplanes, seaplanes, airships, and parts.....                        | 2,901   | 1,895            | 5,525            | 3,543   | 1,168            | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | -         | -18.1                                | 108.0              | -70.8     | 2,068.9   | -         | -         | -         |  |
| Aluminum manufactures.....  | 16,228  | 9,584            | 11,402           | 11,402  | 4,614            | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | -         | 42.9                                 | 69.9               | -15.9     | 147.9     | -         | -         | -         |  |
| Ammunition.....   | 10,470  | 8,370            | 22,810           | 22,810  | 11,493           | 8,713            | 7,410            | 6,231            | 100.2     | -54.1                                | 25.1               | -63.3     | 99.5      | 31.9      | 17.6      | 41.7      |  |
| Artificial flowers.....   | 4,696   | 8,888            | 4,126            | 4,138   | 4,808            | 4,835            | 4,843            | 5,331            | -11.7     | 13.8                                 | 20.9               | -5.9      | -13.9     | -6        | 11.8      | -18.5     |  |
| Artificial limbs.....   | 493   | 600              | 652              | 671   | 488              | 432              | 342              | 249              | 108.7     | -24.4                                | -1.4               | -28.3     | 37.5      | 13.0      | 26.3      | 37.8      |  |
| Artificial stone products.....  | 10,769  | 6,984            | 7,413            | 8,378   | 10,255           | 9,957            | 3,506            | ( <sup>1</sup> ) | -         | 45.2                                 | 54.2               | -5.8      | -18.3     | 3.0       | 297.3     | -         |  |
| Artists' materials.....   | 1,411   | 1,008            | 915              | 926   | 604              | 858              | 274              | 200              | 613.9     | 54.2                                 | 40.0               | 10.2      | 33.8      | -8.2      | 140.1     | 87.0      |  |
| Asbestos products, not including steam packing.....                   | 5,078   | 2,026            | 3,650            | 3,654   | 962              | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | -         | 86.8                                 | 200.0              | -44.5     | 279.8     | -         | -         | -         |  |
| Automobile bodies and parts.....                                      | 163,530   | 69,119           | 132,323          | 132,556   | 47,765           | 24,427           | 1,810            | ( <sup>1</sup> ) | -         | 23.0                                 | 136.6              | -47.8     | 177.4     | 95.0      | 1,249.6   | -         |  |
| Automobile repairing.....   | ( <sup>1</sup> )  | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> )  | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | -         | -                                    | -                  | -         | -         | -         | -         | -         |  |
| Automobiles.....  | 241,356   | 143,658          | 210,553          | 210,556   | 79,307           | 51,294           | 10,239           | 2,241            | 10,667.8  | 14.6                                 | 68.0               | -31.5     | 165.5     | 54.6      | 401.0     | 856.9     |  |
| Awnings, tents, and sails.....  | 5,958   | 5,070            | 5,898            | 6,028   | 5,078            | 4,242            | 3,432            | 3,335            | 82.5      | 1.0                                  | 17.5               | -14.0     | 18.8      | 19.6      | 23.6      | 2.9       |  |
| Babbitt metal and solder.....   | 1,497   | 1,372            | 2,369            | 2,372   | 1,065            | 897              | 669              | 535              | 180.2     | -36.8                                | 9.1                | -42.1     | 129.2     | 15.4      | 57.6      | 6.4       |  |
| Bags, other than paper, not including bags made in textile mills..... | 11,548  | 10,324           | 10,746           | 10,756  | 9,358            | 7,968            | 5,722            | 3,922            | 194.8     | 7.5                                  | 11.9               | -3.9      | 14.9      | 17.4      | 39.3      | 45.9      |  |
| Bags, paper, exclusive of those made in paper mills.....              | 4,686   | 8,707            | 4,161            | 4,168   | 3,505            | 3,212            | 2,473            | 1,989            | 186.0     | 12.6                                 | 26.4               | -10.9     | 18.9      | 9.1       | 29.9      | 24.8      |  |
| Baking powders and yeast.....   | 5,507   | 3,537            | 3,318            | 3,331   | 2,270            | 2,153            | 2,449            | 1,938            | 31.7      | 5.7                                  | -1.4               | 7.2       | 45.7      | 5.3       | -13.0     | 23.4      |  |
| Baskets, and rattan and willow ware.....                              | 6,338   | 4,795            | 4,456            | 4,533   | 4,574            | 4,664            | 5,108            | 4,217            | 40.8      | 31.0                                 | 21.8               | -7.8      | -         | -1.9      | -5.7      | 21.1      |  |
| Bells.....  | 218   | 203              | 237              | 237   | 445              | 5,530            | 663              | -                | -67.2     | -8.0                                 | 7.4                | -14.8     | -46.7     | 7.5       | -21.9     | -20.1     |  |
| Belting and hose, rubber.....   | ( <sup>1</sup> )  | ( <sup>1</sup> ) | ( <sup>1</sup> ) | 5,236   | 5,115            | 5,131            | 8,698            | -                | -         | -                                    | -                  | -         | -         | -         | -         | -         |  |
| Belting and hose, woven, other than rubber.....                       | 336   | 1,119            | 2,479            | 2,479   | 952              | 1,198            | 692              | 254              | 31.8      | -36.8                                | -70.1              | -54.9     | 160.4     | -16.9     | 71.7      | 172.4     |  |
| Belting, leather.....   | 3,160   | 2,268            | 2,761            | 2,765   | 2,951            | 3,006            | 2,092            | 1,667            | 90.0      | 14.5                                 | 39.8               | -17.9     | -6.8      | -1.8      | 43.7      | 25.5      |  |
| Billiard tables, bowling alleys, and accessories.....                 | 876   | 925              | 2,101            | 2,101   | 1,433            | 1,495            | 796              | 453              | 93.4      | -58.3                                | -5.8               | -58.0     | 44.6      | -2.8      | 87.8      | 75.7      |  |
| Blacking, stains, and dressings.....                                  | 2,160   | 1,666            | 2,439            | 2,455   | 1,766            | 1,438            | 1,218            | 1,250            | 74.4      | -11.2                                | 80.0               | -31.7     | 39.0      | 22.8      | 15.1      | 2.6       |  |

See footnotes at end of Table 34, p. 177.



TABLE 32.—AVERAGE NUMBER OF WAGE EARNERS EMPLOYED IN INDIVIDUAL INDUSTRIES, BY CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923—Continued

[See note at head of this table, p. 147]

| INDUSTRY   | AVERAGE NUMBER OF WAGE EARNERS  |         |         |   |         |         |         |         | PER CENT OF INCREASE OR DECREASE (-) |                    |           |           |           |           |           |           |
|--|---|---------|---------|---|---------|---------|---------|---------|--------------------------------------|--------------------|-----------|-----------|-----------|-----------|-----------|-----------|
|  | Excluding data for establishments with products valued at less than \$5,000 |         |         | Including data for establishments with products valued at \$500 or more |         |         |         |         | 24-year period, 1899-1923            | Intercensal period |           |           |           |           |           |           |
|  | 1923  | 1921    | 1919    | 1919  | 1914    | 1909    | 1904    | 1899    |                                      | 1919-1923          | 1921-1923 | 1919-1921 | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |
| Bluing.....  | 188   | 228     | 355     | 360   | 254     | 313     | 206     | 220     | -13.3                                | -47.0              | -16.8     | -36.3     | 41.7      | -18.8     | 51.9      | -6.4      |
| Bone, carbon, and lamp black.....  | 1,303   | 826     | 676     | 675   | 339     | 228     | 200     | 85      | 1,432.6                              | 93.0               | 57.7      | 22.4      | 99.1      | 48.7      | 14.0      | 135.3     |
| Bookbinding and blank-book making.....   | 20,728  | 17,465  | 20,126  | 20,361  | 21,693  | 19,938  | 17,713  | 15,971  | 31.3                                 | 3.0                | 18.7      | -13.2     | -6.1      | 8.8       | 12.6      | 10.9      |
| Boot and shoe cut stock, exclusive of those produced in boot and shoe factories..... | 7,133   | 7,049   | 9,703   | 9,715   | 7,819   | 6,693   | 5,936   | 6,155   | 16.0                                 | -26.5              | 1.2       | -27.4     | 24.2      | 16.8      | 12.8      | -3.6      |
| Boot and shoe findings, exclusive of that produced in boot and shoe factories.....   | 7,865   | 5,917   | 8,906   | 8,941   | 6,714   | 6,488   | 4,434   | 3,246   | 143.2                                | -11.7              | 32.9      | -33.6     | 33.2      | 3.5       | 46.3      | 36.6      |
| Boots and shoes, not including rubber boots and shoes.....                           | 225,216   | 183,502 | 210,991 | 211,049   | 191,555 | 185,116 | 149,924 | 141,830 | 58.8                                 | 6.7                | 22.7      | -13.0     | 10.2      | 3.6       | 23.5      | 8.7       |
| Boots and shoes, rubber.....   | 29,435  | 23,888  | 32,875  | 32,875  | 18,687  | 17,612  | 18,991  | 14,391  | 104.4                                | -10.5              | 23.2      | -27.3     | 75.0      | 6.1       | -7.3      | 32.0      |
| Boxes, cigar.....  | 5,101   | 4,657   | 5,189   | 5,218   | 5,835   | 6,115   | 6,282   | 4,609   | 11.3                                 | -1.7               | 9.5       | -10.3     | -10.6     | -4.6      | -2.7      | 36.3      |
| Boxes, paper and other, not elsewhere specified.....                                 | 56,855  | 46,242  | 55,778  | 55,862  | 45,311  | 39,514  | 32,082  | 27,653  | 105.8                                | 1.9                | 23.0      | -17.1     | 23.3      | 14.7      | 23.2      | 16.0      |
| Boxes, wooden packing, except cigar boxes.....                                       | 39,154  | 32,595  | 42,325  | 42,445  | 38,548  | 35,449  | 30,329  | 21,999  | 78.4                                 | -7.5               | 20.1      | -23.0     | 10.1      | 8.7       | 16.9      | 37.9      |
| Brass, bronze, and copper products.....  | 64,713  | 39,830  | 74,998  | 75,051  | 40,306  | 40,618  | 33,168  | 27,166  | 138.4                                | -13.7              | 62.5      | -46.9     | 86.2      | -1.8      | 22.5      | 22.1      |
| Bread and other bakery products.....   | 162,613   | 148,500 | 140,477 | 141,692   | 124,052 | 100,216 | 81,278  | 60,192  | 172.4                                | 15.8               | 9.5       | 6.7       | 14.1      | 23.8      | 23.3      | 35.0      |
| Brick and tile, terra-cotta, and fire-clay products.....                             | 102,723   | 68,579  | 76,347  | 76,915  | 100,182 | 117,528 | 116,021 | 116,979 | 21.0                                 | 34.5               | 49.4      | -9.9      | -23.2     | -----     | 15.9      | 6.5       |
| Brooms.....  | 4,730   | 4,302   | 6,206   | 6,313   | 5,642   | 5,199   | 11,425  | 10,346  | -----                                | -23.8              | 9.9       | -30.7     | 11.9      | -----     | 8.5       | -----     |
| Brushes.....   | 5,719   | 6,460   | 7,925   | 7,868   | 7,213   | 6,954   | -----   | -----   | -----                                | 10.0               | 35.0      | -18.5     | 10.5      | 3.7       | -----     | -----     |
| Butter.....  | 20,782  | 18,506  | 17,603  | 17,641  | 14,149  | 11,563  | 9,530   | 112,799 | -----                                | 18.1               | 12.8      | 6.1       | 24.7      | 22.4      | 21.3      | -----     |
| Butter, reworking.....   | (0)   | 47      | 47      | 304   | 255     | 404     | 148     | -----   | -----                                | -----              | -----     | -----     | -----     | -----     | -----     | -----     |
| Buttons.....   | 11,980  | 9,686   | 15,430  | 15,877  | 14,511  | 16,427  | 10,567  | 8,685   | 37.8                                 | -23.2              | 22.4      | -37.3     | 7.3       | -11.7     | 55.5      | 21.7      |
| Candles.....   | 746   | 609     | 537     | 541   | 387     | 439     | 816     | -----   | -----                                | 38.9               | 22.5      | 13.4      | 39.8      | -28.2     | -33.9     | -----     |
| Canning and preserving, fish.....  | 8,030   | 6,916   | 11,188  | 11,248  | 9,069   | 7,260   | 5,154   | 11,263  | -28.3                                | -28.2              | 16.1      | -38.2     | 24.0      | 24.9      | 40.9      | -54.2     |
| Canning and preserving, fruits and vegetables.....                                   | 57,178  | 38,668  | 59,771  | 60,865  | 50,325  | 40,492  | 39,968  | 37,189  | 56.7                                 | -4.3               | 47.9      | -35.3     | 20.9      | 24.3      | 1.3       | 7.5       |
| Canning and preserving, oysters.....   | 1,114   | 1,030   | 1,176   | 1,189   | 2,087   | 2,666   | 3,291   | 1,335   | 5.0                                  | -5.3               | 8.2       | -12.4     | -43.0     | -21.7     | -19.0     | 146.5     |
| Card cutting and designing.....  | 1,207   | 762     | 1,140   | 1,148   | 517     | 525     | 696     | 325     | 274.0                                | 5.9                | 58.4      | -33.2     | 122.1     | -1.5      | -24.6     | 114.2     |
| Cardboard, not made in paper mills.....  | 1,176   | 1,157   | 1,425   | 1,425   | 1,519   | 1,569   | 686     | 626     | 87.8                                 | -17.5              | 1.6       | -18.8     | 23.0      | 25.3      | 57.8      | -6.4      |
| Carpets and rugs, other than rag.....  | 35,217  | 22,922  | 22,933  | 22,933  | 31,309  | 33,307  | 33,221  | 28,411  | 24.0                                 | 53.6               | 53.6      | 0.0       | -26.8     | -6.0      | 3.3       | 16.9      |
| Carpets, rag.....  | 2,041   | 1,576   | 1,868   | 2,016   | 2,130   | 1,982   | 1,736   | 1,318   | 67.2                                 | 9.3                | 29.5      | -16.6     | -5.4      | 7.5       | 14.2      | 31.7      |
| Carriage and wagon materials.....  | 1,983   | 2,747   | 6,480   | 6,509   | 11,087  | 17,388  | 17,160  | 15,387  | -87.1                                | -69.4              | -27.8     | -57.6     | -41.3     | -36.2     | 1.3       | 11.6      |
| Carriages and sleds, children's.....   | 8,324   | 5,460   | 6,678   | 6,686   | 5,900   | 4,003   | 2,726   | 205.6   | 24.6                                 | 24.6               | 52.5      | -18.2     | 13.3      | 11.3      | 32.4      | 46.8      |
| Carriages and wagons, including repairs.....   | 7,740   | 7,797   | 17,583  | 18,173  | 41,304  | 52,540  | 60,722  | 58,425  | -86.8                                | -56.0              | -7.1      | -55.7     | -56.0     | -21.4     | -13.5     | 3.9       |

|  |         |         |         |         |         |         |         |         |       |       |       |       |       |       |       |       |
|--|---------|---------|---------|---------|---------|---------|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|
| Cars and general shop construction and repairs by electric-railroad companies.....     | 34,925  | 33,279  | 31,155  | 31,272  | 26,384  | 22,418  | 11,052  | 7,025   | 399.1 | 12.1  | 4.9   | 5.8   | 18.5  | 17.7  | 102.5 | 57.8  |
| Cars and general shop construction and repairs by steam-railroad companies.....        | 488,505 | 385,006 | 484,380 | 484,437 | 339,518 | 282,174 | 236,870 | 173,595 | 181.6 | .9    | 26.9  | -20.5 | 42.7  | 20.3  | 19.1  | 36.4  |
| Cars, electric-railroad, not including operations of railroad companies.....           | 3,978   | 2,912   | 2,920   | 2,920   | 3,840   | 3,583   | 4,730   | 3,585   | 11.0  | 38.2  | 36.6  | -.3   | -24.0 | 7.2   | -24.2 | 31.9  |
| Cars, steam-railroad, not including operations of railroad companies.....              | 76,612  | 45,121  | 52,296  | 52,296  | 54,288  | 43,086  | 34,058  | 33,453  | 120.0 | 46.5  | 69.8  | -13.7 | -3.7  | 26.0  | 24.5  | 1.8   |
| Cash registers and calculating machines.....   | 14,971  | 9,786   | 16,638  | 16,544  | 8,958   | 7,465   | 4,079   | 2,067   | 424.4 | 53.0  | -40.8 | 84.7  | 20.0  | 83.0  | 97.3  |       |
| Cement.....  | 35,091  | 28,231  | 25,624  | 25,624  | 27,916  | 26,775  | 17,478  | (17)    | 201.2 | 37.5  | 33.8  | 2.8   | -8.6  | 4.9   | 53.2  |       |
| Charcoal, not including production in the lumber and wood distillation industries..... | 101     | 269     | 194     | 209     | 228     | 631     | 923     | 1,786   | -93.9 | -47.9 | -62.5 | 38.7  | -8.3  | -63.9 | -31.6 | -48.8 |
| Cheese.....  | 4,383   | 3,498   | 3,961   | 3,967   | 2,908   | 2,704   | 2,652   | (14)    | (14)  | 10.7  | 25.3  | -11.7 | 37.4  | 7.5   | 2.0   |       |
| Chemicals <sup>12</sup> .....  | 84,398  | 39,474  | 55,556  | 71,249  | 32,311  | 23,729  | 10,847  | 15,163  | 444.6 | 15.9  | 63.1  | -28.9 | 120.5 | 36.2  | 18.6  | 30.9  |
| Chewing gum.....   | 2,052   | 1,994   | 3,181   | 3,190   | 2,048   | (20)    | (20)    | (20)    | (20)  | -35.5 | 2.9   | -37.3 | 55.8  |       |       |       |
| China decorating, not including that done in potteries.....                            | 355     | 325     | 231     | 244     | 295     | 328     | 225     | 298     | 25.9  | 53.7  | 9.2   | 40.7  | -17.9 | -10.1 | 45.8  | -24.5 |
| Chocolate and cocoa products.....  | 6,876   | 6,652   | 9,083   | 9,083   | 4,180   | 2,826   | 2,090   | 1,314   | 423.2 | -24.3 | 3.4   | -26.3 | 119.3 | 47.2  | 35.2  | 59.1  |
| Cleansing and polishing preparations.....  | 2,376   | 1,687   | 1,900   | 1,955   | 1,239   | 979     | 564     | 508     | 381.0 | 25.0  | 40.8  | -11.2 | 87.8  | 26.6  | 73.6  | 11.0  |
| Clocks.....  | 9,359   | 6,638   | 8,248   | 8,252   | 6,764   | 7,961   | 7,249   | 6,037   | 55.2  | 13.5  | 43.2  | -20.8 | 22.2  | -15.2 | 9.8   | 20.1  |
| Cloth, sponging and refinishing.....   | 1,225   | 1,123   | 1,203   | 1,206   | 901     | 975     | 795     | 634     | 129.9 | 1.8   | 9.1   | -6.7  | 33.9  | -7.6  | 22.6  | 48.9  |
| Clothing, horse.....   | 841     | 705     | 758     | 768     | 1,669   | 1,648   | 1,063   | 675     | 47.7  | 10.9  | 19.3  | -7.0  | 54.1  | 1.3   | 55.0  | 84.9  |
| Clothing, men's.....   | 194,820 | 165,206 | 174,588 | 175,270 | 173,747 | 191,183 | 137,190 | 120,927 | 91.7  | 11.6  | 17.9  | -5.4  | 9.9   | -9.1  | 39.4  | 13.4  |
| Clothing, men's, buttonholes.....  | 334     | 329     | 448     | 448     | 672     | 830     | 903     | 944     | -81.7 | -25.4 | 1.6   | -26.6 | -28.0 | -19.0 | -8.1  | -4.3  |
| Clothing, women's.....   | 133,195 | 144,856 | 164,993 | 165,494 | 168,907 | 183,743 | 115,705 | 83,739  | 59.6  | -19.3 | -8.1  | -12.2 | -1.9  | 9.9   | 32.9  | 38.2  |
| Coal-tar products.....   | 10,499  | 6,832   | 15,646  | (15)    | (15)    | (15)    | (15)    | (15)    | (15)  | -52.9 | 53.7  | -55.3 |       |       |       |       |
| Coffee and spice, roasting and grinding.....   | 9,665   | 8,882   | 10,523  | 10,540  | 8,549   | 7,490   | 5,959   | 6,387   | (18)  | -8.2  | 8.8   | -15.9 | 23.3  | 14.1  | 25.7  |       |
| Coffins, burial cases, and undertakers' goods.....                                     | 11,593  | 9,958   | 11,880  | 11,890  | 9,468   | 9,339   | 8,468   | 6,840   | 69.6  | -2.4  | 16.4  | -16.2 | 25.6  | 1.4   | 10.3  | 23.8  |
| Coke, not including gas-works coke.....  | 28,364  | 16,070  | 29,314  | 29,319  | 21,107  | 23,273  | 18,981  | 16,999  | 67.0  | -3.2  | 76.5  | -45.2 | 38.9  | -27.9 | 54.2  | 11.7  |
| Collars and cuffs, men's.....  | 10,449  | 9,285   | 11,096  | 11,103  | 10,100  | 12,421  | 10,786  | 17,135  | -39.0 | 12.5  | -16.3 | 9.9   | -18.7 | 15.2  | -37.1 |       |
| Combs and hairpins, not made from metal or rubber.....                                 | 2,144   | 1,821   | 2,229   | 2,229   | 2,773   | 4,555   | 1,806   | 1,399   | 53.2  | -3.8  | 62.3  | -40.7 | -19.6 | -39.1 | 152.2 | 29.1  |
| Condensed milk.....  | 8,723   | 9,462   | 13,676  | 13,676  | 6,062   | 4,164   | 3,375   | (14)    | (14)  | -39.2 | -7.8  | -30.8 | 127.9 | 44.1  | 23.4  |       |
| Confectionery and ice cream.....   | 96,617  | 81,213  | 95,058  | 95,048  | 61,938  | 44,638  | 36,209  | 26,896  | 224.3 | -8.9  | 6.9   | -14.6 | 54.3  |       | 33.2  | 34.9  |
| Cooperage.....   | 12,028  | 9,579   | 13,071  | 13,219  | 17,128  | 19,489  | 21,149  | 22,117  | -45.0 | -8.0  | 21.8  | -24.4 | -22.8 | -12.1 | -7.8  | -4.4  |
| Copper, tin, and sheet-iron work.....  | 28,852  | 25,172  | 26,956  | 27,640  | 28,714  | 28,448  | 22,556  | 28,315  | 4.4   | 7.0   | 14.6  | -6.6  | -3.7  | 9.9   | 26.1  | -20.3 |
| Cordage and twine.....   | 16,382  | 14,593  | 17,617  | 17,622  | 15,769  | 14,629  | 14,614  | 13,114  | 25.0  | -7.0  | 12.3  | -17.2 | 11.8  | 7.8   | 11.1  | 11.4  |
| Cordials and flavoring sirups.....   | 1,970   | 1,408   | 1,891   | 1,898   | 929     | 1,095   | 680     | 862     | 446.9 | 41.6  | 39.9  | 1.2   | 50.6  | -15.2 | 65.9  | 82.3  |
| Cork, cutting.....   | 3,478   | 2,774   | 3,541   | 3,545   | 3,454   | 3,142   | 2,895   | 2,340   | 48.8  | -1.8  | 25.4  | -21.7 | 2.6   | 9.9   | 8.5   | 23.7  |
| Corsets.....   | 16,104  | 17,084  | 18,391  | 18,415  | 20,496  | 17,564  | 10,975  | 12,267  | 31.2  | -12.4 | -5.7  | -7.1  | -10.2 | 16.7  | 60.0  | -10.8 |
| Cotton goods.....  | 471,503 | 412,058 | 430,949 | 430,968 | 379,396 | 371,182 | 310,458 | 297,929 |       | 9.4   | 14.4  | -4.4  | 13.6  | 4.2   | 19.6  | 4.2   |
| Cotton lace.....   | 7,307   | 6,396   | 6,490   | 6,490   | 7,440   | 7,068   | 5,416   | 4,932   |       | 12.6  | 14.2  | -1.4  | -12.3 |       |       |       |
| Cotton small wares.....  | 16,387  | 7,893   | 9,396   | 9,396   | 6,596   | 6,596   | 6,771   | 6,771   |       | 74.4  | 152.6 | -21.6 | 42.4  | -14.3 | 42.1  | 9.8   |
| Crucibles.....   | 516     | 412     | 396     | 392     | 336     | 302     | 280     | 280     |       | -23.1 | -39.2 | 51.4  | 180.8 | -9.9  | 10.6  | 53.3  |
| Cutlery and edge tools.....  | 16,671  | 14,345  | 19,822  | 19,859  | 16,561  | 16,997  | 14,545  | 12,028  | 38.8  | -15.9 | 16.2  | -27.6 | 19.9  | -2.6  | 16.9  | 20.9  |
| Dairymen's, poultrymen's, and apiarists' supplies.....                                 | 5,783   | 3,941   | 6,400   | 6,437   | 5,551   | 4,871   | 2,608   | (9)     | (9)   | -9.6  | 50.6  | -40.0 | 16.0  | 14.0  | 66.8  |       |
| Dental goods.....  | 4,608   | 4,137   | 5,195   | 5,195   | 3,080   | 1,573   | 1,922   | 1,017   | 355.7 | -11.3 | 11.4  | -20.0 | 69.6  | 95.8  | -18.2 | 89.0  |
| Drug grinding.....   | 750     | 840     | 1,347   | 1,347   | 1,059   | 922     | 981     | 644     | 16.5  | -44.3 | -10.7 | -37.6 | 27.2  | 14.9  | -6.0  | 53.3  |
| Druggists' preparations.....   | 8,996   | 10,838  | 15,630  | 15,636  | 9,277   | 9,490   | 7,410   | 6,658   |       | -42.8 | -17.8 | -30.2 | 67.8  | -2.2  | 28.1  | 31.0  |

See footnotes at end of Table 24, p. 177.

TABLE 32.—AVERAGE NUMBER OF WAGE EARNERS EMPLOYED IN INDIVIDUAL INDUSTRIES, BY CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923—Continued

[See note at head of this table, p. 147]

| INDUSTRY   | AVERAGE NUMBER OF WAGE EARNERS  |         |         |   |         |         |         |         | PER CENT OF INCREASE OR DECREASE (—) |                    |           |           |           |           |           |           |           |
|--|---|---------|---------|---|---------|---------|---------|---------|--------------------------------------|--------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|  | Excluding data for establishments with products valued at less than \$5,000 |         |         | Including data for establishments with products valued at \$500 or more |         |         |         |         | 24-year period, 1899-1923            | Intercensal period |           |           |           |           |           |           |           |
|  | 1923  | 1921    | 1919    | 1919  | 1914    | 1909    | 1904    | 1899    |                                      | 1919-1923          | 1919-1923 | 1921-1923 | 1919-1921 | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |
|  |   |         |         |   |         |         |         |         |                                      |                    |           |           |           |           |           |           |           |
| Dyeing and finishing textiles, exclusive of that done in textile mills | 63,414  | 51,510  | 55,914  | 55,985  | 48,487  | 44,046  | 35,565  | 29,776  | 113.2                                | 13.4               | 23.1      | -7.9      | 15.5      | 10.0      | 23.8      | 19.4      |           |
| Dyestuffs and extracts, natural  | 3,243   | 2,993   | 4,341   | 4,342   | 2,839   | 2,397   | 2,707   | 1,647   | 96.9                                 | -25.3              | 8.4       | -31.1     | 52.9      | 18.4      | -11.5     | 64.4      |           |
| Electrical machinery, apparatus, and supplies                          | 234,892   | 161,204 | 212,294 | 212,374   | 118,078 | 87,258  | 60,466  | 42,013  | 459.1                                | 10.6               | 45.7      | -24.1     | 79.9      | 35.3      | 44.3      | 43.9      |           |
| Electroplating   | 3,374   | 2,460   | 2,934   | 3,024   | 2,584   | 2,717   | 1,943   | 2,036   | 66.8                                 | 15.0               | 37.2      | -16.2     | 17.0      | -4.9      | 39.8      | -6.9      |           |
| Emery and other abrasive wheels  | 3,595   | 2,949   | 5,997   | 5,901   | 2,387   | 1,943   | 801     | 546     | 553.6                                | -35.8              | 26.2      | -49.1     | 134.6     | 22.9      | 142.6     | 46.7      |           |
| Enameling  | 1,009   | 456     | 678     | 684   | 1,314   | 1,945   | 937     | 7,675   | (10)                                 | 49.3               | 121.3     | -32.5     | -47.2     | -32.4     | -79.6     | 24.3      |           |
| Engines, steam, gas, and water   | 48,495  | 35,567  | 77,598  | 77,617  | 29,657  | (10)    | (10)    | (10)    | (10)                                 | -37.5              | 36.3      | -54.2     | 161.7     | —         | —         | —         |           |
| Engravers' materials   | 224   | 184     | 171     | 174   | 106     | 129     | 49      | 76      | 199.9                                | 31.0               | 21.7      | 7.6       | 64.2      | -17.8     | 163.3     | -35.5     |           |
| Engraving and diesinking   | 1,887   | 1,276   | 1,792   | 1,878   | 1,536   | 1,308   | 1,573   | 964     | 105.1                                | 5.3                | 47.9      | -28.8     | 22.3      | 17.4      | -16.8     | 63.2      |           |
| Engraving, steel and copperplate, including plate printing             | 7,529   | 7,156   | 6,978   | 7,014   | 6,859   | 5,326   | 3,580   | 3,303   | 129.2                                | 7.9                | 5.2       | 2.6       | 2.3       | 28.8      | 48.8      | 8.4       |           |
| Engraving, wood  | 141   | 131     | 225     | 235   | 302     | 318     | 338     | 336     | -56.2                                | -37.3              | 7.6       | -41.8     | 22.2      | -5.0      | -5.9      | 6.6       |           |
| Envelopes  | 9,241   | 7,944   | 8,169   | 8,129   | 6,970   | 5,303   | 4,298   | 2,984   | 209.7                                | 13.7               | 16.3      | -2.3      | 16.6      | 31.4      | 23.4      | 44.0      |           |
| Explosives   | 6,388   | 4,478   | 9,249   | 9,249   | 6,306   | 6,274   | 5,800   | 4,502   | 41.9                                 | -30.9              | 42.7      | -51.6     | 46.7      | 5.6       | 8.2       | 28.8      |           |
| Fancy articles, not elsewhere specified                                | 13,522  | 11,534  | 13,874  | 13,961  | 7,399   | 6,729   | 6,624   | 5,718   | 138.1                                | -2.5               | 17.2      | -16.9     | 88.7      | 10.0      | 1.6       | 15.8      |           |
| Feathers and plumes  | 1,712   | 2,064   | 3,494   | 3,504   | 4,483   | 5,181   | (9)     | (9)     | (9)                                  | -51.0              | -17.1     | -40.9     | -21.8     | -13.5     | —         | —         |           |
| Felt goods   | 5,735   | 4,180   | 6,256   | 6,236   | 4,035   | 3,544   | 3,254   | 2,688   | 113.3                                | 9.5                | 37.2      | -20.2     | 29.8      | 13.9      | 8.9       | 21.1      |           |
| Ferro-alloys   | (10)  | (10)    | 2,544   | 2,544   | (10)    | (10)    | (10)    | (10)    | (10)                                 | —                  | —         | —         | —         | —         | —         | —         |           |
| Fertilizers  | 18,572  | 16,898  | 26,278  | 26,296  | 22,815  | 18,310  | 14,184  | 11,581  | 60.4                                 | -29.3              | 9.9       | -35.7     | 15.3      | 24.6      | 29.1      | 22.5      |           |
| Filcs  | 4,590   | 3,595   | 5,764   | 5,767   | 4,349   | 4,158   | 3,276   | 3,160   | 45.3                                 | -20.4              | 27.7      | -37.6     | 32.6      | 4.6       | 26.9      | 3.7       |           |
| Firearms   | 6,204   | 4,726   | 11,279  | 11,287  | 7,064   | 6,002   | 6,224   | 4,482   | 38.5                                 | -45.0              | 31.3      | -58.1     | 59.8      | 17.7      | -7.6      | 39.9      |           |
| Fire extinguishers, chemical   | 782   | 580     | 777     | 777   | 256     | 178     | 64      | 1,091.0 | 64                                   | -1.9               | 31.4      | -25.4     | 203.5     | 31.3      | -9.6      | 178.1     |           |
| Fireworks  | 1,224   | 1,229   | 1,212   | 1,222   | 1,324   | 1,403   | 1,480   | 1,638   | -24.7                                | 1.0                | -4.4      | 1.4       | -7.7      | -5.6      | -5.2      | -9.6      |           |
| Flags and banners  | 878   | 991     | 1,050   | 1,065   | 1,495   | 934     | 374     | 509     | 74.9                                 | -16.4              | -11.4     | -5.6      | -28.8     | 60.1      | 149.7     | -26.5     |           |
| Flavoring extracts   | 1,626   | 2,054   | 2,190   | 2,188   | 1,461   | 1,229   | 1,543   | 1,261   | 31.7                                 | -24.7              | -20.8     | -4.9      | 49.8      | 18.9      | -20.3     | 23.3      |           |
| Flax and hemp, dressed   | 62  | 112     | 460     | 420   | 116     | 104     | 214     | 211     | -70.5                                | -85.2              | -44.6     | -73.3     | 202.1     | -29.3     | -23.4     | 1.4       |           |
| Flour-mill and grain-mill products                                     | 35,194  | 35,378  | 45,295  | 45,481  | 39,718  | 39,453  | 39,110  | 32,226  | 9.6                                  | -22.3              | -5        | -21.9     | 14.5      | 7         | 9         | 21.4      |           |
| Food preparations, not elsewhere specified                             | 26,212  | 22,868  | 30,199  | 30,365  | 20,306  | 14,968  | 11,333  | 8,214   | 220.9                                | -13.2              | 14.6      | -24.3     | 49.5      | 35.7      | 32.1      | 38.0      |           |
| Foundry and machine-shop products <sup>23</sup>                        | 448,777   | 321,363 | 481,701 | 472,858   | 362,471 | 388,911 | 348,378 | 350,103 | 99.8                                 | -6.8               | 39.6      | -33.3     | 68.0      | 2.4       | 15.1      | 15.1      |           |
| Fur goods  | 968   | 667     | 894     | 894   | 555     | 464     | 315     | 252.3   | 252.3                                | 8.1                | 70.4      | -36.6     | 63.2      | 19.6      | 47.3      | 13.3      |           |
| Fuel, manufactured   | 364   | 371     | 171     | 171   | 141     | 89      | (9)     | (9)     | (9)                                  | 112.9              | -1.9      | 117.0     | 21.3      | 60.2      | —         | —         |           |
| Fur goods  | 14,439  | 12,052  | 13,544  | 13,639  | 9,030   | 11,927  | 9,870   | 7,758   | 87.4                                 | 6.6                | 19.8      | -11.0     | 51.0      | -24.3     | 27.3      | 20.8      |           |
| Furnishing goods, men's <sup>24</sup>                                  | 18,958  | 15,921  | 18,894  | 27,930  | 22,459  | 15,920  | 16,399  | 13,187  | 110.7                                | 6                  | 19.1      | -15.6     | 24.4      | 41.1      | -2.9      | 24.4      |           |

|  |         |         |         |         |         |         |         |         |         |       |       |       |       |       |       |       |
|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------|-------|-------|-------|-------|-------|-------|
| Furniture.....   | 168,089 | 124,311 | 189,950 | 138,331 | 127,881 | 123,426 | 110,133 | 87,262  | 90.4    | 20.1  | 35.2  | -11.2 | 8.9   | 8.6   | 12.1  | 26.5  |
| Furs, dressed.....   | 5,203   | 4,429   | 5,068   | 5,076   | 1,525   | 1,241   | 1,105   | 835     | 491.4   | 2.7   | 17.5  | -12.6 | 232.8 | 22.9  | 12.3  | 82.3  |
| Galvanizing and other coating processes.....                                     | 877     | 685     | 1,662   | 1,665   | 1,580   | 1,447   | 1,256   | 635     | 64.3    | -47.2 | 28.0  | -58.8 | 5.4   | 9.2   | 15.2  | 134.8 |
| Gas and electric fixtures.....   | 12,315  | 9,419   | 9,779   | 9,765   | 10,913  | 11,751  | 8,141   | 6,513   | 89.4    | 25.9  | 30.7  | -3.7  | -10.2 | -7.1  | 44.3  | 25.0  |
| Gas, illuminating and heating.....   | 42,282  | 34,956  | 42,844  | 42,909  | 43,792  | 47,215  | 40,596  | 22,450  | 88.6    | -1.3  | 21.0  | -18.4 | -2.0  | 17.7  | 21.8  | 86.1  |
| Gas machines and gas and water meters.....                                       | 6,127   | 4,280   | 5,383   | 5,389   | 4,972   | 4,707   | 2,674   | 2,166   | 183.0   | 9.7   | 43.3  | -23.3 | 12.4  | 4.3   | 78.8  | 28.5  |
| Glass, cutting, staining, and ornamenting.....                                   | 73,335  | 54,748  | 77,530  | 77,520  | 74,502  | 68,911  | 65,969  | 52,818  | 88.9    | -5.4  | 34.0  | -29.4 | 4.1   | 8.1   | 7.7   | 21.1  |
| Gloves and mittens, cloth, not including gloves made in textile mills.....       | 5,157   | 4,682   | 5,398   | 5,480   | 5,067   | 5,362   | 3,378   | 4,914   | 6.8     | -19.4 | 10.1  | -26.8 | -19.7 | -18.8 | 11.7  | 70.5  |
| Gloves made in textile mills.....  | 8,864   | 5,758   | 8,957   | 8,957   | 10,685  | 10,688  | 11,354  | 10,645  | 14,345  | -30.1 | 53.9  | -35.7 | ..... | -8.0  | 6.7   | -35.8 |
| Gloves and mittens, leather.....   | 10,010  | 7,907   | 10,689  | 10,685  | 10,688  | 11,354  | 10,645  | 14,345  | -30.1   | 53.9  | -35.7 | ..... | -8.0  | 6.7   | -35.8 |       |
| Glucose and starch.....  | 6,537   | 6,131   | 7,794   | 7,795   | 4,509   | 4,773   | 4,679   | 5,943   | 10.1    | -16.1 | 6.6   | -21.3 | 72.9  | -5.5  | 2.0   | -21.9 |
| Glue, not elsewhere specified.....   | 3,651   | 2,915   | 4,264   | 4,264   | 3,129   | 3,265   | 2,864   | 1,618   | 125.6   | -14.4 | 25.2  | -31.6 | 36.3  | -4.2  | 14.0  | 77.0  |
| Gold and silver, leaf and foil.....  | 918     | 1,104   | 942     | 950     | 1,135   | 1,383   | 1,402   | 1,163   | -20.3   | -2.6  | -16.8 | 17.2  | -16.3 | -17.9 | -1.4  | 20.6  |
| Gold and silver, reducing and refining, not from the ore.....                    | 901     | 785     | 640     | 644     | 456     | 456     | 287     | 219     | 314.1   | 40.8  | 14.8  | -22.7 | 41.2  | ..... | 58.9  | 31.1  |
| Graphite, ground and refined.....  | 244     | 152     | 490     | 497     | 280     | 192     | 218     | 137     | 444.9   | -50.2 | 60.5  | -69.0 | 98.6  | 64.3  | -25.7 | 59.1  |
| Grease and tallow, not including lubricating greases.....                        | 5,248   | 4,428   | 6,594   | 6,647   | 5,106   | 4,357   | 3,628   | 3,040   | 159.3   | -20.4 | 18.5  | -32.8 | 30.2  | 17.2  | 20.1  | 77.9  |
| Grindstones.....   | 647     | 503     | 708     | 674     | 686     | 1,394   | 706     | 1,167   | -47.2   | -8.6  | 28.6  | -29.0 | -1.7  | -50.8 | 97.5  | -39.5 |
| Haircloth.....   | 499     | 301     | 425     | 425     | 595     | 538     | .....   | .....   | .....   | 17.4  | 65.8  | -29.2 | -28.6 | 10.6  | ..... | ..... |
| Hair work.....   | 1,317   | 1,222   | 1,032   | 1,193   | 1,193   | 3,534   | 863     | 820     | 68.7    | 27.6  | 7.8   | 18.4  | -9.1  | -66.2 | 309.5 | 5.2   |
| Hammocks.....  | 68      | 51      | 64      | 64      | 285     | 272     | 271     | 339     | -79.9   | 6.3   | 33.3  | -20.3 | -77.5 | 4.8   | ..... | -20.1 |
| Hand stamps.....   | 2,312   | 2,098   | 2,079   | 1,719   | 1,321   | 1,272   | 976     | 1,052   | 81.7    | 11.2  | 11.8  | -5.5  | 30.1  | 3.9   | 30.3  | -7.2  |
| Hardware.....  | 49,884  | 33,893  | 42,449  | 42,500  | 41,213  | 38,513  | 31,718  | 26,468  | 68.7    | 17.5  | 47.6  | -20.4 | 8.1   | 7.0   | 21.4  | 18.9  |
| Hardware, saddlery.....  | 2,321   | 1,425   | 3,970   | 3,675   | 2,511   | 3,309   | 3,309   | 2,940   | -21.0   | -36.8 | 62.9  | -61.2 | 46.4  | -24.1 | -2.5  | 15.5  |
| Hat and cap materials.....   | 2,304   | 1,722   | 2,998   | 3,009   | 1,775   | 2,367   | 2,414   | 1,371   | 68.8    | -23.1 | 33.8  | -49.6 | 69.5  | -25.0 | -1.9  | 70.1  |
| Hats and caps, other than felt, straw, and wool.....                             | 7,313   | 6,505   | 7,497   | 7,539   | 7,322   | 6,201   | 6,594   | 12,544  | -41.4   | -2.6  | 12.4  | -18.2 | 3.0   | 18.1  | -6.0  | -47.4 |
| Hats, fur-felt.....  | 16,722  | 13,880  | 18,497  | 18,510  | 21,318  | 25,084  | 22,047  | 18,880  | -11.4   | -9.6  | 20.5  | -25.0 | -13.2 | -14.9 | -18.7 | 16.3  |
| Hats, straw.....   | 6,812   | 5,924   | 7,299   | 7,302   | 9,483   | 8,814   | 5,587   | .....   | .....   | -6.7  | 15.0  | -18.8 | -23.0 | 7.6   | 52.1  | ..... |
| Hats, wool-felt.....   | 1,950   | 1,428   | 1,442   | 1,448   | 1,249   | 1,986   | 1,803   | 2,108   | -7.1    | 35.2  | 36.6  | -1.0  | 15.9  | -37.1 | -28.7 | ..... |
| Hones and whetstones.....  | 100     | 95      | 212     | 212     | 1,270   | 152     | 220     | 189     | -12.1   | -21.7 | 74.7  | -55.2 | 24.7  | 11.8  | -30.9 | 16.4  |
| Horseshoes, not made in steel works or rolling mills.....                        | 255     | 207     | 738     | 744     | 588     | 293     | 232     | 231     | 11.4    | -65.4 | 23.2  | -72.0 | 26.5  | 100.7 | 26.3  | ..... |
| House-furnishing goods, not elsewhere specified.....                             | 8,708   | 7,504   | 7,790   | 7,858   | 6,935   | 4,907   | 4,778   | 5,212   | 68.5    | 11.8  | 16.0  | -3.7  | 13.2  | 41.3  | 2.7   | -8.3  |
| Ice, manufactured.....   | 25,852  | 24,066  | 29,895  | 30,247  | 23,011  | 16,114  | 10,101  | 6,880   | 294.8   | -10.2 | 11.6  | -18.5 | 31.4  | 42.8  | 59.5  | 46.8  |
| Ink, printing.....   | 1,975   | 1,676   | 1,987   | 1,988   | 1,391   | 1,121   | 711     | 603     | 292.8   | ..... | 17.8  | -15.7 | 42.4  | 24.1  | 57.7  | 41.4  |
| Ink, writing.....  | 578     | 504     | 691     | 692     | 512     | 505     | 430     | 285     | 105.9   | -16.4 | 14.7  | -27.1 | 87.1  | 1.4   | 17.4  | 60.9  |
| Instruments, professional and scientific.....                                    | 12,276  | 9,384   | 15,897  | 15,931  | 7,107   | 4,817   | 3,437   | 2,775   | 843.2   | -22.8 | 30.8  | -41.0 | 124.2 | 47.5  | 50.2  | 23.9  |
| Iron and steel, blast furnaces.....  | 36,712  | 18,998  | 41,660  | 41,660  | 29,399  | 38,429  | 35,078  | 39,241  | -6.4    | -11.9 | 95.3  | -55.1 | 41.9  | -23.6 | 9.6   | -10.6 |
| Iron and steel, steel works and rolling mills.....                               | 388,201 | 235,315 | 375,098 | 375,098 | 248,710 | 240,076 | 207,502 | 183,249 | 111.9   | 3.5   | 64.8  | -87.2 | 50.5  | 3.6   | 16.7  | 13.3  |
| Iron and steel, bolts, nuts, washers, and rivets, not made in rolling mills..... | 15,962  | 10,148  | 17,958  | 17,958  | 10,658  | 11,345  | 8,090   | 7,660   | 108.6   | -11.1 | 57.3  | -43.5 | 68.6  | -6.1  | 40.2  | -5.6  |
| Iron and steel, cast-iron pipe.....  | 21,576  | 12,496  | 12,625  | 12,625  | 12,557  | 12,228  | 12,228  | .....   | .....   | ..... | 70.9  | ..... | ..... | 2.7   | ..... | ..... |
| Iron and steel, doors and shutters.....  | 2,429   | 1,782   | 2,075   | 2,075   | 1,985   | 1,601   | 699     | 117     | 1,978.8 | 17.1  | 36.3  | -14.1 | 4.6   | 24.0  | 128.0 | 497.4 |
| Iron and steel, forgings, not made in steel works or rolling mills.....          | 27,468  | 16,740  | 28,387  | 28,391  | 10,689  | 8,168   | 5,665   | 4,688   | 486.2   | -3.2  | 64.1  | -41.0 | 165.6 | 30.9  | 44.2  | 20.8  |

See footnotes at end of Table 34, p. 177.

TABLE 32.—AVERAGE NUMBER OF WAGE EARNERS EMPLOYED IN INDIVIDUAL INDUSTRIES, BY CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923—Continued

[See note at head of this table, p. 147]

| INDUSTRY  | AVERAGE NUMBER OF WAGE EARNERS  |         |         |   |         |         |         |         | PER CENT OF INCREASE OR DECREASE (-) |                        |                        |                        |                        |           |           |           |
|---|---|---------|---------|---|---------|---------|---------|---------|--------------------------------------|------------------------|------------------------|------------------------|------------------------|-----------|-----------|-----------|
|   | Excluding data for establishments with products valued at less than \$5,000 |         |         | Including data for establishments with products valued at \$500 or more |         |         |         |         | 24-year period, 1899-1923            | Intercensal period     |                        |                        |                        |           |           |           |
|   | 1923  | 1921    | 1919    | 1919  | 1914    | 1909    | 1904    | 1899    |                                      | 1919-1923 <sup>1</sup> | 1921-1923 <sup>1</sup> | 1919-1921 <sup>1</sup> | 1914-1919 <sup>2</sup> | 1909-1914 | 1904-1909 | 1899-1904 |
| Iron and steel, nails and spikes, cut and wrought, including wire nails, not made in steel works or rolling mills | 2,840   | 2,412   | 3,355   | 3,355   | 2,644   | 2,765   | 3,681   | 4,477   | -36.4                                | -15.1                  | 18.1                   | -28.1                  | 26.9                   | -4.4      | -24.9     | -17.8     |
| Iron and steel, tempering and welding   | 1,376   | 1,210   | 1,762   | (10)  | (10)    | (10)    | (10)    | (10)    | 92.1                                 | -21.9                  | 13.7                   | -31.3                  |                        |           |           |           |
| Iron and steel, wrought pipe  | 10,633  | 8,728   | 10,426  | 10,426  | 8,845   | 6,617   | 5,416   | 5,536   |                                      | 2.0                    | 21.8                   | -16.3                  | 17.9                   | 29.7      | 25.9      | -2.2      |
| Ivory, shell, and bone work, not including combs and hairpins   | 603   | 674     | 833     | 842   | 795     | 907     | 1,769   | 1,334   | -54.3                                | -27.6                  | -10.5                  | -19.1                  | 5.0                    | -12.3     | -48.7     | 32.6      |
| Japanning   | 306   | 159     | 284     | 295   | 228     | 180     | 426     | 160     | 98.6                                 | 7.7                    | 92.5                   | -44.0                  | 29.4                   | 26.7      | -57.7     | 166.3     |
| Jewelry   | 26,354  | 23,492  | 30,704  | 30,871  | 28,289  | 30,347  | 22,080  | 20,468  | 29.4                                 | -14.2                  | 12.2                   | -23.5                  | 9.1                    | -6.8      | 37.4      | 7.9       |
| Jewelry and instrument cases  | 2,977   | 2,241   | 2,728   | 2,734   | 2,393   | 2,070   | 1,676   | 819     | 264.2                                | 9.1                    | 32.8                   | -17.9                  | 14.2                   | 15.6      | 23.5      | 104.6     |
| Jute goods  | 6,042   | 5,064   | 7,158   | 7,138   | 7,987   | 6,664   | 6,083   | 4,506   | 82.8                                 | 15.4                   | 6.7                    | -20.7                  | -10.6                  | 19.9      | 9.6       | 36.0      |
| Knit goods  | 194,244   | 161,880 | 172,469 | 172,672   | 160,520 | 129,275 | 104,092 | 83,691  | 132.2                                | 12.6                   | 20.0                   | -6.1                   | 14.7                   | 16.4      | 24.2      | 24.4      |
| Labels and tags   | 5,048   | 4,152   | 5,217   | 5,227   | 2,600   | 2,313   | 1,348   | 754     | 571.0                                | -3.2                   | 21.6                   | -20.4                  | 101.0                  | 12.4      | 71.6      | 73.8      |
| Lamps and reflectors  | 10,604  | 6,447   | 8,351   | 8,360   | 7,134   | 7,110   | 4,429   | 4,725   | 124.7                                | 27.0                   | 64.5                   | -22.8                  | 17.2                   | 3         | 60.5      | -6.3      |
| Lapidary work   | 644   | 399     | 1,145   | 1,155   | 584     | 627     | 507     | 498     | 30.3                                 | -43.8                  | 61.4                   | -65.2                  | 97.8                   | -6.9      | 23.7      | 1.8       |
| Lard, not made in slaughtering and meat-packing establishments  | (9)   | (9)     | 13      | 13  | 10      | (9)     | (9)     | (9)     |                                      |                        |                        |                        | -31.6                  |           |           |           |
| Lasts   | 2,258   | 2,618   | 2,904   | 2,910   | 2,094   | 1,728   | 1,208   | 1,131   | 100.2                                | -22.2                  | -13.6                  | -9.8                   | 39.0                   | 21.2      | 43.0      | 6.8       |
| Lead, bar, pipe, and sheet  | 861   | 882     | 852     | 852   | 585     | 802     | 646     | 605     | 42.3                                 | 1.1                    | -2.4                   | 3.5                    | 45.6                   | -27.1     | 24.1      | 6.8       |
| Leather goods, not elsewhere specified  | 7,882   | 8,557   | 8,904   | 8,945   | 7,071   | 7,681   | 7,785   | 6,293   | 25.8                                 | -11.5                  | -7.9                   | -3.9                   | 26.5                   | -7.9      | -1.3      | 23.7      |
| Leather, tanned, curried, and finished  | 59,703  | 48,955  | 73,465  | 72,476  | 55,936  | 62,202  | 57,239  | 52,109  | 14.6                                 | -17.6                  | 22.0                   | -32.4                  | 29.6                   | -10.1     | 8.7       | 9.8       |
| Lime  | 12,290  | 10,345  | 11,264  | 11,405  | 12,429  | 13,597  | 11,152  | 17,065  | 65.3                                 | 9.1                    | 18.8                   | -8.2                   | -8.2                   | -10.6     | 24.6      |           |
| Linen goods   | 2,880   | 2,519   | 1,890   | 1,890   | 3,567   | 3,473   | 3,811   | 3,283   | -12.2                                | 52.4                   | 14.3                   | 33.3                   | -47.0                  | -2        | 6.2       | 16.1      |
| Liquors, distilled  | 1,062   | 1,141   | 1,380   | 1,380   | 6,295   | 6,430   | 5,355   | 3,720   | -71.4                                | -71.4                  | -28.0                  | -6.9                   | -17.3                  | -78.1     | -2.1      | 20.1      |
| Liquors, malt, including cereal beverages   | 33,112,212  | 18,551  | 34,253  | 34,259  | 62,070  | 54,579  | 48,137  | 39,459  | -71.6                                | -67.3                  | -39.6                  | -45.8                  | -44.8                  | 13.7      | 13.4      | 22.0      |
| Liquors, vinous   | 515   | 415     | 976     | 1,011   | 2,292   | 1,911   | 1,913   | 1,163   | -54.1                                | -47.2                  | 24.1                   | -57.5                  | -55.9                  | 19.9      | -1        | 64.5      |
| Lithography   | 16,317  | 13,971  | 15,611  | 15,618  | 15,171  | 15,073  | 12,614  | 12,994  | 25.6                                 | 4.5                    | 16.8                   | -10.5                  | 2.9                    | 7         | 19.5      | -2.9      |
| Locomotives, not made by railroad companies   | 30,672  | 16,593  | 26,715  | 26,715  | 17,391  | 14,909  | 24,806  | 10,039  | -24.6                                | 14.8                   | 85.0                   | -37.9                  | 53.6                   | 16.6      | -39.9     |           |
| Looking-glass and picture frames  | 4,496   | 3,846   | 4,600   | 4,708   | 4,787   | 6,021   | 6,625   | 6,026   |                                      | -3.5                   | 16.9                   | -17.5                  | -1.7                   | -20.3     | -9.1      | 9.3       |
| Lubricating greases   | 603   | 420     | 470     | 472   | 478     | 173     | 119     | 127     | 376.9                                | 28.3                   | 43.6                   | -10.6                  | -                      | 8         | 170.5     | 47.9      |
| Lumber and timber products  | 493,932   | 364,247 | 469,297 | 480,945   | 479,786 | 547,178 | 404,563 | 413,257 | 23.0                                 | 5.7                    | 36.2                   | -22.4                  | 2                      | -12.3     | 35.8      | -2.1      |
| Lumber, planing-mill products, not including planing mills connected with sawmills                                | 103,008   | 78,033  | 86,382  | 86,956  | 96,214  | 112,592 | 97,674  | 73,510  | 41.0                                 | 19.2                   | 82.0                   | -9.7                   | -9.6                   | -14.4     | 15.1      | 32.9      |



TABLE 32.—AVERAGE NUMBER OF WAGE EARNERS EMPLOYED IN INDIVIDUAL INDUSTRIES, BY CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923—Continued

[See note at head of this table, p. 147]

| INDUSTRY   | AVERAGE NUMBER OF WAGE EARNERS  |         |         |   |         |         |        |        | PER CENT OF INCREASE OR DECREASE (-) |                        |           |                        |                        |           |           |           |       |
|--|---|---------|---------|---|---------|---------|--------|--------|--------------------------------------|------------------------|-----------|------------------------|------------------------|-----------|-----------|-----------|-------|
|  | Excluding data for establishments with products valued at less than \$5,000 |         |         | Including data for establishments with products valued at \$500 or more |         |         |        |        | 24-year period, 1899-1923            | Intercensal period     |           |                        |                        |           |           |           |       |
|  | 1923  | 1921    | 1919    | 1919  | 1914    | 1909    | 1904   | 1899   |                                      | 1919-1923 <sup>1</sup> | 1921-1923 | 1919-1921 <sup>1</sup> | 1914-1919 <sup>1</sup> | 1909-1914 | 1904-1909 | 1899-1904 |       |
| Pens, steel.....   | 476   | 872     | 807     | 807   | 573     | 699     | 663    | 473    | 5                                    | -41.1                  | 27.7      | -53.9                  | 40.8                   | -18.0     | 5.4       | 40.2      |       |
| Perfumery and cosmetics.....   | 7,761   | 6,838   | 5,343   | 5,405   | 2,897   | 2,376   | 2,082  | 1,764  | 345.2                                | 45.3                   | 9.3       | 86.6                   | 22.0                   | 14.1      | 18.0      |           |       |
| Petroleum refining.....  | 66,717  | 63,189  | 58,887  | 58,589  | 25,366  | 13,929  | 16,770 | 12,199 | 46.9                                 | 13.3                   | 5.6       | 7.3                    | 132.2                  | 82.1      | 16.9      | 37.5      |       |
| Phonographs and graphophones.....  | 20,491  | 17,938  | 28,714  | 28,721  | 9,381   | 5,199   | 3,397  | 1,267  | 1,518.6                              | -28.6                  | 14.2      | -37.5                  | 206.2                  | -80.4     | 53.0      | 168.1     |       |
| Photo-engraving, not done in printing establishments.....                                    | 8,521   | 6,971   | 6,746   | 6,769   | 6,211   | 5,343   | 3,876  | 2,691  | 217.6                                | 26.3                   | 22.2      | 3.3                    | 9.0                    | 16.2      | 37.8      | 44.0      |       |
| Photographic apparatus.....  | (*)   | (*)     | (*)     | 2,556   | 2,018   | 664     | 1,761  | 1,961  | 1,961                                | 26.7                   | -8.8      | -8                     | 118.6                  | 26.7      | 203.6     | -62.1     | -10.7 |
| Photographic materials.....  | 16,313  | 16,949  | 17,094  | 14,556  | 6,658   | 4,531   | 2,061  | 1,483  | 836.4                                | -4.6                   | -3.8      | -5                     | 118.6                  | 46.9      | 119.8     | 39.0      |       |
| Pickles, preserves, and sauces.....  | 16,356  | 13,061  | 16,555  | 16,521  | 12,590  | 9,550   | 8,511  | 7,235  | 113.4                                | -7.2                   | 17.0      | -21.1                  | 32.0                   | 31.8      | 12.2      | 17.8      |       |
| Pipes, tobacco.....  | 2,402   | 1,765   | 2,522   | 2,539   | 2,354   | 2,775   | 1,947  | 1,585  | 52.5                                 | -4.8                   | 36.1      | -30.0                  | 7.9                    | -15.2     | 42.5      | 22.8      |       |
| Plated ware.....   | 12,118  | 9,635   | 9,496   | 9,492   | 8,717   | 7,937   | 6,281  | 6,392  | 89.6                                 | -27.7                  | 27.1      | 5                      | 8.9                    | 9.4       | 26.8      | -1.7      |       |
| Plumbers' supplies, not elsewhere specified.....   | 27,201  | 16,670  | 13,585  | 13,592  | 18,479  | 19,257  | 10,753 | 8,024  | 239.1                                | 100.2                  | 63.2      | 22.7                   | -26.4                  | -4.0      | -79.1     | 34.0      |       |
| Pocketbooks.....   | 5,518   | 2,715   | 2,888   | 2,905   | 1,466   | 1,472   | 2,281  | 1,653  | 235.8                                | 91.1                   | 103.2     | -6.0                   | 98.2                   | -1.4      | -35.5     | 38.0      |       |
| Pottery.....   | 36,824  | 28,458  | 27,873  | 27,934  | 26,705  | 16,168  | 52,428 | 43,714 | 71.0                                 | 32.1                   | 29.4      | 2.1                    | 4.6                    | -4.0      | 7.1       | 19.9      |       |
| Poultry, killing and dressing, not done in slaughtering and meat-packing establishments..... | 1,510   | 2,255   | 1,100   | 2,140   | 1,353   | (*)     | (*)    | (*)    | 29.4                                 | 33.0                   | 5.4       | 58.2                   |                        |           |           |           |       |
| Printing and publishing, book and job.....   | 129,890   | 121,055 | 121,255 | 123,005   | 113,121 | 108,687 | 87,746 | 67,810 | 94.8                                 | -7.1                   | 7.3       | -2                     | 8.7                    | 4.1       | 23.9      | 29.8      |       |
| Printing and publishing, music.....  | 919   | 900     | 897     | 899   | 873     | 738     | 577    | 778    | 18.5                                 | 2.5                    | 2.1       | 3                      | 3.0                    | 1.3       | 27.9      | -25.8     |       |
| Printing and publishing, newspaper and periodical.....                                       | 115,646   | 107,534 | 115,102 | 120,381   | 114,375 | 108,672 | 96,857 | 94,604 | 27.8                                 | 5                      | 7.5       | -6.6                   | 5.3                    | 5.2       | 12.2      | 2.4       |       |
| Printing materials.....  | 660   | 816     | 716     | 723   | 423     | 535     | 857    | 560    | 1.0                                  | -21.8                  | -31.4     | -14.0                  | -70.9                  | -20.9     | 49.9      | -36.2     |       |
| Pulp, from fiber other than wood.....  | (*)   | (*)     | 64      | 64  | (*)     | (*)     | (*)    | 121    | 429.4                                | 20.3                   | -22.7     | 55.6                   | 83.9                   | 111.2     | 12.5      | 7         |       |
| Pulp goods.....  | 3,648   | 4,718   | 3,033   | 3,941   | 1,654   | 793     | 696    | 691    | 1.0                                  | -21.8                  | -31.4     | -14.0                  | 152.3                  | -1        | 52.1      | 122.2     |       |
| Pumps, not including power pumps.....  | (*)   | (*)     | (*)     | 2,134   | 2,134   | 2,136   | 1,404  | 632    | 429.4                                | 20.3                   | -22.7     | 55.6                   | 83.9                   | 111.2     | 12.5      | 7         |       |
| Pumps, steam and other power.....  | 14,556  | 12,186  | 16,054  | 10,688  | 6,188   | (*)     | (*)    | (*)    | 429.4                                | -9.4                   | 19.4      | -24.1                  | 12.7                   | 11.8      | 24.7      | 21.1      |       |
| Refrigerators.....   | 8,485   | 5,804   | 5,783   | 5,786   | 5,617   | 5,026   | 4,032  | 3,329  | 155.0                                | 46.7                   | 46.2      | 4                      | 3.0                    | 11.8      | 24.7      | 21.1      |       |
| Regalia, and society badges and emblems.....   | 2,146   | 2,204   | 2,213   | 2,223   | 2,010   | 2,638   | 2,498  | 1,569  | 37.4                                 | -3.0                   | -2.6      | 4                      | 10.6                   | -23.8     | 5.6       | 69.2      |       |
| Rice, cleaning and polishing.....  | 1,764   | 1,940   | 2,112   | 2,113   | 1,253   | 1,239   | 1,492  | 651    | 171.0                                | -16.5                  | -9.1      | -8.1                   | 68.6                   | -1.1      | -17.0     | 129.2     |       |
| Roofing materials.....   | 7,665   | 6,908   | 8,856   | 8,871   | 4,068   | 2,465   | 8,619  | 7,593  | 1.1                                  | -13.4                  | 11.0      | -22.0                  | 117.0                  | 65.9      | -72.0     | -16.1     |       |
| Rubber tires, tubes, and rubber goods, not elsewhere specified.....                          | 108,433   | 79,385  | 125,662 | 119,848   | 50,220  | 26,521  | 21,184 | 20,404 | 406.3                                | -13.7                  | 36.6      | -36.8                  | 138.6                  | 89.4      | 25.2      | 3.8       |       |
| Rules, ivory and wood.....   | 219   | 188     | 164     | 168   | 408     | 109     | 149    | 213    | 6.3                                  | 33.5                   | 16.5      | 14.6                   | -58.8                  | 274.3     | -26.8     | -30.0     |       |
| Saddlery and harness.....  | 6,617   | 4,489   | 10,024  | 10,411  | 12,909  | 14,632  | 15,032 | 14,364 | -52.1                                | -34.0                  | 47.4      | -65.2                  | -19.7                  | -1.4      | -2.7      | 4.7       |       |
| Safes and vaults.....  | 3,476   | 3,647   | 2,945   | 2,949   | 2,972   | 3,343   | 3,488  | 2,033  | 71.2                                 | 18.0                   | -2.0      | 20.4                   | -8                     | -11.1     | -4.2      | 71.6      |       |

|   |         |         |         |         |         |        |        |        |       |       |       |       |       |       |       |       |
|---|---------|---------|---------|---------|---------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|
| Salt.....   | 6,809   | 5,993   | 6,487   | 6,495   | 5,089   | 4,936  | 4,666  | 4,774  | 42.8  | 5.0   | 13.6  | -7.6  | 27.6  | 8.1   | 5.8   | -2.3  |
| Sand and emery paper and cloth.....   | 1,176   | 680     | 771     | 771     | 681     | 611    | 806    | 324    | 329.1 | 52.5  | 72.9  | -11.8 | 13.2  | 11.6  | 100.3 | 11.3  |
| Sand-lime brick.....  | 582     | 374     | 504     | 504     | 557     | (17)   | (17)   | (17)   | 15.5  | 55.6  | -25.8 | -9.5  |       |       |       |       |
| Sausage, not made in slaughtering and meat-packing establishments.....          | 4,592   | 3,872   | 3,449   | 3,471   | 2,244   | 1,915  | 1,265  | 878    | 427.3 | 32.4  | 18.6  | -12.5 | 54.7  | 17.2  | 51.4  | 44.1  |
| Saws.....   | 5,420   | 3,788   | 5,601   | 5,610   | 4,580   | 4,832  | 4,650  | 3,215  | 68.8  | -1.5  | 43.1  | -12.0 | 20.8  | -5.6  | 3.9   | 44.6  |
| Scales and balances.....  | 4,245   | 3,720   | 5,421   | 5,432   | 4,497   | 5,559  | 3,133  | 2,775  | 63.2  | -21.7 | 14.1  | -31.4 | 21.6  | 25.5  | 13.6  | 12.9  |
| Screws, machine.....  | 9,126   | 5,611   | 10,255  | 10,252  | 1,067   | 1,365  | 1,365  | 1,577  | 486.6 | -11.0 | 54.4  | -42.4 | 181.7 | 118.5 | -15.2 | 26.2  |
| Screws, wood.....   | 4,108   | 4,282   | 4,889   | 4,889   | 4,446   | 4,464  | 4,488  | 1,970  | 108.5 | -16.0 | 49.8  | -48.9 | 10.0  | 28.3  | 102.8 | 24.5  |
| Sewing-machine cases.....   | (4)     | (4)     | (4)     | (4)     | 4,171   | 3,699  | 4,079  | 4,450  | 2,653 |       |       |       |       |       |       |       |
| Sewing machines and attachments.....  | 13,435  | 12,509  | 19,228  | 15,059  | 14,308  | 15,217 | 12,671 | 10,712 | -1.5  | 30.1  | 6.9   | -34.8 | 12.8  | -9.8  | -8.3  | 67.7  |
| Shipbuilding, steel.....  | 51,961  | 93,323  | 344,011 | 344,014 | 83,508  | 28,143 | 30,742 | 30,906 | 68.1  | -84.9 | -44.3 | -72.9 | 626.7 | 19.1  | -23.4 | 18.9  |
| Shipbuilding, wooden, including boat building.....                              | 10,326  | 13,122  | 43,290  | 43,432  | 10,981  | 12,368 | 14,012 | 15,841 | -34.5 | -75.1 | -21.3 | -69.7 | 295.5 | -11.2 | -11.8 | -11.5 |
| Shirts.....   | 51,672  | 45,427  | 39,245  | 39,603  | 61,972  | 48,513 | 36,499 | 36,622 | 42.4  | 31.7  | 13.7  | 15.8  | -23.8 | 7.1   | 32.9  | —     |
| Show cases.....   | (5)     | (5)     | (5)     | 1,857   | 2,257   | 3,390  | 3,082  | (5)    | 1,363 |       |       |       | -17.7 | -33.4 | 10.0  | 126.1 |
| Signs and advertising novelties.....  | 12,988  | 10,373  | 10,317  | 10,432  | 9,566   | 5,540  | (5)    | 65,410 | 91.5  | -1.2  | 3.2   | -4.2  | 9.1   | 72.7  | 24.4  | 21.7  |
| Silk goods, including throwsters.....   | 125,234 | 121,379 | 126,715 | 126,782 | 108,170 | 99,037 | 79,601 | 85,813 | -14.5 | -23.0 | -6.0  | -19.1 | -8.7  | -18.2 | 7.7   | 47.6  |
| Silversmithing and silverware.....  | 4,972   | 5,287   | 6,453   | 6,453   | 7,070   | 8,643  | 8,580  | 8,580  | 94.2  | -17.5 | 13.5  | -27.3 | 62.9  | 12.6  | 18.5  | 8.4   |
| Slaughtering and meat packing.....  | 132,792 | 117,042 | 160,989 | 160,996 | 98,832  | 87,813 | 74,134 | 68,386 | 83.1  | 19.5  | 150.0 | -52.2 | -2.2  | 13.5  | 22.6  | 12.8  |
| Smelting and refining, copper.....  | 20,735  | 3,293   | 17,345  | 17,345  | 17,731  | 15,628 | 12,752 | 11,324 | 83.1  | -3.8  | 37.4  | -30.0 | -12.8 | -5    | -2.0  | -9.0  |
| Smelting and refining, lead.....  | 6,194   | 4,509   | 6,438   | 6,438   | 7,385   | 7,424  | 7,673  | 8,319  |       |       |       |       |       |       |       |       |
| Smelting and refining, metals, not elsewhere specified.....                     | 257     | 434     | 2,041   | 2,041   | (5)     | (5)    | (5)    | (5)    |       |       |       |       |       |       |       |       |
| Smelting and refining, not from the ore.....                                    | 1,587   | 1,200   | 2,167   | 2,167   | 2,585   | 2,147  | 1,712  | 983    | 61.3  | -28.8 | 32.3  | -44.6 | -16.2 | 20.4  | 25.4  | 74.2  |
| Smelting and refining, zinc.....  | 11,918  | 5,778   | 13,796  | 13,796  | 9,617   | 6,655  | 6,528  | 4,869  | 144.8 | -13.6 | 106.3 | -58.1 | 43.5  | 44.5  | 1.9   | 34.1  |
| Soap.....   | 17,002  | 10,558  | 20,404  | 20,430  | 14,172  | 12,999 | 11,044 | 9,487  | 70.4  | -16.7 | 2.7   | -18.8 | 44.2  | 9.0   | 17.7  | 16.4  |
| Soda-water apparatus.....   | 2,650   | 2,144   | 2,597   | 2,597   | 2,225   | 1,797  | 1,469  | 968    | 175.4 | 2.4   | 24.0  | -17.4 | 16.6  | 24.0  | 22.3  | 52.5  |
| Sporting and athletic goods.....  | 9,983   | 7,063   | 6,364   | 6,412   | 5,602   | 5,321  | 4,260  | 2,225  | 338.6 | 52.2  | 37.1  | 11.0  | 14.5  | 5.3   | 24.9  | 91.5  |
| Springs, steel, car and carriage, not made in steel works or rolling mills..... | 8,634   | 5,358   | 8,977   | 8,981   | 3,703   | 3,196  | 2,476  | 2,102  | 311.1 | -3.8  | 61.1  | -40.3 | 142.5 | -15.9 | 29.1  | 17.6  |
| Stamped and enameled ware, not elsewhere specified.....                         | 35,237  | 24,192  | 34,238  | 34,249  | 28,731  | 25,412 | 13,580 | 10,002 | 262.8 | 2.9   | 45.7  | -29.3 | 19.2  | 13.1  | 87.4  | 85.6  |
| Stationery goods, not elsewhere specified.....                                  | 13,314  | 11,285  | 11,247  | 11,261  | 7,728   | 6,206  | 4,295  | 3,032  | 339.7 | 48.4  | 18.0  | 3     | 45.7  | 24.5  | 44.5  | 41.7  |
| Statuary and art goods.....   | 1,807   | 1,634   | 1,428   | 1,428   | 1,968   | 1,699  | 1,507  | (5)    |       |       |       |       | 26.5  | 10.6  | 14.4  | 12.7  |
| Steam fittings and steam and hot-water heating apparatus.....                   | 44,141  | 30,808  | 36,879  | 36,898  | 26,388  | 23,378 | 11,600 | 9,252  | 377.0 | 20.3  | 43.3  | -16.0 | 39.0  | 12.9  | 100.0 | 28.4  |
| Steam packing.....  | 5,084   | 4,877   | 6,141   | 6,147   | 4,213   | 3,648  | 2,734  | 342.1  | -17.5 | 8.8   | -20.6 | 45.9  | 15.6  | 33.4  | 138.4 |       |
| Steel barrels, drums, and tanks, portable.....                                  | 2,668   | 2,013   | 3,322   | (10)    | (10)    | (10)   | (10)   | (10)   |       |       |       |       |       |       |       |       |
| Stencils and brands.....  | (20)    | (20)    | (20)    | 417     | 446     | 379    | 530    | 418    |       |       |       |       | -6.5  | 17.7  | -28.5 | 26.8  |
| Stereotyping and electrotyping.....   | 4,096   | 3,617   | 3,602   | 3,664   | 3,457   | 2,850  | 2,679  | 2,408  | 70.8  | 11.9  | 13.2  | -1.2  | 6.0   | 21.3  | 6.4   | 11.3  |
| Stoves and hot-air furnaces.....  | 33,029  | 24,530  | 32,860  | 32,868  | 29,535  | 32,118 | 29,728 | (10)   |       |       |       |       | 5     | 34.6  | 11.3  | -8.0  |
| Stoves, gas and oil.....  | 16,783  | 7,921   | 10,555  | 10,565  | 7,790   | 6,012  | 3,676  | 3,471  | 579.9 | 59.0  | 111.9 | -25.0 | 35.6  | 55.4  | 36.3  | 48.8  |
| Structural ironwork, not made in steel works or rolling mills.....              | 51,591  | 32,897  | 43,895  | 43,962  | 47,167  | 40,234 | 34,276 | 24,908 | 107.4 | 67.5  | 56.8  | -25.1 | -6.8  | 17.2  | 17.4  | 37.6  |
| Sugar, beet.....  | 7,871   | 13,802  | 11,781  | 11,781  | 7,997   | 7,204  | 3,963  | 1,970  | 284.5 | -35.7 | -44.3 | 15.5  | 47.3  | 11.6  | 61.8  | 101.2 |
| Sugar, cane.....  | 2,820   | 2,724   | 6,071   | 6,101   | 3,632   | 4,127  |        |        | -69.4 | -53.5 | 3.5   | -55.1 | 68.0  | -12.0 |       |       |
| Sugar, refining, not including beet sugar.....                                  | 15,254  | 15,457  | 18,202  | 18,202  | 11,253  | 9,399  | 13,549 | 14,120 | 130.2 | -16.2 | -1.3  | -15.1 | 61.8  | 19.7  | -2    | -4.1  |
| Sulphuric, nitric, and mixed acids.....   | 2,357   | 2,832   | 4,961   | 4,961   | 3,064   | 2,262  | 2,447  | 2,358  | 4     | -52.5 | -16.8 | -42.9 | 61.9  | 36.1  | -8.0  | 3.9   |
| Surgical appliances.....  | 5,375   | 4,310   | 6,341   | 6,390   | 4,282   | 3,809  | 2,811  | 1,689  | 262.1 | -15.2 | 24.7  | -32.0 | 49.2  | 12.4  | 35.5  | 82.7  |

See footnotes at end of Table 34, p. 177.



TABLE 32.—AVERAGE NUMBER OF WAGE EARNERS EMPLOYED BY INDIVIDUAL INDUSTRIES, BY CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923—Continued

[See note at head of this table, p. 147]

| INDUSTRY   | AVERAGE NUMBER OF WAGE EARNERS  |         |         |   |         |         |         |         | PER CENT OF INCREASE OR DECREASE (—) |                        |           |                        |                        |           |           |
|--|---|---------|---------|---|---------|---------|---------|---------|--------------------------------------|------------------------|-----------|------------------------|------------------------|-----------|-----------|
|  | Excluding data for establishments with products valued at less than \$5,000 |         |         | Including data for establishments with products valued at \$500 or more |         |         |         |         | 24-year period, 1899-1923            | Intercensal period     |           |                        |                        |           |           |
|  | 1923  | 1921    | 1919    | 1919  | 1914    | 1909    | 1904    | 1899    |                                      | 1919-1923 <sup>1</sup> | 1921-1923 | 1919-1921 <sup>2</sup> | 1914-1919 <sup>3</sup> | 1909-1914 | 1904-1909 |
| Suspenders, garters, and elastic woven goods.....    | 13,458  | 9,493   | 10,836  | 10,857  | 9,646   | 10,141  | (*)     | (*)     | .3                                   | -68.1                  | -63.6     | -12.4                  | 12.6                   | -4.9      |           |
| Textile machinery and parts.....                     | 35,672  | 31,025  | 31,792  | (10)  | (10)    | (10)    | (10)    | (10)    |                                      | 12.2                   | 15.0      | -2.4                   |                        |           |           |
| Theatrical scenery.....                              | 210   | 2,169   | 149     |   | 88      |         |         |         |                                      | 40.9                   | 24.3      | 13.4                   | 69.3                   |           |           |
| Tin and other foils, not elsewhere specified.....    | 3,323   | 2,178   | 1,903   | 1,908   | 1,081   | 883     | 766     | 582     | 472.3                                | 74.6                   | 52.6      | 14.4                   | 85.1                   | 51.0      | -10.9     |
| Tin plate and terneplate.....                        | (5)   | (7)     | 3,122   | 3,122   | 5,238   | 5,352   | 4,847   | 3,671   |                                      |                        |           |                        | -40.4                  | -2.1      | 10.4      |
| Tinware, not elsewhere specified.....                | 30,511  | 22,711  | 34,372  | 34,386  | 22,584  | 19,754  | 16,910  | (7)     |                                      | -11.2                  | 34.3      | -33.9                  | 52.3                   | 14.3      | 16.8      |
| Tobacco, chewing and smoking, and snuff.....         | 16,301  | 16,628  | 18,294  | 18,324  | 25,980  | 27,232  | 23,990  | 29,161  | -44.0                                | -10.9                  | -2.0      | -0.1                   | -29.5                  | -4.6      | 13.6      |
| Tobacco, cigars and cigarettes.....                  | 130,036   | 133,357 | 136,475 | 138,773   | 152,892 | 130,578 | 135,416 | 103,365 | 27.7                                 | -4.9                   | -2.5      | -2.4                   | -9.2                   | 9.5       | 3.1       |
| Tools, not elsewhere specified.....                  | 29,100  | 19,453  | 35,425  | 35,585  | 16,866  | 15,999  | 11,643  | 7,614   | 283.7                                | -17.9                  | 49.6      | -45.1                  | 111.0                  | 5.4       | 37.4      |
| Toys and games.....                                  | 14,484  | 9,448   | 14,086  | 14,201  | 7,887   | 5,305   | 4,330   | 3,316   | 340.3                                | 2.8                    | 53.3      | -32.9                  | 80.1                   | 48.7      | 22.3      |
| Trunks and valises.....                              | 11,441  | 8,712   | 11,404  | 11,470  | 9,811   | 11,122  | 9,091   | 6,964   | 65.2                                 | .3                     | 31.3      | -23.6                  | 15.7                   | -10.9     | 22.3      |
| Turpentine and rosin.....                            | 34,328  | 27,422  | 27,902  | 28,067  | 34,817  | 39,511  | 33,382  | 41,864  | -17.6                                | 23.0                   | 25.2      | -1.7                   | -19.4                  | -11.9     | 18.4      |
| Type founding.....                                   | 606   | 608     | 803     | 810   | 1,054   | 1,491   | 1,446   | 1,424   | -67.0                                | -24.5                  | -.3       | -3.2                   | -23.1                  | -29.3     | 3.1       |
| Typewriters and supplies.....                        | 14,963  | 13,381  | 15,647  | 15,669  | 11,091  | 9,578   | 6,232   | 4,340   | 245.1                                | -4.4                   | 11.8      | -14.5                  | 41.3                   | 15.8      | 53.7      |
| Umbrellas and canes.....                             | 3,776   | 3,149   | 3,348   | 3,368   | 4,792   | 5,472   | 5,386   | 5,640   | -32.7                                | 12.8                   | 19.9      | -5.9                   | -29.7                  | -12.4     | 1.6       |
| Upholstering materials, not elsewhere specified..... | 41,495  | 3,271   | 4,782   | 4,810   | 4,426   | 4,067   | 4,712   | 5,098   | -1.4                                 | 4.5                    | 52.7      | -31.6                  | 8.7                    | 8.8       | -13.7     |
| Varnishes.....                                       | 5,636   | 4,138   | 4,016   | 4,022   | 2,734   | 2,376   | 1,852   | 1,540   | 265.1                                | 40.3                   | 36.2      | 3.0                    | 47.1                   | 15.1      | 28.3      |
| Vault lights and ventilators.....                    | 296   | 246     | 311     | 316   | 601     | 527     | 222     | 158     | 118.0                                | -4.8                   | 20.8      | -21.2                  | -47.4                  | 33.8      | 47.3      |
| Vinegar and cider.....                               | 1,317   | 1,481   | 1,886   | 1,861   | 1,229   | 1,542   | 1,528   | 1,557   | -11.2                                | -30.2                  | -11.1     | -21.5                  | 61.2                   | -20.3     | 9         |
| Wall paper, not made in paper mills.....             | 5,412   | 3,988   | 4,263   | 4,262   | 4,738   | 4,037   | 3,913   | 4,172   | 29.8                                 | 27.0                   | 35.7      | -4.4                   | -10.0                  | 17.4      |           |
| Wall plaster and composition flooring.....           | 10,928  | 4,898   | 5,118   | 5,123   | 5,389   | 4,791   | 3,758   | (7)     |                                      | 81.5                   | 89.6      | -4.3                   | -4.9                   | 12.5      | 27.5      |
| Washing machines and clothes wringers.....           | 6,144   | 4,147   | 5,944   | 5,956   | 2,302   | 1,835   | 1,622   | 1,509   | 308.1                                | 3.4                    | 48.2      | -30.2                  | 158.7                  | 25.4      | 13.1      |
| Waste.....   | 2,745   | 1,863   | 2,681   | 2,686   | 2,966   | 1,897   | 1,559   | 1,081   | 152.1                                | 2.4                    | 47.3      | -30.6                  | -9.4                   | 56.4      | 21.7      |
| Watch and clock materials, except watch-cases.....   | 396   | 390     | 578     | 582   | 670     | 643     | 385     | 331     | 20.4                                 | -31.5                  | 1.5       | -32.5                  | -13.1                  | 4.2       | 67.0      |
| Watchcases.....                                      | 4,325   | 3,698   | 3,900   | 3,900   | 3,514   | 4,569   | 4,221   | 3,907   | 10.7                                 | 10.9                   | 17.0      | -5.2                   | 11.0                   | -23.1     | 8.2       |
| Watches.....   | 11,571  | 12,174  | 15,888  | 15,888  | 12,390  | 10,684  | 10,724  | 6,880   | 68.1                                 | -27.2                  | -5.0      | -23.4                  | 28.2                   | 16.0      | -4        |
| Wheelbarrows.....                                    | 369   | 228     | 291     | 291   | 223     | 664     | 584     | 321     | 15.0                                 | 26.8                   | 61.8      | -21.6                  | -9.9                   | -51.4     | 13.7      |
| Whips.....   | 200   | 292     | 713     | 717   | 1,163   | 1,546   | 1,554   | 1,287   | -84.4                                | -72.0                  | -31.5     | -58.0                  | -38.3                  | -24.8     | -5        |
| Windmills.....                                       | 1,101   | 1,383   | 1,930   | 1,932   | 1,955   | 2,337   | 1,929   | 2,045   | -48.1                                | -43.0                  | -20.4     | -28.3                  | -1.2                   | -16.3     | 21.2      |
| Window and door screens and weather strips.....      | 3,687   | 2,129   | 2,149   | 2,179   | 3,194   | (*)     | (*)     | (*)     |                                      | 71.6                   | 73.2      | -9                     | -31.8                  |           | -5.7      |

|  |         |         |         |         |         |         |         |         |         |       |       |       |       |       |       |       |
|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------|-------|-------|-------|-------|-------|-------|
| Window shades and fixtures.....            | 4,957   | 3,781   | 4,380   | 4,411   | 4,077   | 3,930   | 2,624   | 1,801   | 233.1   | 36.0  | 57.0  | -13.7 | 8.2   | 8.7   | 49.8  | 45.7  |
| Wire.....                                  | 31,310  | 14,832  | 19,741  | 19,741  | 17,600  | 18,084  | 4,737   | 1,603   | -----   | 7.9   | 43.7  | -24.9 | 12.2  | -2.7  | 281.8 | 195.5 |
| Wirework, not elsewhere specified.....     | 16,783  | 11,485  | 15,138  | 15,224  | 12,126  | 12,348  | 13,379  | 9,142   | 84.6    | 10.9  | 46.1  | -24.1 | 25.5  | -1.8  | -7.7  | 46.3  |
| Wood distillation.....                     | 4,022   | 1,891   | 4,940   | 4,946   | 2,782   | 2,721   | 2,272   | 1,656   | 153.8   | -18.6 | 116.1 | -62.3 | 77.8  | 2.2   | 19.8  | 46.0  |
| Wood preserving.....                       | 6,520   | 4,153   | 3,978   | 3,978   | 2,830   | 2,403   | 737     | 478     | 1,204.0 | 68.9  | 57.0  | 4.4   | 40.6  | 17.6  | 238.1 | 54.2  |
| Wood, turned and carved.....               | 11,236  | 9,144   | 10,528  | 10,649  | 11,615  | 14,139  | 14,637  | 11,558  | -1.3    | 7.2   | 23.4  | -13.1 | -3.3  | -17.9 | -3.7  | 27.1  |
| Wooden goods, not elsewhere specified..... | 5,727   | 5,492   | 6,402   | 6,443   | 6,418   | 6,780   | 6,594   | 3,208   | 79.9    | -10.5 | 4.3   | -14.2 | ----- | -5.3  | 2.8   | 105.7 |
| Wool pulling.....                          | 696     | 552     | 705     | 705     | 708     | 631     | 681     | 475     | 46.5    | -1.3  | 26.1  | -21.7 | ----- | 12.2  | -7.3  | 43.4  |
| Wool scouring.....                         | 1,473   | 1,536   | 1,177   | 2,177   | 1,059   | 1,142   | 779     | 720     | 104.7   | -32.8 | -4.1  | -29.4 | 105.6 | -7.3  | 46.6  | 8.2   |
| Wool shoddy.....                           | 2,128   | 1,170   | 2,551   | 2,566   | 2,145   | 2,041   | 2,089   | 1,926   | 11.1    | -16.6 | 81.9  | -54.1 | 19.6  | 5.1   | -2.3  | 8.5   |
| Woolen and worsted goods.....              | 194,562 | 162,364 | 166,757 | 166,737 | 158,692 | 163,192 | 141,998 | 125,901 | 64.6    | 16.7  | 19.8  | -2.6  | 6.1   | -2.8  | 14.9  | 12.8  |

See footnotes at end of Table 34, p. 177.

TABLE 33.—AMOUNT OF PRIMARY HORSEPOWER INSTALLED IN INDIVIDUAL INDUSTRIES, BY CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923

[No data in regard to prime movers were collected for 1921. As to the comparability of 1921 and 1923 figures with those of previous years, see general remarks preceding tables, pars. 2 and 4, pp. 124 and 125]

| INDUSTRY  | PRIMARY HORSEPOWER                                  |                     |   |                   |                   |                   |                   | PER CENT OF INCREASE OR DECREASE (-) |                        |                        |           |           |           |
|---|---|---------------------|---|-------------------|-------------------|-------------------|-------------------|--------------------------------------|------------------------|------------------------|-----------|-----------|-----------|
|   | Excluding data for rented power other than electric |                     | Including data for rented power other than electric |                   |                   |                   |                   | 24-year period, 1899-1923            | Intercensal period     |                        |           |           |           |
|   | 1923  | 1919                | 1919  | 1914              | 1909              | 1904              | 1899              |                                      | 1918-1923 <sup>1</sup> | 1914-1919 <sup>2</sup> | 1909-1914 | 1904-1909 | 1899-1904 |
| All industries.....   | 33,064,228  | 29,327,669          | 29,504,792  | 22,437,072        | 18,675,376        | 13,487,707        | 10,097,893        | 229.6                                | 12.8                   | 31.5                   | 20.1      | 38.5      | 33.6      |
| Agricultural implements.....  | 121,975   | 128,249             | 128,249   | 121,428           | 100,601           | 89,738            | 70,646            | 72.6                                 | -4.9                   | 5.6                    | 20.7      | 12.1      | 27.0      |
| Airplanes, seaplanes, airships, and parts.....                                      | <sup>1</sup> 5,443                                  | <sup>1</sup> 12,512 | <sup>1</sup> 12,512                                 | 195               | ( <sup>3</sup> )  | ( <sup>3</sup> )  | ( <sup>3</sup> )  | -56.6                                | 6,316.4                |                        |           |           |           |
| Aluminum manufactures.....  | 58,272  | 30,280              | 30,280  | 12,339            | ( <sup>3</sup> )  | ( <sup>3</sup> )  | ( <sup>3</sup> )  | 92.4                                 | 145.4                  |                        |           |           |           |
| Ammunition.....   | 23,172  | 39,128              | 39,128  | 11,354            | 10,317            | 5,058             | 2,980             | 677.3                                | -40.8                  | 244.6                  | 10.1      | 104.1     | 69.7      |
| Artificial flowers.....   | 847   | 468                 | 468   | 237               | 167               | 184               | 113               | 949.7                                | 81.0                   | 97.6                   | 41.9      | -9.2      | 62.8      |
| Artificial limbs.....   | 692   | 857                 | 857   | 589               | 582               | 188               | 95                | 628.0                                | -19.3                  | 45.5                   | 1.2       | 209.6     | 97.9      |
| Artificial stone products.....  | 30,748  | 22,178              | 22,221  | 20,326            | 12,185            | 2,776             | ( <sup>3</sup> )  |                                      | 38.6                   | 9.3                    | 66.8      | 338.6     |           |
| Artists' materials.....   | 4,902   | 3,206               | 3,206   | 1,977             | 1,628             | 568               | 289               | 1,696.1                              | 52.9                   | 62.2                   | 21.4      | 180.6     | 96.5      |
| Asbestos products, not including steam packing.....                                 | <sup>1</sup> 26,855                                 | <sup>1</sup> 9,657  | <sup>1</sup> 9,657                                  | 2,877             | ( <sup>3</sup> )  | ( <sup>3</sup> )  | ( <sup>3</sup> )  |                                      | 178.1                  | 235.7                  |           |           |           |
| Automobile bodies and parts.....  | 463,080   | 256,770             | 256,919   | 68,701            | 24,909            | 2,455             | ( <sup>3</sup> )  |                                      | 80.3                   | 274.0                  | 175.8     | 902.4     |           |
| Automobile repairing.....   | ( <sup>3</sup> )                                    | 82,691              | 10,880  | ( <sup>10</sup> ) | ( <sup>10</sup> ) | ( <sup>10</sup> ) | ( <sup>10</sup> ) |                                      |                        | 404.8                  |           |           |           |
| Automobiles.....  | 435,545   | 282,323             | 287,323   | 104,983           | 50,641            | 7,024             | 3,104             | 19,912.0                             | 54.3                   | 173.7                  | 107.3     | 564.2     | 141.0     |
| Awnings, tents, and sails.....  | 4,728   | 4,371               | 4,589   | 2,610             | 2,022             | 1,105             | 921               | 411.2                                | 3.4                    | 75.8                   | 29.1      | 63.0      | 20.0      |
| Babbit metal and solder.....  | 4,004   | 6,020               | 6,022   | 2,881             | 2,293             | 1,138             | 999               | 300.9                                | -33.5                  | 109.0                  | 25.6      | 101.6     | 13.9      |
| Bags, other than paper, not including bags made in textile mills.....               | 13,852  | 9,076               | 9,082   | 10,392            | 6,855             | 4,822             | 1,755             | 689.7                                | 52.6                   | -12.6                  | 51.6      | 51.6      | 157.7     |
| Bags, paper, exclusive of those made in paper mills.....                            | 6,108   | 4,429               | 4,429   | 3,682             | 3,886             | 2,927             | 2,148             | 184.3                                | 37.9                   | 20.3                   | -5.2      | 32.7      | 36.3      |
| Baking powders and yeast.....   | 35,845  | 20,071              | 20,071  | 7,662             | 3,335             | 2,965             | 2,446             | 1,365.6                              | 78.6                   | 155.3                  | 135.7     | 12.5      | 21.2      |
| Baskets, and rattan and willow ware.....  | 11,474  | 6,319               | 6,319   | 7,203             | 7,196             | 5,252             | 5,997             | 91.4                                 | 81.6                   | -13.4                  | 1.3       | 15.1      | 4.3       |
| Bells.....  | 426   | 783                 | 783   | 787               | 575               | 516               | 1,077             | -60.5                                | -45.6                  |                        | 36.9      | 11.4      | -52.1     |
| Belting and hose, rubber.....   | ( <sup>11</sup> )                                   | ( <sup>11</sup> )   | 26,299  | 22,995            | 17,471            | 12,343            | 5,317             |                                      |                        | 14.4                   | 31.6      | 41.5      | 132.1     |
| Belted and hose, woven, other than rubber.....                                      | 936   | 5,301               | 5,338   | 2,750             | 3,078             | 2,995             | 216.7             |                                      | -82.5                  | 93.7                   | -10.4     | 167.9     | 289.2     |
| Belted, leather.....  | 9,076   | 7,012               | 7,039   | 7,411             | 6,638             | 3,220             | 2,162             | 321.3                                | 29.4                   | -6.0                   | 31.4      | 75.1      | 48.9      |
| Billiard tables, bowling alleys, and accessories.....                               | 2,897   | 5,261               | 5,322   | 3,213             | 2,642             | 631               | 277               | 958.6                                | -44.9                  | 65.6                   | 21.6      | 318.7     | 127.8     |
| Blacking, stains, and dressings.....  | 2,792   | 2,446               | 2,480   | 2,636             | 2,234             | 1,905             | 1,230             | 180.9                                | 14.1                   | -5.6                   | 18.0      | 17.3      | 54.3      |
| Bluing.....   | 296   | 423                 | 423   | 220               | 294               | 116               | 155.3             |                                      | -80.0                  | 92.3                   | -9.1      | -14.8     | 144.3     |
| Bone, carbon, and lamp black.....   | 5,567   | 1,867               | 1,867   | 1,816             | 1,023             | 1,683             | 366               | 1,425.4                              | 198.8                  | 2.8                    | 77.5      | -5.7      | 197.8     |
| Bookbinding and blank-book making.....  | 15,539  | 11,097              | 11,123  | 11,266            | 10,069            | 5,671             | 4,689             | 234.0                                | 40.8                   |                        |           |           |           |
| Boot and shoe cut stock, exclusive of that produced in boot and shoe factories..... | 6,963   | 8,448               | 9,003   | 6,829             | 4,769             | 4,519             | 3,202             | 131.7                                | -17.6                  | 31.8                   | 43.2      | 5.8       | 41.1      |

|  |         |         |         |         |         |         |         |         |       |       |       |         |       |
|--|---------|---------|---------|---------|---------|---------|---------|---------|-------|-------|-------|---------|-------|
| Boat and shoe findings, exclusive of those produced in boot and shoe factories.....    | 12,825  | 9,970   | 10,682  | 5,869   | 5,637   | 2,229   | 2,849   | 383.2   | 28.6  | 82.0  | 4.1   | 74.6    | 13.6  |
| Boots and shoes, not including rubber boots and shoes.....                             | 128,550 | 115,886 | 120,832 | 100,232 | 85,896  | 58,220  | 49,444  | 170.6   | 10.9  | 20.4  | 16.7  | 52.9    | 12.7  |
| Boots and shoes, rubber.....   | 56,184  | 49,400  | 49,400  | 24,621  | 25,903  | 26,084  | 25,017  | 124.6   | 13.7  | 100.6 | -4.9  | -7.7    | -4.3  |
| Boxes, cigar.....  | 6,054   | 5,009   | 5,069   | 6,550   | 6,049   | 6,548   | 4,274   | 43.1    | 20.9  | -5.4  | -11.6 | 9.0     | 28.8  |
| Boxes, paper and other, not elsewhere specified.....                                   | 61,687  | 54,675  | 54,955  | 38,179  | 23,323  | 16,117  | 9,286   | 567.6   | 12.8  | 43.9  | 63.7  | 54.3    | 62.8  |
| Boxes, wooden packing, except cigar boxes.....   | 149,410 | 143,583 | 144,048 | 126,805 | 112,498 | 85,951  | 54,724  | 174.0   | -4.1  | 13.6  | 12.7  | 30.9    | 57.1  |
| Brass, bronze, and copper products.....  | 305,839 | 265,373 | 265,688 | 122,700 | 106,120 | 69,494  | 47,257  | 547.7   | 16.6  | 116.8 | 15.6  | 52.7    | 47.1  |
| Bread and other bakery products.....   | 193,186 | 185,711 | 165,990 | 107,771 | 65,288  | 37,241  | 22,472  | 761.1   | 16.6  | 54.0  | 65.0  | 75.3    | 65.7  |
| Brick and tile, terra-cotta, and fire-clay products.....                               | 480,576 | 408,157 | 405,746 | 442,813 | 241,169 | 256,362 | 176,700 | 101.7   | 18.6  | -8.4  | ..... | 33.6    | 44.5  |
| Brooms.....  | 4,960   | 6,037   | 6,062   | 4,504   | 3,833   | .....   | .....   | .....   | -17.8 | 84.6  | 17.6  | .....   | ..... |
| Brushes.....   | 10,276  | 7,307   | 7,384   | 6,388   | 4,967   | 6,441   | 4,482   | .....   | 40.6  | 15.8  | ..... | 36.6    | 43.7  |
| Butter.....  | 128,351 | 94,962  | 95,190  | 91,628  | 78,128  | 77,623  | 88,062  | 43.9    | 33.1  | 3.9   | 17.3  | .....   | -12.0 |
| Butter, reworking.....   | (1)     | 343     | 343     | 1,349   | 1,471   | 1,684   | 681     | .....   | ..... | -74.6 | -8.2  | -12.6   | 164.9 |
| Buttons.....   | 15,384  | 15,706  | 16,201  | 14,398  | 12,831  | 6,982   | 4,166   | 280.8   | -2.1  | 12.8  | 12.2  | 88.8    | 67.6  |
| Candles.....   | 912     | 597     | 597     | 439     | 799     | 931     | (1)     | .....   | 62.8  | 36.0  | -45.1 | -14.2   | ..... |
| Canning and preserving, fish.....  | 16,061  | 24,805  | 24,865  | 10,966  | 6,969   | 4,877   | 4,224   | 280.9   | -85.3 | 126.7 | 67.4  | 42.9    | 16.5  |
| Canning and preserving, fruits and vegetables.....                                     | 138,997 | 132,247 | 132,422 | 88,303  | 69,900  | 44,499  | 26,906  | 417.3   | 8.1   | 60.0  | 47.8  | 34.7    | 65.4  |
| Canning and preserving, oysters.....   | 1,687   | 1,025   | 1,025   | 1,895   | 1,423   | 1,232   | 922     | 72.1    | 54.8  | -45.9 | 33.2  | 15.6    | 34.6  |
| Card cutting and designing.....  | 1,262   | 743     | 743     | 449     | 269     | 222     | 219     | 476.5   | 69.9  | 65.5  | 68.9  | 21.2    | 1.4   |
| Cardboard, not made in paper mills.....  | 2,354   | 3,251   | 3,276   | 2,735   | 1,540   | 1,033   | 825     | 187.8   | -27.8 | 19.8  | 77.6  | 49.1    | 25.2  |
| Carpets and rugs, other than rag.....  | 53,852  | 37,593  | 38,170  | 43,963  | 38,553  | 33,945  | 29,740  | 104.5   | 43.3  | -13.2 | 14.0  | 13.6    | 28.9  |
| Carpets, rag.....  | 2,687   | 2,659   | 2,674   | 2,722   | 2,651   | 1,667   | 1,599   | 384.3   | -2.7  | -1.8  | 2.7   | 59.0    | 178.3 |
| Carriage and wagon materials.....  | 10,647  | 23,672  | 23,700  | 38,215  | 47,247  | 43,185  | 32,016  | -66.7   | -55.0 | -98.0 | -19.1 | 9.6     | 34.7  |
| Carrriages and sleds, children's.....  | 9,378   | 6,071   | 6,071   | 5,652   | 5,281   | 3,633   | 2,462   | 280.8   | 54.4  | 7.4   | 7.0   | 45.4    | 47.6  |
| Carrriages and wagons, including repairs <sup>16</sup> .....                           | 25,064  | 40,316  | 40,966  | 74,334  | 78,786  | 63,024  | 51,755  | -50.8   | -87.9 | -44.9 | -5.6  | 25.0    | 21.8  |
| Cars and general shop construction and repairs by electric-railroad companies.....     | 62,370  | 53,805  | 53,830  | 44,989  | 35,794  | 3,154   | 6,443   | 868.3   | 15.9  | 19.7  | 25.7  | 1,034.9 | -51.0 |
| Cars and general shop construction and repairs by steam-railroad companies.....        | 744,065 | 591,070 | 594,515 | 433,994 | 298,361 | 167,973 | 95,087  | 687.1   | 28.9  | 37.0  | 47.9  | 74.6    | 76.7  |
| Cars, electric-railroad, not including operations of railroad companies.....           | 10,028  | 9,390   | 9,390   | 10,014  | 15,161  | 7,054   | 4,865   | 106.1   | 6.8   | -6.2  | -33.9 | 114.9   | 45.0  |
| Cars, steam-railroad, not including operations of railroad companies.....              | 240,074 | 167,790 | 157,865 | 126,687 | 97,797  | 55,994  | 33,395  | 619.0   | 52.1  | 24.6  | 29.5  | 74.7    | 67.7  |
| Cash registers and calculating machines.....   | 29,872  | 14,045  | 14,660  | 10,619  | 6,944   | 4,139   | 1,340   | 2,130.2 | 104.0 | 38.0  | 52.9  | 67.8    | 208.9 |
| Cement.....  | 642,840 | 488,808 | 488,808 | 490,402 | 371,799 | 149,604 | (1)     | 670.0   | 31.5  | 3     | 31.9  | 148.6   | ..... |
| Charcoal, not including production in the lumber and wood distillation industries..... | 134     | 132     | 132     | 134     | 165     | 355     | 164     | -18.3   | 1.5   | -1.5  | ..... | -53.5   | 116.5 |
| Cheese.....  | 22,315  | 24,411  | 24,500  | 19,219  | 11,638  | 10,366  | (1)     | .....   | -8.9  | 27.8  | 65.1  | 12.3    | ..... |
| Chemicals <sup>15</sup> .....  | 594,228 | 378,884 | 445,282 | 282,385 | 208,657 | 132,394 | 90,428  | 676.8   | 57.7  | 57.7  | 35.3  | 57.6    | 46.4  |
| Chewing gum.....   | 6,905   | 6,172   | 6,178   | 3,030   | (2)     | (2)     | (2)     | .....   | 11.9  | 103.9 | ..... | .....   | ..... |
| China decorating, not including that done in potteries.....                            | 40      | 43      | 43      | 23      | 18      | 6       | (1)     | .....   | ..... | 87.0  | 27.8  | 200.0   | ..... |
| Chocolate and cocoa products.....  | 37,197  | 33,414  | 33,440  | 19,736  | 10,593  | 5,217   | 2,756   | 1,613.3 | 41.2  | 69.4  | 86.3  | 103.0   | 89.3  |
| Cleansing and polishing preparations.....  | 6,698   | 4,510   | 4,520   | 2,556   | 1,743   | 803     | 643     | 944.0   | 48.5  | 64.8  | 46.6  | -117.1  | 24.9  |
| Clocks.....  | 8,285   | 6,952   | 6,952   | 6,011   | 5,608   | 4,532   | 3,496   | 137.7   | 19.2  | 15.7  | 7.2   | 23.7    | 30.0  |
| Cloth, sponging and refinishing.....   | 911     | 927     | 927     | 794     | 704     | 322     | 109     | 758.6   | ..... | -7.7  | -24.0 | 8.5     | 118.6 |
| Clothing, horse.....   | 2,900   | 1,577   | 1,577   | 1,903   | 1,454   | 656     | 371     | 970.1   | 82.9  | -17.1 | 30.9  | 121.6   | 142.1 |
| Clothing, men's.....   | 52,642  | 40,198  | 40,577  | 35,684  | 30,069  | 21,106  | 13,347  | 298.2   | 31.0  | 13.8  | 18.6  | 42.6    | 58.1  |
| Clothing, men's, buttonholes.....  | 105     | 176     | 189     | 205     | 176     | 137     | 113     | .....   | -1    | -40.3 | -7.8  | 16.5    | 28.6  |
| Clothing, women's.....   | 27,704  | 32,421  | 32,622  | 28,396  | 22,294  | 14,916  | 9,962   | 180.0   | -14.6 | 14.9  | 27.4  | 49.6    | 49.7  |

See footnotes at end of Table 34, p. 177.

TABLE 33.—AMOUNT OF PRIMARY HORSEPOWER INSTALLED IN INDIVIDUAL INDUSTRIES, BY CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923—Continued

[See note at head of this table, p. 158]

| INDUSTRY   | PRIMARY HORSEPOWER                                  |           |   |           |           |         | PER CENT OF INCREASE OR DECREASE (-) |                    |           |           |           |           |           |
|--|---|-----------|---|-----------|-----------|---------|--------------------------------------|--------------------|-----------|-----------|-----------|-----------|-----------|
|  | Excluding data for rented power other than electric |           | Including data for rented power other than electric |           |           |         | 24-year period, 1899-1923            | Intercensal period |           |           |           |           |           |
|  | 1923  | 1919      | 1919  | 1914      | 1909      | 1904    |                                      | 1899               | 1919-1923 | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |
| Coal-tar products  | 75,099  | 68,839    | (1)   | (1)       | (1)       | (1)     | (1)                                  | 9.9                | 25.8      | 11.7      | 19.3      | 42.2      | -3.5      |
| Coffee and spice, roasting and grinding                                | 37,358  | 29,706    | 29,750  | 26,634    | 22,384    | 15,703  | 16,270                               | 130.1              | 208.4     | 17.6      | 15.3      | 25.1      | 47.6      |
| Coffins, burial cases, and undertakers' goods                          | 27,340  | 22,190    | 22,345  | 19,006    | 16,490    | 13,178  | 8,927                                | 208.4              | 47.9      | 92.0      | 87.1      | -6.1      | 91.8      |
| Coke, not including gas-house coke                                     | 332,560   | 224,879   | 224,879   | 117,127   | 62,502    | 66,669  | 84,767                               | 856.6              | 119.7     | 4.3       | 35.7      | 20.5      | 37.0      |
| Collars and cuffs, men's   | 5,050   | 6,276     | 5,286   | 8,896     | 3,234     | 2,360   | 2,302                                | 119.7              | 138.6     | 20.8      | -35.1     | 230.6     | 54.6      |
| Combs and hairpins, not made from metal or rubber                      | 1,919   | 1,588     | 1,600   | 2,711     | 4,175     | 1,293   | 817                                  | 138.6              | -1.8      | 145.7     | 72.7      | 94.6      | 25.2      |
| Condensed milk   | 49,300  | 49,178    | 49,181  | 20,015    | 11,688    | 5,956   | (1)                                  | 1,247.6            | 45.4      | 82.8      | 174.3     | 47.7      | 27.1      |
| Confectionery and ice cream  | 261,185   | 179,682   | 179,891   | 98,393    | 35,870    | 24,292  | 19,410                               | 1,247.6            | 9.2       | -19.8     | -10.2     | 9.0       | 27.1      |
| Cooperage  | 33,519  | 30,688    | 30,688  | 38,290    | 42,636    | 39,110  | 30,760                               | 0.0                | 41.9      | 13.0      | 13.3      | 68.4      | -8.5      |
| Copper, tin, and sheet-iron work                                       | 24,243  | 24,130    | 24,144  | 21,357    | 18,847    | 11,195  | 12,232                               | 180.1              | 8.7       | 20.3      | 17.2      | 15.2      | 21.9      |
| Cordage and twine  | 72,371  | 66,556    | 66,643  | 55,377    | 47,269    | 41,041  | 33,657                               | 115.2              | 329.7     | 53.5      | 79.4      | 47.6      | 36.5      |
| Cordials and flavoring sirups  | 13,651  | 3,177     | 3,177   | 2,070     | 1,164     | 782     | 573                                  | 2,282.7            | 17.5      | 49.3      | 55.2      | 44.7      | 65.6      |
| Cork, cutting  | 10,052  | 8,566     | 8,683   | 5,814     | 3,746     | 2,889   | 1,563                                | 652.7              | -15.2     | 1.4       | 54.0      | 39.5      | -9.7      |
| Corsets  | 5,901   | 6,956     | 7,166   | 7,057     | 4,681     | 3,284   | 3,638                                | 66.8               | 17.3      | 17.6      | 22.5      | 31.4      | 24.0      |
| Cotton goods   | 2,153,299   | 1,836,298 | 1,840,201   | 1,566,757 | 1,286,105 | 979,109 | 789,858                              | 175.5              | 5.1       | -2.2      | 2.5       | 38.9      | 25.4      |
| Cotton lace  | 9,545   | 9,078     | 9,080   | 9,080     | 10,412    | 10,412  | 7,495                                | 5,076              | -39.3     | 210.2     | 7.2       | 80.1      | -17.5     |
| Cotton small wares   | 31,926  | 14,085    | 14,085  | 10,102    | 827       | 816     | 760                                  | 116.8              | 12.0      | 12.0      | 7.9       | -8        | 22.5      |
| Crucibles  | 1,647   | 2,714     | 2,714   | 34,781    | 32,228    | 32,432  | 26,475                               | 64.9               | 21.7      | 1.0       | 68.7      | 72.7      | 196.8     |
| Cutlery and edge tools   | 43,171  | 38,555    | 38,958  | 11,639    | 6,898     | 3,944   | (1)                                  | 898.1              | 87.8      | 44.9      | 116.6     | -22.3     | 156.8     |
| Dairymen's, poultrymen's, and apiarists' supplies                      | 14,308  | 11,756    | 11,756  | 11,639    | 6,898     | 3,944   | (1)                                  | 26.3               | 35.3      | 49.7      | 15.9      | -39.0     |           |
| Dental goods   | 3,731   | 2,708     | 2,716   | 1,674     | 895       | 1,113   | 375                                  | 898.1              | -11.2     | -50.9     | -12.1     | 57.0      | 60.0      |
| Dental goods   | 4,958   | 6,723     | 6,725   | 4,972     | 3,322     | 2,666   | 4,697                                | 8.5                | 27.7      | 23.2      | 20.8      | 27.0      | 22.6      |
| Drug grinding  | 4,958   | 6,723     | 6,725   | 4,972     | 3,322     | 2,666   | 4,697                                | 8.5                | -4.3      | 47.4      | 4.8       | 25.7      | 54.9      |
| Druggists' preparations  | 11,255  | 12,670    | 12,698  | 8,417     | 9,580     | 6,102   | 3,813                                | 195.7              | 9.6       | 92.7      | 43.4      | 50.7      | 141.3     |
| Dyeing and finishing textiles, exclusive of that done in textile mills | 204,128   | 159,857   | 160,430   | 130,172   | 107,746   | 84,868  | 69,238                               | 195.9              | 40.0      | 21.1      | 31.0      | 72.4      | -11.8     |
| Dye-stuffs and extracts, natural                                       | 32,833  | 34,295    | 34,320  | 23,290    | 22,213    | 17,671  | 11,409                               | 187.9              | -11.1     | 216.2     | 2.4       | 103.8     | 88.2      |
| Electrical machinery, apparatus, and supplies                          | 480,208   | 438,082   | 438,839   | 227,731   | 168,768   | 105,376 | 43,674                               | 1,001.3            | 114.4     | -27.6     | 1.0       | -78.7     | 151.5     |
| Electroplating   | 9,505   | 6,788     | 7,078   | 5,845     | 4,461     | 2,588   | 2,933                                | 237.8              | -13.1     | 201.4     | 13.5      | 38.8      | -4        |
| Emery and other abrasive wheels  | 11,530  | 12,963    | 12,963  | 4,100     | 4,005     | 1,965   | 1,044                                | 1,003.9            | 13.5      | 38.8      | -4        | 308.7     | 28.6      |
| Enameling  | 2,526   | 1,178     | 1,183   | 1,626     | 1,619     | 7,604   | 3,024                                | -16.2              | 13.5      | 38.8      | -4        | 308.7     | 28.6      |
| Engines, steam, gas, and water   | 166,137   | 190,005   | 190,021   | 63,047    | (1)       | (1)     | (1)                                  | 720.5              | 13.5      | 38.8      | -4        | 308.7     | 28.6      |
| Engravers' materials   | 832   | 733       | 769   | 547       | 549       | 136     | 105                                  | 720.5              | 13.5      | 38.8      | -4        | 308.7     | 28.6      |

|   |           |           |           |         |         |         |         |         |       |       |       |       |       |
|---|-----------|-----------|-----------|---------|---------|---------|---------|---------|-------|-------|-------|-------|-------|
| Engraving and diesinking  | 2,845     | 1,750     | 1,760     | 1,092   | 768     | 1,032   | 616     | 282.8   | 34.0  | 61.2  | 42.2  | -26.6 | 67.5  |
| Engraving, steel and copperplate, including plate printing            | 5,788     | 5,358     | 5,420     | 5,670   | 2,732   | 1,291   | 649     | 795.2   | 7.2   | -4.4  | 107.6 | 111.6 | 98.9  |
| Engraving, wood   | 26        | 67        | 67        | 68      | 89      | 45      | 47      |         |       | -1.5  | 74.4  | -13.3 | -4.8  |
| Envelopes   | 9,004     | 7,124     | 7,187     | 5,206   | 3,091   | 2,122   | 1,741   | 473.8   | 39.0  | 38.1  | 68.4  | 45.7  | 21.9  |
| Explosives  | 35,231    | 51,635    | 51,635    | 45,778  | 28,601  | 29,065  | 19,195  | 83.5    | -31.8 | 12.8  | 60.1  | -2.0  | 54.5  |
| Fancy articles, not elsewhere specified                               | 8,099     | 8,657     | 8,982     | 4,869   | 3,219   | 3,378   | 2,596   | 223.5   | -6.5  | 95.9  | 42.5  | -4.7  | 30.0  |
| Feathers and plumes   | 410       | 602       | 594       | 686     | 11,167  |         | (*)     |         |       | -18.3 | 61.0  | 121.0 |       |
| Felt goods  | 20,522    | 16,411    | 16,411    | 14,056  | 11,405  | 9,756   | (*)     | 161.8   | 25.1  | 16.8  | 23.2  | 16.9  | 24.4  |
| Ferro-alloys  | 37,087    | 37,087    |           | (*)     | (*)     | (*)     | (*)     |         |       |       |       |       |       |
| Fertilizers   | 161,774   | 125,939   | 125,939   | 114,281 | 64,711  | 47,989  | 38,680  | 318.4   | 28.5  | 10.2  | 76.5  | 84.8  | 24.1  |
| Files   | 11,155    | 11,897    | 11,905    | 8,821   | 7,383   | 5,697   | 4,835   | 130.9   | -6.2  | 35.0  | 19.5  | 29.6  | 17.8  |
| Firearms  | 15,689    | 26,167    | 26,167    | 7,474   | 7,522   | 16,352  | 4,490   | 248.5   | -40.2 | 250.1 | -7    | -54.0 | 264.2 |
| Fire extinguishers, chemical  | 1,285     | 855       | 855       | 391     | 215     | 140     | 26      | 4,648.6 | 44.4  | 118.7 | 81.9  | 53.6  | 438.5 |
| Fireworks   | 941       | 1,005     | 1,005     | 707     | 517     | 347     | 219     | 329.5   | -6.4  | 42.1  | 36.8  | 49.0  | 58.4  |
| Flags and banners   | 748       | 778       | 778       | 637     | 889     | 269     | 230     | 225.1   | -3.9  | 22.1  | 63.8  | 44.6  | 17.0  |
| Flavoring extracts  | 4,278     | 3,378     | 3,378     | 1,470   | 1,000   | 873     | 704     | 607.5   | 24.7  | 129.7 | 38.7  | 21.4  | 24.0  |
| Flax and hemp, dressed  | 877       | 1,920     | 1,920     | 832     | 1,147   | 900     | 187     | 268.2   | -54.3 | 180.8 | -27.5 | 91.2  | 220.9 |
| Flour-mill and grain-mill products                                    | 709,856   | 876,464   | 875,405   | 522,384 | 353,584 | 775,318 | 670,719 | 6.0     | -15.9 | 6.6   | -3.7  | 10.1  | 15.6  |
| Food preparations, not elsewhere specified                            | 178,132   | 149,669   | 150,230   | 80,023  | 55,168  | 28,162  | 15,485  | 1,054.5 | 19.0  | 87.7  | 45.1  | 95.9  | 81.9  |
| Foundry and machine-shop products                                     | 1,234,328 | 1,040,265 | 1,216,028 | 770,454 | 659,601 | 497,148 | 379,900 | 387.1   | 18.7  | 57.9  | 18.9  | 52.2  | 43.6  |
| Foundry supplies  | 7,738     | 6,327     | 6,328     | 4,694   | 4,995   | 3,543   | 3,505   | 120.8   | 22.8  | 34.8  | -8.0  | 41.0  | 1.1   |
| Fuel, manufactured  | 7,623     | 5,180     | 5,180     | 3,444   | 1,290   | (*)     | (*)     |         |       | 47.2  | 60.4  | 167.0 |       |
| Fur goods   | 4,269     | 5,327     | 5,327     | 3,233   | 2,120   | 1,994   | 907     | 874.0   | -19.3 | 54.8  | 52.5  | 6.3   | 116.8 |
| Furnishing goods, men's   | 5,470     | 5,659     | 9,029     | 5,880   | 3,933   | 3,061   | 1,250   | 598.5   | -3.3  | 53.6  | 47.6  | 30.1  | 144.9 |
| Furniture   | 485,347   | 265,064   | 262,703   | 240,665 | 211,438 | 163,614 | 114,568 | 319.5   | 83.1  | 9.2   | 13.8  | 29.2  | 42.8  |
| Furs, dressed   | 7,776     | 5,421     | 5,621     | 2,276   | 2,103   | 1,260   | 1,958   | 658.5   | 43.4  | 147.1 | 5.2   | 66.9  | 18.8  |
| Galvanizing and other coating processes                               | 1,586     | 1,571     | 1,531     | 2,335   | 1,397   | 1,603   | 409     | 371.0   | 13.1  | -31.6 | 74.5  | -14.7 | 291.6 |
| Gas and electric fixtures   | 13,818    | 9,656     | 9,910     | 10,028  | 9,655   | 5,192   | 4,831   | 204.2   | 43.1  | -1.2  | 3.9   | 66.0  | 13.1  |
| Gas, illuminating and heating   | 858,805   | 238,454   | 238,467   | 213,370 | 128,350 | 73,101  | 31,797  | 1,028.0 | 50.4  | 11.8  | 69.2  | 75.6  | 129.9 |
| Gas machines and gas and water meters                                 | 7,364     | 8,586     | 8,601     | 5,711   | 4,328   | 1,602   | 974     | 657.7   | -14.2 | 50.6  | 62.0  | 170.2 | 64.5  |
| Glass   | 240,528   | 207,338   | 207,330   | 163,189 | 123,132 | 91,476  | 52,943  | 354.5   | 16.0  | 27.1  | 32.5  | 84.6  | 72.8  |
| Glass, cutting, staining, and ornamenting                             | 4,732     | 5,042     | 5,110     | 5,589   | 4,897   | 3,973   | 2,098   | 128.7   | -6.1  | -7.7  | 13.1  | 23.3  | 89.4  |
| Gloves and mittens, cloth, not including gloves made in textile mills | 3,143     | 3,364     | (*)       | (*)     | (*)     | (*)     | (*)     |         |       | -8.6  |       |       |       |
| Gloves and mittens, leather   | 4,372     | 3,288     | 3,288     | 3,357   | 3,389   | 2,725   | 2,165   | 102.0   | 38.0  | -2.1  | 15.2  | 6.0   | 25.9  |
| Glycerine   | 65,764    | 52,036    | 52,846    | 41,639  | 28,237  | 35,983  | 26,842  | 150.8   | 26.4  | 23.9  | 47.4  | -21.5 | 35.1  |
| Gluo, not elsewhere specified   | 24,709    | 16,979    | 16,979    | 13,304  | 15,596  | 14,280  | 9,806   | 283.0   | 45.5  | -27.6 | -14.7 | 9.2   | 109.8 |
| Gold and silver, leaf and foil  | 281       | 408       | 408       | 360     | 259     | 278     | 149     | 88.6    | -21.1 | 13.3  | 39.0  | -8.8  | 86.6  |
| Gold and silver, reducing and refining, not from the ore              | 4,620     | 3,141     | 3,279     | 2,285   | 1,735   | 1,069   | 785     | 530.5   | 47.1  | 46.7  | 28.8  | 62.5  | 39.6  |
| Graphite, ground and refined  | 7,445     | 7,445     | 7,445     | 2,262   | 1,472   | 922     | 805     | 235.7   | -63.7 | 186.1 | 76.9  | 59.7  | 14.5  |
| Grease and tallow, not including lubricating greases                  | 25,275    | 25,544    | 26,584    | 17,947  | 14,613  | 11,738  | 3,031   | 215.1   | -1.1  | 42.6  | 22.9  | 24.5  | 46.2  |
| Grindstones   | 3,898     | 3,763     | 3,631     | 2,160   | 5,700   | 2,602   | 2,577   | 40.3    | 3.5   | 68.1  | -52.1 | 119.1 | -2.8  |
| Haircloth   | 1,333     | 972       | 1,153     | 1,723   | 995     | (*)     | (*)     |         |       | 87.1  | -33.1 | 73.2  |       |
| Hair work   | 17        | 119       | 119       | 83      | 69      |         |         |         |       | -36.7 | 75.0  | -63.8 | 251.6 |
| Hammocks  | 103       | 92        | 92        | 218     | 157     | 62      | 28      |         |       | -28.0 |       |       | 169.6 |
| Hand stamps   | 2,571     | 1,848     | 1,474     | 973     | 644     | 329     | 306     | 570.0   | 39.1  | 51.5  | 51.1  | 95.7  | 7.5   |
| Hardware  | 78,608    | 67,604    | 67,589    | 53,411  | 41,821  | 33,417  | 22,688  | 249.5   | 17.2  | 26.5  | 27.7  | 25.1  | 47.4  |
| Hardware, saddlery  | 5,398     | 7,146     | 7,161     | 4,134   | 4,879   | 3,469   | 2,988   | 81.0    | -24.5 | 73.2  | -15.3 | 40.8  | 16.1  |
| Hat and cap materials   | 4,749     | 4,927     | 4,927     | 2,954   | 2,922   | 2,239   | 1,770   | 168.4   | -3.6  | 66.8  | 1.1   | 80.5  | 26.5  |

See footnotes at end of Table 34, p. 177.

TABLE 33.—AMOUNT OF PRIMARY HORSEPOWER INSTALLED IN INDIVIDUAL INDUSTRIES, BY CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923—Continued

[See note at head of this table, p. 158]

| INDUSTRY   | PRIMARY HORSEPOWER                                  |           |   |           |           |           |           | PER CENT OF INCREASE OR DECREASE (—) |                    |           |           |           |           |
|--|---|-----------|---|-----------|-----------|-----------|-----------|--------------------------------------|--------------------|-----------|-----------|-----------|-----------|
|  | Excluding data for rented power other than electric |           | Including data for rented power other than electric |           |           |           |           | 24-year period, 1899-1923            | Intercensal period |           |           |           |           |
|  | 1923  | 1919      | 1919  | 1914      | 1909      | 1904      | 1899      |                                      | 1919-1923          | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |
| Hats and caps, other than felt, straw, and wool.....   | 1,782   | 1,687     | 1,687   | 1,339     | 990       | 797       | 3,252     | -45.2                                | 5.6                | 26.0      | 35.3      | 24.2      | -75.5     |
| Hats, fur-felt.....  | 18,488  | 20,377    | 20,389  | 20,851    | 19,245    | 16,630    | 11,643    | 56.2                                 | -9.3               | -2.2      | 8.3       | 15.7      | 40.4      |
| Hats, straw.....   | 3,673   | 3,382     | 3,392   | 5,248     | 3,482     | 2,366     | (1)       |                                      | 8.6                | -35.4     | 50.7      | 47.2      |           |
| Hats, wool-felt.....   | 2,762   | 2,694     | 2,696   | 3,091     | 2,521     | 1,847     | 2,324     | 18.9                                 | 2.5                | -12.8     | 22.6      | 36.5      | -20.5     |
| Hones and whetstones.....  | 1,151   | 1,164     | 1,164   | 864       | 677       | 684       | 593       | 94.1                                 | -1.1               | 34.7      | 27.6      | -1.0      | 15.3      |
| Horseshoes, not made in steel works or rolling mills.....  | 1,341   | 3,374     | 3,374   | 1,984     | 1,045     | 1,014     | 545       | 145.9                                | -65.4              | 95.3      | 89.9      | 3.1       | 86.1      |
| House-furnishing goods, not elsewhere specified.....   | 9,969   | 11,857    | 12,249  | 11,731    | 9,329     | 8,749     | 8,521     | 20.8                                 | -15.9              | 4.4       | 25.8      | 6.6       | 2.9       |
| Ice, manufactured.....   | 845,012   | 569,925   | 572,970   | 461,988   | 317,789   | 191,660   | 100,421   | 748.2                                | 48.3               | 24.0      | 45.4      | 65.8      | 90.9      |
| Ink, printing.....   | 14,703  | 10,229    | 10,353  | 7,821     | 5,857     | 3,384     | 1,895     | 685.0                                | 43.7               | 32.4      | 33.5      | 73.1      | 78.6      |
| Ink, writing.....  | 695   | 610       | 610   | 612       | 169       | 224       | 359       | 93.6                                 | 13.9               | -9        | 262.1     | -24.6     | -37.6     |
| Instruments, professional and scientific.....  | 16,203  | 12,981    | 13,029  | 6,799     | 4,856     | 2,110     | 2,471     | 557.6                                | 24.8               | 91.5      | 40.0      | 130.1     | -14.6     |
| Iron and steel, blast furnaces.....  | 191,832,919   | 1,681,407 | 1,681,432   | 1,222,273 | 1,173,422 | 773,278   | 497,272   | 268.6                                | 15.9               | 29.4      | 4.2       | 51.7      | 55.5      |
| Iron and steel, steel works and rolling mills.....   | 4,110,173   | 3,818,167 | 3,820,917   | 2,706,553 | 2,100,978 | 1,649,299 | 1,100,801 | 273.8                                | 7.6                | 41.2      | 28.8      | 27.4      | 49.8      |
| Iron and steel, bolts, nuts, washers, and rivets, not made in rolling mills.....                                       | 48,036  | 49,959    | 49,959  | 28,897    | 22,113    | 13,825    | 9,165     | 424.4                                | -3.8               | 72.9      | 30.7      | 59.9      | 50.8      |
| Iron and steel, cast-iron pipe.....  | 47,239  | 28,741    | 28,741  | 25,864    | 18,737    | (2)       | (2)       |                                      | 64.4               | 11.1      | 38.0      |           |           |
| Iron and steel, doors and shutters.....  | 3,981   | 4,013     | 4,013   | 3,170     | 1,997     | 969       | 223       | 1,685.2                              | -8                 | 26.6      | 58.7      | 106.1     | 334.6     |
| Iron and steel, forgings, not made in steel works or rolling mills.....  | 136,922   | 100,996   | 101,951   | 38,215    | 27,803    | 16,069    | 7,697     | 1,696.2                              | 35.6               | 166.8     | 37.4      | 73.0      | 108.8     |
| Iron and steel, nails and spikes, cut and wrought, including wire nails, not made in steel works or rolling mills..... | 10,275  | 8,971     | 8,974   | 8,235     | 7,723     | 10,533    | 12,853    | -20.1                                | 14.5               | 9.0       | 6.6       | -26.7     | -18.1     |
| Iron and steel, tempering and welding.....   | 6,209   | 8,785     | (3)   | (3)       | (3)       | (3)       | (3)       |                                      | -29.4              |           |           |           |           |
| Iron and steel, wrought pipe.....  | 40,912  | 23,925    | 23,925  | 17,542    | 20,650    | 15,094    | 11,717    | 249.2                                | 71.0               | 36.4      | -15.1     | 35.8      | 23.8      |
| Ivory, shell, and bone work, not including combs and hairpins.....   | 880   | 879       | 954   | 798       | 916       | 1,247     | 973       | -1.0                                 | .1                 | 34.7      | -22.7     | -26.5     | 28.3      |
| Japanning.....   | 201   | 306       | 311   | 110       | 78        | 252       | 28        | 629.7                                | -34.3              | 182.7     | 44.7      | -69.8     | 800.0     |
| Jewelry.....   | 16,851  | 15,096    | 16,389  | 15,680    | 11,204    | 7,872     | 6,658     | 174.8                                | 11.6               | 4.6       | 39.8      | 42.3      | 18.3      |
| Jewelry and instrument cases.....  | 1,662   | 1,075     | 1,091   | 1,059     | 527       | 359       | 208       | 710.0                                | 54.6               | 3.0       | 100.9     | 46.8      | 72.6      |
| Knife goods.....   | 24,174  | 32,135    | 32,135  | 28,628    | 20,993    | 18,810    | 8,191     | 195.0                                | -24.8              | 12.3      | 36.4      | 11.6      | 129.6     |
| Knit goods.....  | 183,675   | 149,438   | 151,601   | 125,842   | 103,709   | 78,769    | 57,346    | 224.9                                | 22.9               | 20.5      | 21.3      | 31.7      | 37.4      |
| Labels and tags.....   | 4,538   | 4,033     | 4,061   | 2,233     | 1,589     | 919       | 392       | 1,065.5                              | 12.5               | 81.9      | 40.5      | 72.9      | 134.4     |
| Lamps and reflectors.....  | 16,716  | 12,622    | 12,708  | 8,640     | 6,207     | 3,252     | 2,360     | 613.0                                | 32.4               | 47.1      | 39.2      | 90.9      | 37.8      |
| Lapidary work.....   | 566   | 680       | 680   | 546       | 679       | 554       | 212       | 166.9                                | -16.8              | 24.5      | 19.6      | 22.6      | 161.3     |

|   |                       |           |                   |                   |                       |                       |                       |                   |                   |                   |                   |                   |                   |                   |                   |
|---|-----------------------|-----------|-------------------|-------------------|-----------------------|-----------------------|-----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Lard, not made in slaughtering and meat-packing establishments.....                     | ( <sup>10</sup> )     | 40        | 40                | 1,197             | ( <sup>11</sup> )     | 3,386                 | ( <sup>12</sup> )     | 2,865             | ( <sup>13</sup> ) | 1,951             | 278.1             | -26.3             | -79.7             | 18.2              | 46.8              |
| Lasts.....  | 6,995                 | 5,839     | 5,842             | 5,317             | 3,386                 | 2,865                 | 1,951                 | 278.1             | 278.1             | 278.1             | 278.1             | 278.1             | 278.1             | 278.1             | 278.1             |
| Lead, bar, pipe, and sheet.....   | 4,486                 | 5,837     | 5,837             | 2,609             | 3,179                 | 2,007                 | 2,007                 | 123.8             | 123.8             | 123.8             | 123.8             | 123.8             | 123.8             | 123.8             | 123.8             |
| Leather goods, not elsewhere specified.....   | 4,902                 | 3,840     | 3,902             | 3,272             | 3,851                 | 3,554                 | 1,644                 | 203.0             | 203.0             | 203.0             | 203.0             | 203.0             | 203.0             | 203.0             | 203.0             |
| Leather, tanned, curried, and finished.....   | 230,187               | 217,781   | 218,238           | 172,712           | 148,140               | 117,450               | 93,500                | 150.8             | 150.8             | 150.8             | 150.8             | 150.8             | 150.8             | 150.8             | 150.8             |
| Lime.....   | 74,205                | 51,735    | 51,735            | 39,134            | 27,071                | 18,198                | 19,540                | 629.8             | 629.8             | 629.8             | 629.8             | 629.8             | 629.8             | 629.8             | 629.8             |
| Lime goods.....   | 9,803                 | 6,069     | 6,069             | 9,832             | 8,829                 | 6,133                 | 5,885                 | 66.8              | 66.8              | 66.8              | 66.8              | 66.8              | 66.8              | 66.8              | 66.8              |
| Liquors, distilled.....   | 8,129                 | 16,494    | 16,494            | 31,971            | 46,120                | 42,349                | 31,427                | 74.1              | 74.1              | 74.1              | 74.1              | 74.1              | 74.1              | 74.1              | 74.1              |
| Liquors, malt, including cereal beverages.....  | <sup>14</sup> 156,511 | 322,130   | 324,431           | 405,884           | 347,728               | 266,159               | 197,901               | 20.3              | 20.3              | 20.3              | 20.3              | 20.3              | 20.3              | 20.3              | 20.3              |
| Liquors, vinous.....  | 2,935                 | 5,189     | 5,189             | 9,356             | 6,771                 | 6,713                 | 3,416                 | 14.0              | 14.0              | 14.0              | 14.0              | 14.0              | 14.0              | 14.0              | 14.0              |
| Lithography.....  | 26,869                | 18,550    | 18,624            | 15,178            | 13,132                | 8,195                 | 7,063                 | 281.8             | 281.8             | 281.8             | 281.8             | 281.8             | 281.8             | 281.8             | 281.8             |
| Locomotives, not made by railroad companies.....  | 91,214                | 90,504    | 97,187            | 50,373            | 85,102                | 29,806                | ( <sup>15</sup> )     | ( <sup>15</sup> ) | ( <sup>15</sup> ) | ( <sup>15</sup> ) | ( <sup>15</sup> ) | ( <sup>15</sup> ) | ( <sup>15</sup> ) | ( <sup>15</sup> ) | ( <sup>15</sup> ) |
| Looking-glass and picture frames.....   | 4,497                 | 4,650     | 4,689             | 4,210             | 5,330                 | 4,653                 | 3,357                 | 34.8              | 34.8              | 34.8              | 34.8              | 34.8              | 34.8              | 34.8              | 34.8              |
| Lubricating greases.....  | 2,972                 | 2,178     | 2,178             | 2,685             | 492                   | 2,180                 | 1,811                 | 1,842.5           | 1,842.5           | 1,842.5           | 1,842.5           | 1,842.5           | 1,842.5           | 1,842.5           | 1,842.5           |
| Lumber and timber products.....   | 1,932,091             | 2,355,245 | 2,358,937         | 2,192,392         | 2,316,634             | 1,400,810             | 1,375,130             | 40.6              | 40.6              | 40.6              | 40.6              | 40.6              | 40.6              | 40.6              | 40.6              |
| Lumber, planing-mill products, not including planing mills connected with sawmills..... | 493,424               | 417,070   | 419,671           | 414,817           | <sup>16</sup> 410,950 | <sup>16</sup> 309,857 | <sup>16</sup> 228,731 | 117.1             | 117.1             | 117.1             | 117.1             | 117.1             | 117.1             | 117.1             | 117.1             |
| Machine tools.....  | 109,196               | 100,294   | ( <sup>17</sup> ) | ( <sup>17</sup> ) | ( <sup>17</sup> )     | ( <sup>17</sup> )     | ( <sup>17</sup> )     | 8.0               | 8.0               | 8.0               | 8.0               | 8.0               | 8.0               | 8.0               | 8.0               |
| Malt.....   | 14,805                | 27,483    | 27,483            | 33,394            | 26,441                | 20,288                | 18,834                | 7.1               | 7.1               | 7.1               | 7.1               | 7.1               | 7.1               | 7.1               | 7.1               |
| Marble and stone work.....  | 213,133               | 169,177   | 170,132           | 207,461           | 187,696               | 102,887               | 83,119                | 157.9             | 157.9             | 157.9             | 157.9             | 157.9             | 157.9             | 157.9             | 157.9             |
| Matches.....  | 15,388                | 12,947    | 12,947            | 7,465             | 6,224                 | 3,539                 | 2,666                 | 477.4             | 477.4             | 477.4             | 477.4             | 477.4             | 477.4             | 477.4             | 477.4             |
| Mats and matting, from cocoa fiber, grass, and coir.....                                | 1,680                 | 1,670     | 1,670             | 1,643             | 1,433                 | 1,524                 | 1,733                 | 14.2              | 14.2              | 14.2              | 14.2              | 14.2              | 14.2              | 14.2              | 14.2              |
| Mattresses and bed springs, not elsewhere specified.....                                | 30,324                | 23,387    | 23,469            | 20,767            | 17,689                | 13,220                | 7,960                 | 281.4             | 281.4             | 281.4             | 281.4             | 281.4             | 281.4             | 281.4             | 281.4             |
| Millinery and lace goods, not elsewhere specified.....                                  | 15,661                | 12,410    | 12,482            | 12,736            | 7,918                 | 4,737                 | 1,852                 | 750.6             | 750.6             | 750.6             | 750.6             | 750.6             | 750.6             | 750.6             | 750.6             |
| Millstones.....   | ( <sup>18</sup> )     | 132       | 132               | ( <sup>18</sup> ) | ( <sup>18</sup> )     | ( <sup>18</sup> )     | ( <sup>18</sup> )     | 55                | 55                | 55                | 55                | 55                | 55                | 55                | 55                |
| Mineral and soda waters.....  | 64,781                | 41,167    | 41,784            | 25,164            | 19,392                | 12,214                | 8,037                 | 717.9             | 717.9             | 717.9             | 717.9             | 717.9             | 717.9             | 717.9             | 717.9             |
| Minerals and earths, ground or otherwise treated.....                                   | 83,471                | 127,064   | 127,074           | 44,069            | 20,920                | 17,325                | 18,404                | 353.7             | 353.7             | 353.7             | 353.7             | 353.7             | 353.7             | 353.7             | 353.7             |
| Mirrors, framed and unframed, not elsewhere specified.....                              | 5,722                 | 4,233     | 4,328             | 4,673             | 5,892                 | 2,795                 | 2,333                 | 150.8             | 150.8             | 150.8             | 150.8             | 150.8             | 150.8             | 150.8             | 150.8             |
| Models and patterns, not including paper patterns.....                                  | 12,072                | 13,750    | 13,809            | 6,149             | 5,486                 | 4,358                 | 3,021                 | 303.1             | 303.1             | 303.1             | 303.1             | 303.1             | 303.1             | 303.1             | 303.1             |
| Motor cycles, bicycles, and parts.....  | 14,840                | 14,420    | 14,800            | 8,763             | 4,932                 | 5,730                 | 19,847                | -23.2             | 2.9               | 69.2              | 47.6              | 69.2              | 47.6              | 69.2              | 47.6              |
| Mucilage, paste, and other adhesives, not elsewhere specified.....                      | 3,204                 | 3,202     | 3,242             | 2,456             | 2,385                 | 1,505                 | 1,426                 | 127.5             | 127.5             | 127.5             | 127.5             | 127.5             | 127.5             | 127.5             | 127.5             |
| Musical instruments and materials, not elsewhere specified.....                         | 3,830                 | 3,219     | 3,289             | 1,865             | 1,423                 | 1,603                 | 1,417                 | 178.0             | 178.0             | 178.0             | 178.0             | 178.0             | 178.0             | 178.0             | 178.0             |
| Musical instruments, organs.....  | 2,902                 | 3,245     | 3,269             | 3,669             | 3,334                 | 4,085                 | -                     | -86.1             | -10.8             | -11.3             | 81.1              | -10.8             | -11.3             | 81.1              | -10.8             |
| Musical instruments, pianos.....  | 26,859                | 23,697    | 23,732            | 25,981            | 23,246                | 17,467                | 16,467                | 29.4              | 29.4              | 29.4              | 29.4              | 29.4              | 29.4              | 29.4              | 29.4              |
| Musical instruments, piano and organ materials.....                                     | 15,478                | 15,716    | 15,821            | 14,702            | 15,048                | 6,582                 | 20,789                | -26.0             | -1.5              | 7.6               | -11.8             | -26.0             | -1.5              | 7.6               | -11.8             |
| Needles, pins, and hooks and eyes.....  | 10,367                | 8,423     | 8,467             | 4,813             | 4,542                 | 2,440                 | 2,103                 | 395.6             | 395.6             | 395.6             | 395.6             | 395.6             | 395.6             | 395.6             | 395.6             |
| Nets and seines.....  | 1,032                 | 959       | 959               | 1,940             | 1,458                 | 290                   | 266                   | 306.6             | 306.6             | 306.6             | 306.6             | 306.6             | 306.6             | 306.6             | 306.6             |
| Oakum.....  | ( <sup>19</sup> )     | 533       | 533               | 333               | 289                   | 367                   | 376                   | 207.0             | 207.0             | 207.0             | 207.0             | 207.0             | 207.0             | 207.0             | 207.0             |
| Oil and cake, cottonseed.....   | 223,742               | 289,981   | 290,638           | 240,781           | 192,342               | 150,246               | 73,071                | 207.0             | 207.0             | 207.0             | 207.0             | 207.0             | 207.0             | 207.0             | 207.0             |
| Oil, essential.....   | 1,888                 | 1,833     | 1,853             | 2,309             | 1,218                 | 849                   | 1,048                 | 32.4              | 32.4              | 32.4              | 32.4              | 32.4              | 32.4              | 32.4              | 32.4              |
| Oil, linseed.....   | 21,674                | 17,621    | 17,621            | 15,111            | 13,211                | 9,473                 | 8,491                 | 155.2             | 155.2             | 155.2             | 155.2             | 155.2             | 155.2             | 155.2             | 155.2             |
| Oil, not elsewhere specified.....   | 18,431                | 30,087    | 30,075            | 10,984            | 6,157                 | 5,707                 | 3,692                 | 399.3             | 399.3             | 399.3             | 399.3             | 399.3             | 399.3             | 399.3             | 399.3             |
| Oilcloth and linoleum, floor.....   | <sup>20</sup> 25,905  | 23,560    | 23,569            | 18,782            | 14,158                | 8,703                 | 6,421                 | 303.4             | 303.4             | 303.4             | 303.4             | 303.4             | 303.4             | 303.4             | 303.4             |
| Oilcloth, enameled.....   | 2,886                 | 4,251     | 4,501             | 3,490             | 1,967                 | 1,409                 | 1,140                 | 168.1             | 168.1             | 168.1             | 168.1             | 168.1             | 168.1             | 168.1             | 168.1             |
| Oleomargarine and other butter substitutes.....   | 5,922                 | 9,435     | 9,435             | 8,611             | 2,408                 | 1,560                 | 1,856                 | 337.0             | 337.0             | 337.0             | 337.0             | 337.0             | 337.0             | 337.0             | 337.0             |
| Optical goods.....  | 13,397                | 15,649    | 15,710            | 6,792             | 5,725                 | 3,410                 | 2,544                 | 428.6             | 428.6             | 428.6             | 428.6             | 428.6             | 428.6             | 428.6             | 428.6             |
| Ordnance and accessories.....   | ( <sup>21</sup> )     | 40,652    | 40,652            | ( <sup>21</sup> ) | ( <sup>21</sup> )     | ( <sup>21</sup> )     | ( <sup>21</sup> )     | 265.9             | 265.9             | 265.9             | 265.9             | 265.9             | 265.9             | 265.9             | 265.9             |
| Paints.....   | 93,127                | 73,330    | 73,702            | 62,955            | 50,566                | 37,455                | 26,344                | 265.9             | 265.9             | 265.9             | 265.9             | 265.9             | 265.9             | 265.9             | 265.9             |

See footnotes at end of Table 84, p. 177.



TABLE 33.—AMOUNT OF PRIMARY HORSEPOWER INSTALLED IN INDIVIDUAL INDUSTRIES, BY CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923—Continued

[See note at head of this table, p. 158]

| INDUSTRY   | PRIMARY HORSEPOWER                                  |           |   |           |           |           |         | PER CENT OF INCREASE OR DECREASE (—) |                    |           |           |           |           |
|--|---|-----------|---|-----------|-----------|-----------|---------|--------------------------------------|--------------------|-----------|-----------|-----------|-----------|
|  | Excluding data for rented power other than electric |           | Including data for rented power other than electric |           |           |           |         | 24-year period, 1899-1923            | Intercensal period |           |           |           |           |
|  | 1923  | 1919      | 1919  | 1914      | 1909      | 1904      | 1899    |                                      | 1919-1923          | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |
| Paper and wood pulp.....   | 2,178,623   | 1,849,699 | 1,851,014   | 1,621,154 | 1,204,265 | 1,093,708 | 762,118 | 186.1                                | 17.8               | 14.2      | 24.3      | 19.3      | 43.5      |
| Paper goods, not elsewhere specified.....  | 37,840  | 35,389    | 35,538  | 27,366    | 22,436    | 13,071    | 7,855   | 384.1                                | 7.0                | 20.9      | 22.0      | 71.6      | 66.4      |
| Paper patterns.....  | 971   | 68        | 68  | 862       | 751       | 35        | 9       | 10,689.2                             | 1,327.9            | -81.2     | -51.8     | 1,676.3   | 322.2     |
| Patent medicines and compounds.....  | 29,998  | 25,409    | 25,677  | 18,542    | 14,704    | 10,092    | 8,223   | 268.8                                | 18.1               | 38.5      | 26.1      | 45.7      | 22.7      |
| Paving materials.....  | 197,290   | 191,471   | 191,543   | 138,026   | 5,757     | 5,156     | 34,397  | 473.6                                | 3.0                | 38.8      | 2,297.5   | 11.7      | -85.0     |
| Peanuts, grading, roasting, cleaning, and shelling.....                                      | 7,703   | 7,351     | 7,351   | 4,235     | 2,827     | 1,602     | (*)     | 4.8                                  | 73.6               | 49.8      | 76.5      |           |           |
| Pencils, lead.....   | 7,288   | 8,099     | 8,099   | 3,739     | 3,449     | 2,625     | 1,360   | 436.0                                | -10.0              | 116.7     | 8.4       | 31.4      | 93.0      |
| Pens, fountain and stylographic.....   | 2,710   | 1,492     | 1,517   | 1,157     | 477       | 272       | 406     | 578.5                                | 81.6               | 31.1      | 142.6     | 75.4      | -33.0     |
| Pens, gold.....  | 191   | 145       | 160   | 138       | 92        | 77        | 121     | 74.1                                 | 31.7               | 15.9      | 50.0      | 19.5      | -36.4     |
| Pens, steel.....   | 266   | 305       | 305   | 244       | 244       | 294       | 138     | 92.7                                 | -12.8              | 25.0      |           | -17.0     | 113.0     |
| Perfumery and cosmetics.....   | 6,502   | 2,196     | 2,196   | 1,913     | 1,375     | 814       | 671     | 869.1                                | 196.1              | 14.8      | 39.1      | 68.9      | 21.3      |
| Petroleum refining.....  | 391,154   | 238,906   | 238,906   | 128,468   | 90,268    | 46,019    | 86,127  | 982.5                                | 63.7               | 86.0      | 42.3      | 96.2      | 27.4      |
| Phonographs and graphophones.....  | 41,160  | 40,163    | 40,168  | 11,688    | 6,871     | 2,522     | 1,082   | 3,705.2                              | 2.5                | 243.7     | 88.5      | 152.6     | 133.1     |
| Photo-engraving, not done in printing establishments.....                                    | 5,786   | 3,800     | 3,800   | 3,927     | 2,636     | 1,925     | 1,040   | 456.5                                | 52.3               | -8.2      | 48.9      | 37.0      | 85.1      |
| Photographic apparatus.....  | (*)   | 2,321     | 1,522   | 1,522     | 1,233     | 1,371     | 1,529   |                                      | 52.5               |           | 191.0     |           | -10.3     |
| Photographic materials.....  | 17 50,287   | 17 28,779 | 26,458  | 14,960    | 8,114     | 3,890     | 1,883   | 2,354.7                              | 74.7               | 76.9      | 84.4      | 119.9     | 96.0      |
| Pickles, preserves, and sauces.....  | 36,717  | 22,384    | 22,500  | 18,840    | 12,837    | 10,223    | 6,572   | 461.5                                | 64.0               | 19.4      | 46.8      | 25.6      | 55.6      |
| Pipes, tobacco.....  | 2,354   | 2,001     | 2,001   | 1,718     | 1,503     | 1,058     | 855     | 175.2                                | 17.6               | 16.6      | 13.9      | 43.2      | 23.7      |
| Plated ware.....   | 22,890  | 14,212    | 14,252  | 10,499    | 7,431     | 6,295     | 5,451   | 311.9                                | 57.5               | 35.7      | 41.3      | 18.0      | 15.5      |
| Plumbers' supplies, not elsewhere specified.....   | 59,973  | 29,695    | 29,762  | 28,253    | 26,078    | 12,601    | 7,574   | 693.7                                | 102.0              | 5.3       | 8.3       | 107.0     | 66.4      |
| Pocketbooks.....   | 1,064   | 481       | 431   | 243       | 178       | 317       | 181     | 504.3                                | 153.8              | 77.4      | 86.5      | -48.8     | 75.1      |
| Pottery.....   | 44,532  | 29,040    | 29,090  | 22,330    | 110,017   | 104,918   | 75,802  | 201.2                                | 58.3               | 80.2      |           | 4.9       | 88.4      |
| Poultry, killing and dressing, not done in slaughtering and meat-packing establishments..... | 2,006   | 4,016     | 4,016   | 2,230     | (*)       | (*)       | (*)     |                                      | -50.0              | 80.1      |           |           | 52.0      |
| Printing and publishing, book and job.....   | 152,363   | 131,476   | 131,961   | 114,233   | 97,546    | 56,188    | 36,973  | 313.6                                | 15.9               | 15.5      | 17.1      | 73.6      | -34.9     |
| Printing and publishing, music.....  | 1,231   | 634       | 634   | 594       | 365       | 203       | 312     | 294.6                                | 94.2               | 6.7       | 62.7      | 79.8      |           |
| Printing and publishing, newspaper and periodical.....                                       | 203,454   | 194,074   | 194,361   | 182,269   | 173,889   | 94,832    | 70,089  | 190.6                                | 4.8                | 6.6       | 4.8       | 83.4      | 55.3      |
| Printing materials.....  | 1,062   | 1,351     | 1,357   | 671       | 663       | 524       | 632     | 68.8                                 | -21.4              | 102.2     | 1.2       | 26.5      | -17.1     |
| Pulp, from fiber other than wood.....  | (*)   | 833       | (*)   | (*)       | (*)       | (*)       | 219     |                                      |                    |           |           |           |           |
| Pulp goods.....  | 13 13,605   | 12 273    | 12 273  | 6,826     | 3,125     | 2,368     | 1,314   | 935.8                                | 10.9               | 39.1      | 182.4     | 32.0      | 80.2      |
| Pumps, not including power pumps.....  | (*)   | 10,346    | 8,488   | 4,124     | 3,215     | 2,569     | 1,245   |                                      |                    | 198.0     | -17.2     | 64.0      | 106.3     |
| Pumps, steam and other power.....  | 10 38,268   | 10 32,441 | 22,155  | 13,723    | (*)       | (*)       | (*)     |                                      | 18.0               | 61.4      |           |           |           |
| Refrigerators.....   | 17,136  | 13,029    | 13,232  | 11,332    | 10,013    | 6,160     | 5,040   | 245.2                                | 31.5               | 16.8      | 13.2      | 62.5      | 22.2      |

|   |            |            |         |         |         |         |        |         |       |       |       |       |       |
|---|------------|------------|---------|---------|---------|---------|--------|---------|-------|-------|-------|-------|-------|
| Regalia, and society badges and emblems.....                                    | 1,160      | 1,321      | 1,333   | 665     | 784     | 680     | 205    | 470.9   | -12.2 | 100.5 | -15.2 | 15.3  | 231.7 |
| Rice, cleaning and polishing.....   | 22,220     | 25,340     | 27,382  | 15,571  | 19,519  | 18,866  | 7,646  | 318.3   | -12.3 | 75.9  | -20.2 | 23.0  | 116.8 |
| Roofing materials.....  | 39,598     | 39,247     | 39,327  | 11,702  | 9,421   | 22,022  | 18,217 | 117.8   | 9     | 236.1 | 24.1  | -59.0 | 26.4  |
| Rubber tires, tubes, and rubber goods, not elsewhere specified.....             | 11 549,450 | 11 379,873 | 354,188 | 161,927 | 79,062  | 48,381  | 40,835 | 1,154.1 | 44.0  | 133.1 | 92.2  | 68.4  | 18.5  |
| Rules, ivory and wood.....  | 714        | 390        | 299     | 441     | 167     | 316     | 302    | 135.7   | 135.3 | -32.2 | 164.1 | -47.5 | 5.0   |
| Saddlery and harness.....   | 7,761      | 8,305      | 8,212   | 10,397  | 17,234  | 7,370   | 6,018  | 29.1    | -5.4  | -17.0 | -39.7 | 132.8 | 22.5  |
| Safes and vaults.....   | 7,690      | 5,242      | 5,342   | 8,406   | 5,646   | 4,060   | 2,209  | 248.2   | 44.0  | -36.5 | 61.0  | 85.0  | 84.2  |
| Salt.....   | 58,101     | 42,051     | 43,187  | 29,007  | 27,263  | 19,434  | 22,865 | 160.1   | 33.2  | 49.9  | 6.4   | 40.8  | -18.6 |
| Sand and emery paper and cloth.....   | 3,694      | 3,977      | 3,977   | 3,153   | 3,351   | 1,133   | 898    | 811.5   | -7.1  | 26.1  | -5.0  | 195.8 | 26.2  |
| Sand-lime brick.....  | 4,332      | 4,358      | 4,358   | 5,000   | (1)     | (1)     | (1)    | -       | -0    | 22.3  | -     | -     | -     |
| Sausage, not made in slaughtering and meat-packing establishments.....          | 17,017     | 12,871     | 12,713  | 7,930   | 6,275   | 8,355   | 2,052  | 732.0   | 34.3  | 60.3  | 26.4  | 87.0  | 63.5  |
| Saws.....   | 13,298     | 15,046     | 15,098  | 11,795  | 11,852  | 7,491   | 5,498  | 145.0   | -11.6 | 28.0  | -5    | 58.2  | 30.4  |
| Scales and balances.....  | 9,815      | 7,441      | 7,451   | 6,201   | 6,183   | 5,251   | 2,466  | 290.3   | 28.2  | 20.2  | 9     | 90.2  | 31.5  |
| Screws, machine.....  | 28,954     | 23,517     | 23,540  | 7,988   | 3,319   | 3,201   | 1,407  | 1,959.9 | 23.1  | 104.7 | 140.7 | 3.7   | 127.5 |
| Screws, wood.....   | 8,550      | 7,764      | 7,764   | 8,044   | 5,618   | 8,715   | 3,490  | 145.0   | 10.1  | -3.5  | 43.2  | 51.2  | 6.4   |
| Sewing-machine cases.....   | (4)        | 10,666     | 6,031   | 5,026   | 6,900   | 2,055   | -      | -       | -     | 76.7  | 20.0  | -28.1 | 240.1 |
| Sewing machines and attachments.....  | 40 22,511  | 40 32,017  | 21,379  | 18,198  | 14,400  | 10,172  | 8,014  | 87.6    | -29.7 | 17.5  | 26.4  | 41.6  | 26.9  |
| Shipbuilding, steel.....  | 280,373    | 475,567    | 475,567 | 83,706  | 57,697  | 51,029  | 38,862 | 622.0   | -41.0 | 468.1 | 45.1  | 13.1  | 81.3  |
| Shipbuilding, wooden, including boat building.....                              | 37,339     | 77,704     | 78,144  | 31,627  | 30,368  | 27,098  | 22,935 | 63.9    | -51.9 | 147.1 | 4.2   | 12.1  | 18.2  |
| Shirts.....   | 14,050     | 14,890     | 14,944  | 17,617  | 12,656  | 8,723   | 7,110  | 98.4    | -5.6  | -16.2 | 39.2  | 45.1  | 22.7  |
| Show cases.....   | (4)        | 4,423      | 4,145   | 4,145   | 4,746   | 4,087   | 1,232  | -       | -     | 6.7   | -12.7 | 16.1  | 231.7 |
| Signs and advertising novelties.....  | 11,781     | 7,714      | 7,730   | 7,370   | 3,790   | (5)     | (5)    | 52.7    | 52.7  | 4.9   | 94.5  | -     | -     |
| Silk goods, including throwsters.....   | 206,020    | 173,748    | 176,825 | 116,924 | 97,947  | 71,780  | 67,397 | 265.4   | 18.0  | 51.2  | 18.4  | 36.5  | 25.0  |
| Silversmithing and silverware.....  | 7,284      | 6,843      | 6,940   | 8,239   | 7,752   | 6,578   | 3,035  | 143.3   | 6.4   | -15.8 | 6.3   | 17.8  | 118.7 |
| Slaughtering and meat packing.....  | 382,127    | 358,522    | 359,212 | 253,066 | 202,432 | 115,956 | 85,008 | 350.5   | 6.6   | 41.9  | 25.0  | 74.0  | 36.4  |
| Smelting and refining, copper.....  | 432,886    | 321,610    | 321,610 | 194,980 | 168,126 | 76,524  | 61,630 | 602.3   | 34.0  | 64.9  | 23.3  | 106.0 | 24.2  |
| Smelting and refining, lead.....  | 42,377     | 49,668     | 52,565  | 29,734  | 26,954  | 26,607  | 16,342 | 174.4   | -14.7 | 76.8  | 10.3  | 5.0   | 57.1  |
| Smelting and refining, metals, not elsewhere specified.....                     | 1,144      | 11,700     | (6)     | (6)     | (6)     | (6)     | (6)    | -       | -0.2  | -     | -     | -     | -     |
| Smelting and refining, not from the ore.....                                    | 6,654      | 7,921      | 7,921   | 10,075  | 10,705  | 17,111  | 8,633  | 11.9    | 21.9  | -21.4 | -5.9  | -37.4 | 98.2  |
| Smelting and refining, zinc.....  | 69,583     | 73,404     | 73,604  | 39,705  | 21,457  | 18,404  | 11,146 | 824.1   | -5.6  | 100.5 | 71.1  | 16.6  | 65.1  |
| Soap.....   | 74,820     | 83,700     | 83,710  | 35,737  | 28,300  | 20,228  | 327.4  | 122.0   | -8.7  | 26.0  | 40.2  | 15.5  | -     |
| Soda-water apparatus.....   | 4,236      | 4,131      | 4,146   | 3,726   | 2,594   | 1,533   | 1,183  | 259.6   | 2.6   | 11.3  | 28.7  | 83.6  | 29.4  |
| Sporting and athletic goods.....  | 11,091     | 6,876      | 4,356   | 3,243   | 2,995   | 1,133   | 892.7  | 63.6    | 67.8  | 57.8  | 34.3  | 8.3   | 164.3 |
| Springs, steel, car and carriage, not made in steel works or rolling mills..... | 25,393     | 16,560     | 16,585  | 8,098   | 7,349   | 5,510   | 3,185  | 698.2   | 53.3  | 104.8 | 10.2  | 33.4  | 73.0  |
| Stamped and enameled ware, not elsewhere specified.....                         | 68,326     | 51,283     | 51,441  | 24,767  | 27,829  | 10,088  | 16,597 | 312.8   | 33.2  | 46.0  | 24.9  | 175.9 | -30.2 |
| Stationery goods, not elsewhere specified.....                                  | 11,539     | 8,242      | 8,342   | 5,703   | 6,842   | 3,396   | 1,706  | 876.3   | 38.3  | 46.3  | -16.0 | 101.5 | 99.1  |
| Statuary and art goods.....   | 887        | 682        | 684     | 826     | 462     | 466     | (7)    | -       | 30.1  | -17.2 | 78.8  | -9    | -     |
| Steam fittings and steam and hot-water heating apparatus.....                   | 91,085     | 67,494     | 67,504  | 33,630  | 33,008  | 10,696  | 6,510  | 1,299.8 | 35.0  | 74.7  | 17.0  | 208.6 | 64.3  |
| Steam packing.....  | 17,371     | 26,755     | 26,763  | 17,254  | 11,123  | 8,946   | 4,486  | 293.6   | -34.0 | 55.1  | 55.0  | 25.8  | 97.1  |
| Steel barrels, drums, and tanks, portable.....                                  | 7,907      | 10,554     | 10,554  | (8)     | (8)     | (8)     | (8)    | -       | -25.1 | -     | -     | -     | -     |
| Stencils and brands.....  | (4)        | (9)        | 874     | 411     | 259     | 392     | 156    | -       | -     | -0    | 58.7  | -33.9 | 151.3 |
| Stereotyping and electrotyping.....   | 12,313     | 9,498      | 9,613   | 6,983   | 4,076   | 2,878   | 1,470  | 747.5   | 29.6  | 87.7  | 71.3  | 41.6  | 96.8  |
| Stoves and hot-air furnaces.....  | 65,366     | 49,408     | 49,479  | 41,196  | 40,248  | 28,414  | (10)   | 32.3    | 20.1  | 2.4   | 41.6  | -     | -     |
| Stoves, gas and oil.....  | 22,298     | 11,290     | 11,295  | 7,954   | 5,276   | 3,603   | 1,723  | 1,194.6 | 97.5  | 42.0  | 50.8  | 46.4  | 109.1 |
| Structural ironwork, not made in steel works or rolling mills.....              | 205,518    | 165,179    | 165,347 | 109,374 | 80,278  | 56,719  | 19,673 | 945.6   | 24.4  | 51.2  | 36.2  | 41.5  | 183.3 |
| Sugar, beet.....  | 127,771    | 127,894    | 127,994 | 76,705  | 57,202  | 35,490  | 14,400 | 783.0   | 3     | 66.1  | 34.1  | 61.2  | 145.4 |

See footnotes at end of Table 34, p. 177.

**TABLE 33.—AMOUNT OF PRIMARY HORSEPOWER INSTALLED IN INDIVIDUAL INDUSTRIES, BY CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923—Continued**

[See note at head of this table, p. 158]

| INDUSTRY   | PRIMARY HORSEPOWER                                  |         |   |         |         |         | PER CENT OF INCREASE OR DECREASE (-) |                    |           |           |           |           |           |
|--|---|---------|---|---------|---------|---------|--------------------------------------|--------------------|-----------|-----------|-----------|-----------|-----------|
|  | Excluding data for rented power other than electric |         | Including data for rented power other than electric |         |         |         | 24-year period, 1899-1923            | Intercensal period |           |           |           |           |           |
|  | 1923  | 1919    | 1919  | 1914    | 1909    | 1904    |                                      | 1899               | 1919-1923 | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |
| Sugar, cane.....                                     | 88,214  | 101,859 | 101,861   | 113,246 | 122,189 | 140,650 | 152,569                              | -24.1              | -13.4     | -10.1     | -7.3      | 14.2      | -7.8      |
| Sugar, refining, not including beet sugar.....       | 72,682  | 62,541  | 62,541  | 49,666  | 38,414  |         |                                      | 99.3               | 38.3      | 5.8       | 29.3      |           |           |
| Sulphuric, nitric, and mixed acids.....              | 19,131  | 30,637  | 30,637  | 24,927  | 6,494   | 5,416   |                                      |                    | -37.6     | 22.9      | 283.8     | 19.9      |           |
| Surgical appliances.....                             | 9,290   | 12,382  | 12,382  | 6,361   | 5,170   |         |                                      |                    | -25.0     | 94.7      | 23.0      | 70.9      | 161.1     |
| Suspenders, garters, and elastic woven goods.....    | 809   | 8,928   | 9,028   | 7,524   | 4,899   | (2)     | (10)                                 |                    | -90.9     | 20.0      | 53.6      |           |           |
| Textile machinery and parts.....                     | 56,295  | 41,744  | (10)  | (10)    | (10)    | (10)    |                                      |                    | 34.9      |           |           |           |           |
| Theatrical scenery.....                              | 162   | 104     | 104   | 65      |         | (1)     | (1)                                  |                    | 55.8      | 60.0      |           |           |           |
| Tin and other foils, not elsewhere specified.....    | 12,595  | 6,991   | 6,991   | 2,458   | 1,699   | 1,388   | 854                                  | 1,275.1            | 80.2      | 184.4     | 44.7      | 22.4      | 62.5      |
| Tin plate and terneplate.....                        | (9)   | 18,697  | 18,697  | 9,355   | 8,154   | 8,990   | 8,515                                |                    |           | 99.9      | 14.7      | -9.3      | 155.8     |
| Tinware, not elsewhere specified.....                | 41,252  | 30,234  | 30,499  | 19,139  | 15,690  | 8,946   | (9)                                  |                    | 26.4      | 59.4      | 22.0      | 75.4      |           |
| Tobacco, chewing and smoking, and snuff.....         | 18,621  | 18,893  | 18,993  | 21,273  | 19,253  | 18,535  | 17,733                               |                    | -1.4      | -11.2     | 10.5      | 3.9       | 4.5       |
| Tobacco, cigars and cigarettes.....                  | 24,894  | 24,497  | 24,504  | 13,664  | 9,261   | 6,069   | 4,563                                | 445.6              | 1.6       | 79.3      | 47.5      | 52.6      | 33.0      |
| Tools, not elsewhere specified.....                  | 75,243  | 67,730  | 68,381  | 38,474  | 86,066  | 21,955  | 11,808                               | 543.4              | 11.1      | 77.7      | 6.7       | 64.2      | 86.0      |
| Toys and games.....                                  | 16,111  | 14,423  | 14,449  | 6,789   | 5,323   | 4,757   | 3,155                                | 411.6              | 11.7      | 112.8     | 27.5      | 11.9      | 50.5      |
| Trunks and valises.....                              | 7,209   | 7,696   | 7,703   | 7,566   | 6,585   | 5,016   | 3,514                                | 119.6              | -5.5      | 1.6       | 6.9       | 87.9      | 51.4      |
| Turpentine and rosin.....                            | 1,632   | 2,276   | 2,308   | 2,478   | 4,129   | 1,175   | 886                                  | 125.7              | -15.1     | -7.1      | -40.0     | 251.4     | 35.7      |
| Type founding.....                                   | 1,438   | 845     | 850   | 1,557   | 3,285   | 973     | 699                                  | 107.0              | 70.2      | -48.7     | 28.9      | 32.1      | 39.2      |
| Typewriters and supplies.....                        | 11,451  | 13,054  | 13,066  | 10,887  | 6,845   | 4,455   | 2,272                                | 404.4              | -12.3     | 20.0      | 59.1      | 53.6      | 96.1      |
| Umbrellas and canes.....                             | 2,409   | 3,357   | 3,383   | 2,579   | 2,413   | 2,122   | 1,457                                | 66.7               | -28.2     | 31.2      | 6.9       | 13.7      | 45.6      |
| Upholstering materials, not elsewhere specified..... | 41,274  | 19,622  | 19,826  | 18,753  | 17,456  | 15,604  | 11,351                               | 93.0               | 10.8      | 5.7       | 7.4       | 11.9      | 37.5      |
| Varnishes.....                                       | 21,154  | 11,497  | 11,497  | 7,656   | 5,596   | 3,833   | 4,099                                | 416.1              | 84.0      | 50.2      | 36.8      | 46.0      | -6.5      |
| Vault lights and ventilators.....                    | 254   | 269     | 279   | 491     | 234     | 174     | 103                                  | 155.7              | -5.6      | -43.2     | 109.8     | 34.5      | 68.9      |
| Vinegar and cider.....                               | 8,414   | 17,943  | 17,943  | 13,162  | 16,681  | 10,556  | 16,849                               | -50.1              | -53.1     | 36.3      | -21.1     | 58.0      | -37.3     |
| Wall paper, not made in paper mills.....             | 11,246  | 8,123   | 8,168   | 7,010   | 5,680   | 4,867   | 4,673                                | 146.9              | 38.4      | 16.4      | 23.4      | 16.7      | 6.4       |
| Wall plaster and composition flooring.....           | 62,520  | 32,356  | 32,356  | 36,626  | 25,892  | 20,064  | (17)                                 |                    | 93.2      | -11.7     | 41.5      | 29.1      |           |
| Washing machines and clothes wringers.....           | 11,415  | 8,816   | 8,836   | 4,903   | 3,351   | 3,564   | 2,732                                | 318.5              | 29.5      | 80.2      | 46.3      | -6.0      | 80.5      |
| Waste.....   | 12,347  | 11,304  | 11,391  | 8,513   | 4,286   | 3,803   | 2,193                                | 467.2              | 9.2       | 33.8      | 98.0      | 11.0      | 76.2      |
| Watch and clock materials, except watchcases.....    | 170   | 252     | 252   | 628     | 334     | 168     | 205                                  | -17.0              | -32.5     | -59.7     | 87.4      | 98.3      | -18.0     |
| Watchcases.....                                      | 5,710   | 4,275   | 4,275   | 2,380   | 3,396   | 2,559   | 1,798                                | 217.7              | 53.6      | 79.2      | -29.1     | 17.7      | 58.0      |
| Watches.....   | 7,396   | 7,202   | 7,202   | 6,624   | 5,649   | 3,172   | 1,762                                | 319.7              | 2.7       | -8.7      | 17.3      | 73.1      | 80.0      |
| Wheelbarrows.....                                    | 1,455   | 765     | 765   | 1,193   | 1,480   | 1,282   | 762                                  | 91.0               | 90.2      | -36.1     | -         | -         | -         |
| Whips.....   | 334   | 853     | 853   | 1,076   | 1,321   | 1,068   | 818                                  | -59.1              | -60.8     | -20.7     | -18.5     | 23.7      | 80.6      |
| Windmills.....                                       | 2,732   | 4,686   | 4,761   | 3,997   | 3,301   | 3,604   | 2,214                                | -25.3              | -41.7     | 19.1      | 21.1      | -10.6     | 66.2      |

|   |         |         |         |         |         |         |         |         |       |      |       |       |       |
|---|---------|---------|---------|---------|---------|---------|---------|---------|-------|------|-------|-------|-------|
| Window and door screens and weather strips..... | 9,518   | 7,515   | 7,530   | 8,188   | (*)     | (*)     | (*)     | 26.6    | -8.0  |      |       |       |       |
| Window shades and fixtures.....                 | 11,450  | 8,946   | 8,949   | 8,607   | 5,737   | 2,705   | 1,927   | 494.8   | 28.9  | 35.4 | 15.2  | 112.1 | 46.4  |
| Wire.....                                       | 123,923 | 119,301 | 119,451 | 83,940  | 71,959  | 25,856  | 9,979   | 1,145.7 | 8.9   | 42.8 | 16.6  | 178.6 | 188.1 |
| Wirework, not elsewhere specified.....          | 81,617  | 29,036  | 29,074  | 21,547  | 20,131  | 18,280  | 12,772  | 147.9   | 8.9   | 34.9 | 7.0   | 10.1  | 43.1  |
| Wood distillation.....                          | 14,770  | 15,188  | 15,938  | 10,045  | 9,654   | 4,620   |         |         | -2.7  | 68.7 | 1.9   | 113.8 |       |
| Wood preserving.....                            | 37,998  | 16,104  | 16,269  | 11,801  | 10,647  | 8,439   | 1,007   | 3,712.8 | 136.0 | 37.9 | 10.8  | 209.6 | 241.5 |
| Wood, turned and carved.....                    | 43,868  | 39,722  | 39,958  | 43,334  | 48,447  | 47,590  | 31,133  | 40.1    | 9.2   | -7.8 | -10.6 | 1.8   | 52.9  |
| Wooden goods, not elsewhere specified.....      | 22,438  | 25,874  | 25,906  | 20,711  | 22,472  | 17,878  | 7,702   | 191.7   | -18.8 | 25.1 | -7.8  | 25.7  | 132.1 |
| Wool pulling.....                               | 2,837   | 2,162   | 2,162   | 2,249   | 1,366   | 1,324   | 820     | 246.0   | 81.2  | -3.8 | 64.6  | 3.2   | 61.5  |
| Wool scouring.....                              | 6,978   | 8,710   | 9,790   | 7,579   | 6,782   | 3,478   | 2,900   | 142.4   | -23.2 | 29.2 | 11.8  | 95.0  | 19.9  |
| Wool shoddy.....                                | 12,486  | 16,587  | 16,094  | 12,440  | 12,535  | 12,244  | 11,455  | 9.9     | -24.6 | 34.2 | -1.8  | 2.4   | 6.9   |
| Woolen and worsted goods.....                   | 538,465 | 466,219 | 468,480 | 381,220 | 348,283 | 277,366 | 234,660 | 130.6   | 15.5  | 22.9 | 9.5   | 25.0  | 18.2  |

See footnotes at end of Table 34, p. 177.

TABLE 34.—GROWTH OF MANUFACTURE IN THE UNITED STATES AS MEASURED BY THE VALUE OF PRODUCTS OF INDIVIDUAL INDUSTRIES, BY CENSUS YEARS: 1869 TO 1923

[The italic figures include establishments with products valued at less than \$5,000 to avoid disclosing individual industries. As to the comparability of 1921 and 1923 figures with those of previous years, see general remarks preceding tables, p. 124]

| INDUSTRY  | VALUE OF PRODUCTS (EXPRESSED IN THOUSANDS OF DOLLARS)                       |                    |                     |   |                  |                  |                    |                    |                    |                    |                  |
|---|---|--------------------|---------------------|---|------------------|------------------|--------------------|--------------------|--------------------|--------------------|------------------|
|   | Excluding data for establishments with products valued at less than \$5,000 |                    |                     | Including data for establishments with products valued at \$500 or more |                  |                  |                    |                    |                    |                    |                  |
|   | 1923  | 1921               | 1919                | 1919  | 1914             | 1909             | 1904               | 1899               | 1889               | 1879               | 1869             |
| All industries.....   | 60,555,998  | 43,653,283         | 62,041,795          | 62,418,079  | 24,246,435       | 20,672,052       | 14,793,903         | 11,406,027         | 9,372,379          | 5,369,579          | 3,385,860        |
| Agricultural implements.....  | 151,286   | 163,817            | 304,720             | 304,961   | 164,087          | 146,329          | 112,007            | 101,207            | 81,272             | 68,640             | 52,067           |
| Airplanes, seaplanes, airships, and parts.....                                      | <sup>1</sup> 12,945   | <sup>1</sup> 6,642 | <sup>1</sup> 14,373 | <sup>1</sup> 14,373   | <sup>1</sup> 790 | ( <sup>1</sup> ) | ( <sup>1</sup> )   | ( <sup>1</sup> )   | ( <sup>1</sup> )   | ( <sup>1</sup> )   | ( <sup>1</sup> ) |
| Aluminum manufactures.....  | 106,930   | 45,822             | 75,271              | 75,278  | 19,597           | ( <sup>1</sup> ) | ( <sup>1</sup> )   | ( <sup>1</sup> )   | ( <sup>1</sup> )   | ( <sup>1</sup> )   | ( <sup>1</sup> ) |
| Ammunition.....   | 51,509  | 32,550             | 88,038              | 88,038  | 30,840           | 26,053           | 19,931             | 13,028             | 6,539              | 1,905              | 2,485            |
| Artificial flowers.....   | 19,659  | 14,188             | 16,087              | 16,143  | 7,614            | 9,041            | <sup>5</sup> 5,247 | <sup>5</sup> 6,293 | <sup>5</sup> 9,079 | <sup>4</sup> 4,879 | ( <sup>1</sup> ) |
| Artificial limbs.....   | 2,635   | 2,451              | 3,121               | 3,271   | 1,498            | 1,324            | 884                | 750                | 476                | 137                | 166              |
| Artificial stone products.....  | 53,602  | 31,768             | 30,456              | 33,664  | 21,934           | 18,596           | 4,123              | ( <sup>1</sup> )   | ( <sup>1</sup> )   | ( <sup>1</sup> )   | ( <sup>1</sup> ) |
| Artists' materials.....   | 8,639   | 6,960              | 5,456               | 5,508   | 3,238            | 2,340            | 1,139              | 497                | 532                | ( <sup>1</sup> )   | 94               |
| Asbestos products, not including steam packing.....                                 | <sup>1</sup> 39,820   | 19,030             | 23,969              | 23,978  | 2,814            | ( <sup>1</sup> ) | ( <sup>1</sup> )   | ( <sup>1</sup> )   | ( <sup>1</sup> )   | ( <sup>1</sup> )   | ( <sup>1</sup> ) |
| Automobile bodies and parts.....  | 1,013,113   | 403,017            | 691,069             | 692,171   | 129,601          | 55,379           | 3,388              | ( <sup>1</sup> )   | ( <sup>1</sup> )   | ( <sup>1</sup> )   | ( <sup>1</sup> ) |
| Automobile repairing.....   | ( <sup>1</sup> )  | ( <sup>1</sup> )   | ( <sup>1</sup> )    | 224,652   | 29,920           | ( <sup>1</sup> ) | ( <sup>1</sup> )   | ( <sup>1</sup> )   | ( <sup>1</sup> )   | ( <sup>1</sup> )   | ( <sup>1</sup> ) |
| Automobiles.....  | 3,163,328   | 1,671,387          | 2,387,876           | 2,387,903   | 503,230          | 193,823          | 26,645             | 4,748              | ( <sup>1</sup> )   | ( <sup>1</sup> )   | ( <sup>1</sup> ) |
| Awnings, tents, and sails.....  | 45,276  | 37,012             | 45,059              | 45,600  | 18,138           | 14,499           | 11,269             | 9,144              | 7,829              | 1,968              | 2,881            |
| Babbitt metal and solder.....   | 41,487  | 26,255             | 58,998              | 59,017  | 19,180           | 19,768           | 13,100             | 9,191              | 2,905              | 263                | 310              |
| Bags, other than paper, not including bags made in textile mills.....               | 151,676   | 115,452            | 214,028             | 214,059   | 79,049           | 54,882           | 37,399             | 19,652             | 20,208             | 13,238             | 12,700           |
| Bags, paper, exclusive of those made in paper mills.....                            | 42,272  | 41,190             | 47,249              | 47,264  | 17,603           | 15,698           | 10,087             | 6,799              | 5,024              | 4,113              | 1,484            |
| Baking powders and yeast.....   | 51,691  | 52,886             | 46,163              | 46,230  | 22,339           | 20,775           | 19,043             | 14,568             | 7,407              | 4,761              | 895              |
| Baskets, and rattan and willow ware.....  | 14,713  | 11,241             | 11,460              | 11,821  | 6,578            | 5,695            | 5,187              | 3,636              | 3,634              | 1,993              | 1,106            |
| Bells.....  | 792   | 645                | 951                 | 951   | 970              | 961              | 1,000              | 1,248              | 823                | 1,066              | 1,023            |
| Belting and hose, rubber.....   | ( <sup>11</sup> )   | ( <sup>11</sup> )  | ( <sup>11</sup> )   | 24,211  | 23,561           | 19,238           | 14,954             | 6,169              | 5,513              | 1,085              | ( <sup>1</sup> ) |
| Belting and hose, woven, other than rubber.....                                     | <sup>1</sup> 3,312  | 6,390              | 19,176              | 19,176  | 4,441            | 5,491            | 2,837              | 717                | 778                | 23                 | ( <sup>1</sup> ) |
| Belting, leather.....   | 37,723  | 19,168             | 40,457              | 40,491  | 23,036           | 23,692           | 14,220             | 10,623             | 8,534              | 6,526              | 4,558            |
| Billiard tables, bowling alleys, and accessories.....                               | 6,236   | 7,368              | 15,733              | 15,733  | 4,894            | 5,978            | 2,223              | 1,648              | 2,328              | 2,290              | 1,693            |
| Blacking, stains, and dressings.....  | 25,822  | 15,453             | 25,192              | 25,284  | 9,882            | 8,419            | 6,941              | 4,505              | 3,900              | 1,491              | 818              |
| Bluing.....   | 1,643   | 1,883              | 2,704               | 2,731   | 1,184            | 1,074            | 670                | 578                | 457                | 345                | 92               |
| Bone, carbon, and lamp black.....   | 14,800  | 8,181              | 8,186               | 8,186   | 1,464            | 1,093            | 648                | 360                | 1,031              | 661                | 194              |
| Bookbinding and blank-book making.....  | 76,959  | 63,854             | 65,338              | 66,021  | 38,104           | 31,742           | 25,224             | 20,791             | 17,068             | 11,977             | 14,077           |
| Boot and shoe cut stock, exclusive of that produced in boot and shoe factories..... | 89,291  | 72,692             | 161,169             | 161,203   | 59,965           | 44,661           | 27,676             | 23,243             | 17,904             | 7,532              | ( <sup>1</sup> ) |

|   |             |             |             |             |          |          |          |          |          |          |          |
|---|-------------|-------------|-------------|-------------|----------|----------|----------|----------|----------|----------|----------|
| Boot and shoe findings, exclusive of those produced in boot and shoe factories  | 48, 012     | 39, 117     | 62, 680     | 62, 825     | 23, 308  | 25, 505  | 9, 905   | 7, 835   | 6, 805   | 2, 936   | 3, 654   |
| Boots and shoes, not including rubber boots and shoes                           | 1, 000, 078 | 867, 476    | 1, 154, 891 | 1, 155, 041 | 501, 780 | 442, 631 | 320, 107 | 258, 970 | 220, 649 | 66, 050  | -----    |
| Boots and shoes, rubber   | 181, 740    | 94, 033     | 116, 917    | 116, 917    | 53, 822  | 49, 721  | 70, 065  | 41, 090  | 18, 632  | 9, 706   | -----    |
| Boxes, cigar  | 14, 796     | 14, 317     | 13, 045     | 13, 110     | 8, 337   | 8, 491   | 7, 786   | 6, 867   | 7, 092   | 2, 903   | 980      |
| Boxes, paper and other, not elsewhere specified                                 | 264, 209    | 174, 248    | 203, 281    | 206, 419    | 74, 711  | 54, 450  | 36, 867  | 27, 816  | 18, 905  | 7, 066   | 4, 630   |
| Boxes, wooden packing, except cigar boxes                                       | 162, 858    | 122, 588    | 177, 428    | 177, 818    | 65, 507  | 75, 242  | 57, 948  | 38, 184  | 25, 518  | 12, 687  | 5, 968   |
| Brass, bronze, and copper products  | 511, 470    | 214, 904    | 482, 036    | 483, 313    | 162, 199 | 149, 989 | 102, 407 | 68, 654  | 50, 056  | 27, 322  | 13, 131  |
| Bread and other bakery products   | 1, 122, 906 | 1, 089, 972 | 1, 142, 677 | 1, 151, 896 | 491, 893 | 396, 865 | 269, 583 | 176, 369 | 128, 422 | 65, 825  | 36, 908  |
| Brick and tile, terra-cotta, and fire-clay products                             | 333, 416    | 194, 329    | 207, 565    | 208, 423    | 135, 921 | 122, 777 | 121, 152 | 121, 152 | 121, 152 | 121, 152 | 121, 152 |
| Brooms  | 26, 262     | 18, 188     | 29, 387     | 30, 205     | 14, 085  | 14, 432  | 21, 104  | 18, 484  | 14, 156  | 10, 561  | 6, 622   |
| Brushes   | 50, 512     | 35, 545     | 38, 823     | 39, 006     | 17, 894  | 14, 694  | -----    | -----    | -----    | -----    | -----    |
| Butter  | 654, 474    | 479, 724    | 582, 909    | 583, 163    | 243, 379 | 194, 999 | 118, 521 | 130, 783 | 100, 636 | 25, 743  | (*)      |
| Butter, reworking   | (1)         | (1)         | 2, 229      | 2, 229      | 5, 869   | 5, 201   | 7, 271   | 2, 115   | 7, 696   | 4, 217   | 4, 450   |
| Buttons   | 32, 750     | 26, 534     | 41, 513     | 41, 840     | 20, 712  | 22, 708  | 11, 134  | (1)      | 4, 217   | 4, 450   | (1)      |
| Candles   | 5, 080      | 3, 777      | 8, 351      | 8, 351      | 1, 731   | 5, 130   | 9, 889   | (1)      | 6, 979   | (1)      | (1)      |
| Canning and preserving, fish  | 47, 628     | 33, 957     | 77, 177     | 77, 264     | 31, 111  | 25, 514  | 18, 641  | 18, 178  | 6, 979   | (1)      | (1)      |
| Canning and preserving, fruits and vegetables                                   | 370, 338    | 248, 106    | 400, 517    | 402, 243    | 149, 176 | 91, 439  | 78, 142  | 56, 427  | 29, 862  | 17, 600  | 5, 426   |
| Canning and preserving, oysters   | 2, 964      | 2, 158      | 2, 950      | 2, 976      | 2, 328   | 2, 314   | 3, 986   | 1, 253   | 3, 261   | (1)      | (1)      |
| Card cutting and designing  | 6, 109      | 4, 558      | 5, 296      | 5, 323      | 1, 055   | 1, 031   | 1, 083   | 618      | 243      | 52       | 764      |
| Cardboard, not made in paper mills  | 9, 340      | 7, 642      | 9, 138      | 9, 138      | 4, 350   | 3, 779   | 1, 664   | 1, 270   | 1, 071   | 959      | -----    |
| Carpets and rugs, other than rag  | 199, 481    | 103, 880    | 183, 264    | 123, 264    | 69, 128  | 71, 188  | 61, 668  | 48, 192  | 47, 770  | 31, 793  | 21, 762  |
| Carpets, rag  | 6, 097      | 4, 860      | 5, 205      | 5, 597      | 2, 798   | 2, 668   | 1, 918   | 1, 755   | 1, 714   | 862      | 1, 006   |
| Carriage and wagon materials  | 7, 313      | 10, 787     | 26, 643     | 26, 765     | 24, 850  | 34, 526  | 30, 530  | 25, 027  | 16, 262  | 10, 114  | 691      |
| Carriages and sleds, children's   | 34, 173     | 21, 717     | 24, 468     | 24, 507     | 11, 752  | 8, 805   | 6, 371   | 4, 290   | 4, 064   | 1, 078   | 1, 433   |
| Carriages and wagons, including repairs   | 34, 681     | 31, 659     | 33, 914     | 31, 463     | 108, 697 | 125, 367 | 125, 333 | 113, 235 | 102, 680 | 64, 952  | 65, 363  |
| Cars and general shop construction and repairs by electric-railroad companies   | 86, 413     | 87, 312     | 74, 990     | 75, 211     | 38, 577  | 31, 963  | 13, 437  | 9, 371   | 2, 966   | (*)      | (*)      |
| Cars and general shop construction and repairs by steam-railroad companies      | 1, 433, 680 | 1, 180, 030 | 1, 279, 122 | 1, 279, 285 | 514, 041 | 405, 601 | 309, 775 | 218, 114 | 129, 462 | -----    | -----    |
| Cars, electric-railroad, not including operations of railroad companies         | 29, 074     | 14, 856     | 18, 442     | 18, 442     | 10, 495  | 7, 810   | 10, 844  | 7, 305   | 3, 302   | 27, 998  | -----    |
| Cars, steam-railroad, not including operations of railroad companies            | 675, 277    | 325, 680    | 638, 223    | 638, 223    | 194, 776 | 123, 730 | 111, 178 | 90, 510  | 70, 084  | -----    | -----    |
| Cash registers and calculating machines   | 95, 106     | 83, 653     | 83, 527     | 83, 539     | 90, 520  | 23, 708  | 9, 875   | 5, 675   | 1, 423   | -----    | -----    |
| Cement  | 264, 059    | 203, 627    | 176, 265    | 176, 265    | 101, 756 | 63, 205  | 29, 973  | (1)      | (1)      | (1)      | 2, 034   |
| Charcoal, not including production in the lumber and wood-distillation industry | 999         | 419         | 550         | 589         | 402      | 872      | 1, 292   | 1, 134   | (1)      | 976      | (1)      |
| Cheese  | 130, 765    | 81, 880     | 143, 093    | 143, 456    | 51, 745  | 44, 263  | 29, 138  | (1)      | (1)      | (1)      | (1)      |
| Chemicals   | 600, 282    | 314, 871    | 438, 661    | 674, 141    | 158, 054 | 117, 741 | 75, 357  | 48, 159  | 59, 353  | 38, 640  | (1)      |
| Chewing gum   | 40, 871     | 38, 865     | 51, 221     | 51, 240     | 17, 160  | -----    | -----    | -----    | -----    | -----    | -----    |
| China decorating, not including that done in potteries                          | 1, 498      | 1, 242      | 828         | 867         | 727      | 786      | 827      | 485      | 848      | (1)      | (1)      |
| Chocolate and cocoa products  | 95, 632     | 81, 049     | 139, 258    | 139, 258    | 36, 713  | 22, 390  | 14, 390  | 9, 669   | 4, 222   | 1, 302   | 946      |
| Cleaning and polishing preparations   | 35, 443     | 25, 178     | 26, 265     | 26, 703     | 9, 152   | 6, 260   | 2, 710   | 2, 193   | 866      | 500      | 323      |
| Clocks  | 23, 553     | 17, 750     | 23, 858     | 23, 380     | 11, 632  | 8, 868   | 7, 158   | 4, 229   | 4, 110   | 2, 510   | -----    |
| Cloth, sponging and refinishing   | 4, 652      | 4, 101      | 3, 680      | 3, 691      | 1, 531   | 1, 544   | 1, 053   | 666      | 400      | 223      | -----    |
| Clothing, horse   | 5, 137      | 3, 835      | 6, 090      | 6, 021      | 5, 150   | 4, 135   | 2, 139   | 1, 805   | 1, 572   | 695      | -----    |
| Clothing, men's   | 1, 178, 715 | 934, 776    | 1, 161, 714 | 1, 162, 968 | 458, 211 | 485, 677 | 355, 797 | 276, 717 | 261, 020 | 209, 548 | 148, 660 |

See footnotes at end of table, p. 177.

TABLE 34.—GROWTH OF MANUFACTURE IN THE UNITED STATES AS MEASURED BY THE VALUE OF PRODUCTS OF INDIVIDUAL INDUSTRIES, BY CENSUS YEARS: 1869 TO 1923—Continued

[See note at head of this table, p. 168]

| INDUSTRY  | VALUE OF PRODUCTS (EXPRESSED IN THOUSANDS OF DOLLARS)                       |           |           |   |                   |                   |                   |                   |                   |                   |                   |
|---|---|-----------|-----------|---|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|   | Excluding data for establishments with products valued at less than \$5,000 |           |           | Including data for establishments with products valued at \$500 or more |                   |                   |                   |                   |                   |                   |                   |
|   | 1923  | 1921      | 1919      | 1919  | 1914              | 1909              | 1904              | 1899              | 1889              | 1879              | 1869              |
| Clothing, men's, buttonholes.....   | 804   | 646       | 964       | 1,090   | 638               | 781               | 700               | 681               | 784               | ( <sup>9</sup> )  | ( <sup>9</sup> )  |
| Clothing, women's.....  | 1,406,684   | 1,022,743 | 1,207,249 | 1,208,543   | 473,888           | 384,752           | 247,662           | 189,340           | 68,164            | 32,008            | 12,901            |
| Coal-tar products.....  | 130,688   | 75,897    | 135,448   | ( <sup>10</sup> )   | ( <sup>10</sup> ) | ( <sup>10</sup> ) | ( <sup>10</sup> ) | ( <sup>10</sup> ) | ( <sup>10</sup> ) | ( <sup>10</sup> ) | ( <sup>10</sup> ) |
| Coffee and spice, roasting and grinding.....                                | 287,528   | 226,059   | 304,670   | 304,792   | 150,749           | 110,533           | 84,188            | 69,527            | 75,042            | 22,925            | 11,266            |
| Coffins, burial cases, and undertakers' goods.....                          | 65,568  | 64,796    | 64,308    | 64,377  | 26,325            | 24,526            | 20,266            | 13,952            | 12,231            | 8,158             | 4,027             |
| Coke, not including gas-house coke.....                                     | 516,923   | 221,313   | 316,497   | 316,516   | 99,275            | 95,697            | 51,729            | 35,585            | 16,498            | 5,859             | 1,132             |
| Collars and cuffs, men's.....   | 42,636  | 29,571    | 47,556    | 47,565  | 18,531            | 17,230            | 12,587            | 15,769            | ( <sup>9</sup> )  | ( <sup>9</sup> )  | ( <sup>9</sup> )  |
| Combs and hairpins, not made from metal or rubber.....                      | 8,770   | 4,850     | 6,569     | 6,568   | 5,478             | 5,378             | 2,789             | 1,976             | 1,021             | 951               | 689               |
| Condensed milk.....   | 200,111   | 176,837   | 359,607   | 339,507   | 69,161            | 85,205            | 20,524            | ( <sup>10</sup> ) | ( <sup>10</sup> ) | ( <sup>10</sup> ) | ( <sup>10</sup> ) |
| Confectionery and ice cream.....  | 626,223   | 527,260   | 633,701   | 637,209   | 209,668           | 134,796           | 87,087            | 60,644            | 55,997            | 25,637            | 15,923            |
| Cooperage.....  | 73,134  | 56,633    | 67,547    | 68,236  | 50,017            | 49,622            | 49,424            | 38,440            | 38,618            | 33,715            | 26,894            |
| Copper, tin, and sheet-iron work.....                                       | 198,908   | 149,776   | 156,817   | 160,314   | 94,891            | 89,388            | 56,082            | 63,813            | 66,654            | 50,184            | 42,357            |
| Cordage and twine.....  | 88,283  | 75,356    | 133,357   | 133,866   | 59,761            | 41,942            | 48,017            | 37,850            | 33,313            | 12,492            | 8,979             |
| Cordials and flavoring sirups.....  | 50,017  | 44,066    | 46,741    | 46,807  | 15,316            | 9,662             | 8,610             | 4,491             | 1,903             | 331               | 955               |
| Cork, cutting.....  | 15,566  | 12,968    | 16,283    | 16,282  | 7,875             | 5,940             | 4,491             | 4,392             | 2,840             | 1,567             | 755               |
| Corsets.....  | 78,048  | 75,600    | 75,480    | 75,542  | 40,551            | 33,267            | 14,862            | 14,451            | 12,402            | 6,495             | .....             |
| Cotton goods.....   | 1,901,126   | 1,278,221 | 2,125,246 | 2,125,272   | 676,569           | 615,218           | 442,451           | 332,806           | 267,982           | 210,950           | 177,490           |
| Cotton lace.....  | 35,792  | 25,981    | 29,897    | 29,897  | 13,207            | .....             | .....             | .....             | .....             | .....             | .....             |
| Cotton small wares.....   | 73,223  | 28,061    | 40,897    | 40,897  | 11,525            | 13,174            | 8,016             | 6,394             | 727               | 4,446             | 1,117             |
| Crucibles.....  | 3,468   | 1,970     | 5,294     | 5,294   | 1,849             | 1,849             | 1,343             | 2,607             | 11,111            | 11,961            | 11,105            |
| Cutlery and edge tools.....   | 72,477  | 49,341    | 66,524    | 66,630  | 25,541            | 22,845            | 18,618            | 14,787            | ( <sup>9</sup> )  | ( <sup>9</sup> )  | ( <sup>9</sup> )  |
| Dairymen's, poultrymen's, and apiarists' supplies.....                      | 39,463  | 27,644    | 37,370    | 37,397  | 19,950            | 15,468            | 6,546             | ( <sup>9</sup> )  | ( <sup>9</sup> )  | ( <sup>9</sup> )  | ( <sup>9</sup> )  |
| Dental goods.....   | 32,423  | 25,812    | 29,260    | 29,402  | 16,160            | 10,836            | 7,810             | 3,721             | 2,695             | 861               | 579               |
| Drug grinding.....  | 10,562  | 10,086    | 16,939    | 16,938  | 8,080             | 8,007             | 5,148             | 4,308             | 4,337             | .....             | .....             |
| Druggists' preparations.....  | 79,143  | 81,698    | 114,358   | 114,594   | 48,010            | 43,958            | 31,782            | 22,715            | 6,660             | .....             | .....             |
| Dyeing and finishing textiles, exclusive of that done in textile mills..... | 342,230   | 276,751   | 323,974   | 323,968   | 109,292           | 83,556            | 50,850            | 44,663            | 28,901            | 32,297            | ( <sup>9</sup> )  |
| Dyestuffs and extracts, natural.....  | 35,972  | 28,311    | 53,733    | 53,744  | 20,620            | 15,955            | 10,893            | 7,351             | 9,293             | 5,253             | 2,879             |
| Electrical machinery, apparatus, and supplies.....                          | 1,293,002   | 833,985   | 997,716   | 997,968   | 335,170           | 221,309           | 140,809           | 92,434            | 19,115            | 2,555             | ( <sup>9</sup> )  |
| Electroplating.....   | 12,297  | 8,041     | 10,015    | 10,390  | 4,773             | 4,510             | 2,965             | 2,720             | 3,122             | 1,976             | ( <sup>9</sup> )  |
| Emery and other abrasive wheels.....  | 25,307  | 12,559    | 30,935    | 30,949  | 7,130             | 6,711             | 2,062             | 1,382             | 726               | 322               | 156               |
| Enameling.....  | 4,427   | 2,023     | 2,592     | 2,645   | 2,166             | 2,085             | 15,709            | 9,979             | 182               | 183               | 1,071             |
| Engines, steam, gas, and water.....   | 266,998   | 199,409   | 464,716   | 464,775   | 72,121            | ( <sup>10</sup> ) | ( <sup>10</sup> ) | ( <sup>10</sup> ) | ( <sup>10</sup> ) | ( <sup>10</sup> ) | ( <sup>10</sup> ) |
| Engravers' materials.....   | 2,303   | 1,817     | 2,239     | 2,248   | 768               | 921               | 171               | 282               | 204               | 86                | ( <sup>9</sup> )  |
| Engraving and dieinking.....  | 9,121   | 4,850     | 6,667     | 7,351   | 3,134             | 2,250             | 2,422             | 1,463             | 2,187             | 1,180             | 2,093             |

Engraving, steel and copperplate, including plate printing.....

Engraving, wood.....

Envelopes.....

Explosives.....

Fancy articles, not elsewhere specified.....

Feathers and plumes.....

Felt goods.....

Ferro-alloys.....

Fertilizers.....

Files.....

Firearms.....

Fire extinguishers, chemical.....

Fireworks.....

Flags and banners.....

Flavoring extracts.....

Flax and hemp, dressed.....

Flour-mill and grain-mill products.....

Food preparations, not elsewhere specified.....

Foundry and machine-shop products <sup>22</sup>.....

Foundry supplies.....

Fuel, manufactured.....

Fur goods.....

Furnishing goods, men's <sup>24</sup>.....

Furniture.....

Furs, dressed.....

Galvanizing and other coating processes.....

Gas and electric fixtures.....

Gas, illuminating and heating.....

Gas machines and gas and water meters.....

Glass.....

Glass, cutting, staining and ornamenting.....

Gloves and mittens, cloth, not including gloves made in textile mills.....

Gloves and mittens, leather.....

Glucose and starch.....

Glue, not elsewhere specified.....

Gold and silver, leaf and foil.....

Gold and silver, reducing and refining, not from the ore.....

Graphite, ground and refined.....

Grease and tallow, not including lubricating greases.....

Grindstones.....

Haircloth.....

Hair work.....

Hammocks.....

Hand stamps.....

Hardware.....

Hardware, saddlery.....

Hat and cap materials.....

|                       |                       |                       |                     |                   |                   |                   |                   |                   |                   |                   |
|-----------------------|-----------------------|-----------------------|---------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| 82,551                | 28,770                | 23,958                | 24,200              | 13,788            | 9,432             | 8,943             | 5,101             | 3,848             | 2,999             | (9)               |
| 524                   | 628                   | 1,089                 | 1,154               | 719               | 711               | 648               | 614               | 1,656             | 735               |                   |
| 50,752                | 43,911                | 39,684                | 39,664              | 18,481            | 13,454            | 10,222            | 6,290             | 4,856             | 3,001             | 2,278             |
| 75,029                | 59,175                | 58,478                | 92,475              | 41,433            | 40,140            | 29,603            | 17,125            | 11,353            | 5,802             | 4,238             |
| 63,208                | 51,406                | 63,770                | 64,055              | 17,659            | 12,391            | 11,962            | 9,046             | 4,810             | 2,817             | (9)               |
| 7,867                 | 8,827                 | 15,333                | 15,378              | 11,451            | 14,980            | (9)               | (9)               | (9)               | (9)               | (9)               |
| 42,037                | 24,139                | 39,229                | 30,230              | 13,693            | 11,863            | 8,949             | 6,462             | 4,655             | 3,620             | (9)               |
| 183,089               | 180,375               | 281,096               | 281,144             | 163,196           | 103,960           | 86,541            | 44,657            | 30,181            | 23,651            | 5,815             |
| 13,566                | 17,647                | 17,005                | 17,617              | 5,938             | 5,691             | 4,592             | 3,404             | 3,180             | 2,487             | 1,649             |
| 17,665                | 12,894                | 30,171                | 30,151              | 10,544            | 8,038             | 5,445             | 2,923             | 5,737             | 5,737             |                   |
| 6,182                 | 4,254                 | 5,550                 | 5,563               | 1,298             | 754               | 582               | 218               | 96                | 205               |                   |
| 4,977                 | 4,727                 | 4,593                 | 4,630               | 2,299             | 1,987             | 1,785             | 593               | 1,391             | 880               |                   |
| 3,807                 | 3,637                 | 5,296                 | 5,046               | 3,601             | 1,084             | 1,038             | 456               | 120               |                   |                   |
| 24,137                | 33,060                | 29,846                | 30,117              | 11,380            | 8,828             | 7,772             | 6,308             | 3,616             | 1,196             |                   |
| 281                   | 298                   | 3,369                 | 2,369               | 283               | 467               | 347               | 159               | 981               | 1,310             | 815               |
| 1,048,578             | 1,179,740             | 2,048,410             | 2,052,434           | 877,680           | 883,584           | 713,038           | 501,896           | 513,971           | 505,188           | 444,985           |
| <sup>23</sup> 473,402 | 372,898               | 630,689               | 631,998             | 219,838           | 125,331           | 61,180            | 39,837            | 14,103            | 2,493             | 3,622             |
| <sup>22</sup> 337,078 | 1,605,527             | 2,284,907             | 2,659,079           | 860,545           | 889,948           | 685,894           | 649,086           | 416,835           | 215,442           | (9)               |
| 10,243                | 4,966                 | 9,916                 | 9,955               | 2,013             | 2,298             | 1,059             | 1,129             | 672               | 216               |                   |
| 5,584                 | 3,174                 | 1,974                 | 863                 | 311               | (9)               | (9)               | (9)               | 102               |                   |                   |
| 198,043               | 139,366               | 172,606               | 173,133             | 43,632            | 55,938            | 27,119            | 25,890            | 20,527            |                   |                   |
| 102,952               | 77,527                | 107,726               | 136,055             | 52,458            | 42,180            | 36,445            | 28,877            | 20,570            | 9,924             |                   |
| <sup>24</sup> 776,495 | <sup>23</sup> 650,163 | <sup>23</sup> 578,667 | 671,856             | 265,706           | 229,197           | 170,447           | 125,316           | 111,743           | 77,846            | 68,522            |
| 25,467                | 19,167                | 20,356                | 20,385              | 2,875             | 2,391             | 3,216             | 1,400             | 651               | 8,239             | 8,903             |
| 6,327                 | 4,018                 | 14,464                | 14,476              | 6,480             | 7,338             | 6,419             | 2,471             | 2,957             | 1,886             | 796               |
| 61,750                | 42,890                | 42,209                | 42,268              | 28,740            | 28,844            | 17,660            | 11,490            | 7,823             | 4,330             | 4,062             |
| 450,097               | 411,196               | 329,118               | 329,279             | 220,238           | 166,514           | 125,145           | 75,717            | 56,937            | (9)               | 32,049            |
| 34,250                | 21,950                | 20,240                | 25,267              | 15,184            | 13,308            | 5,831             | 4,301             | 1,836             | 1,334             | 1,452             |
| 809,353               | 213,471               | 261,884               | 261,884             | 123,085           | 92,095            | 79,603            | 56,540            | 41,051            | 21,155            | 18,468            |
| 25,027                | 22,209                | 28,097                | 28,443              | 16,446            | 16,101            | 13,138            | 8,750             | 6,090             | 2,535             | 768               |
|                       |                       |                       | ( <sup>25</sup> )   | ( <sup>25</sup> ) | ( <sup>25</sup> ) | ( <sup>25</sup> ) | ( <sup>25</sup> ) | ( <sup>25</sup> ) | ( <sup>25</sup> ) | ( <sup>25</sup> ) |
|                       | 28,126                | 15,213                | 28,165              | 21,614            | 23,631            | 17,740            | 16,926            | 10,104            | 7,380             | 3,999             |
|                       | 38,061                | 24,855                | 46,865              | 46,941            | 52,615            | 48,799            | 32,650            | 30,027            | 16,691            | 12,029            |
|                       | <sup>27</sup> 116,600 | <sup>27</sup> 80,041  | 186,244             | 186,256           | 13,733            | 10,035            | 5,889             | 4,270             | 4,324             | 1,914             |
|                       | 24,366                | 21,342                | 32,123              | 32,134            | 2,432             | 2,630             | 2,695             | 2,978             | 1,614             | 1,411             |
|                       | 3,562                 | 7,014                 | 4,420               |                   |                   |                   |                   |                   |                   |                   |
|                       | 71,921                | 45,974                | 55,448              | 55,483            | 23,888            | 23,612            | 18,724            | 11,812            | 32,036            | 9,548             |
|                       | 2,184                 | 1,457                 | 2,227               | 2,240             | 1,724             | 1,140             | 342               | 55                | 210               |                   |
|                       | 48,634                | 27,206                | 67,005              | 67,265            | 24,901            | 22,419            | 18,815            | 11,953            | 7,475             | 18,730            |
|                       | <sup>28</sup> 2,096   | <sup>28</sup> 1,499   | <sup>28</sup> 1,428 | 1,369             | 684               | 1,688             | 788               | 1,089             | 122               | 185               |
|                       | 3,734                 | 3,816                 | 3,215               | 2,995             | 2,390             | ( <sup>29</sup> ) | ( <sup>29</sup> ) | ( <sup>29</sup> ) | ( <sup>29</sup> ) | ( <sup>29</sup> ) |
|                       | 11,264                | 10,952                | 6,794               | 6,963             | 3,335             | 11,216            | 1,782             | 1,406             | 2,489             | 1,468             |
|                       | 851                   | 256                   | 256                 | 671               | 871               | 678               | 447               | 480               | 110               |                   |
|                       | <sup>29</sup> 11,131  | <sup>29</sup> 9,079   | <sup>29</sup> 9,040 | 8,332             | 2,304             | 2,018             | 1,938             | 1,594             | 319               | 43                |
|                       | 206,709               | 116,639               | 154,340             | 154,325           | 73,320            | 64,912            | 45,770            | 35,447            | 26,726            | 22,654            |
|                       | 9,290                 | 3,911                 | 14,113              | 14,137            | 4,040             | 4,821             | 4,149             | 4,118             | 3,651             | 3,227             |
|                       | 20,598                | 11,545                | 26,472              | 26,521            | 6,929             | 8,236             | 6,440             | 3,849             | 2,217             | 3,226             |

See footnotes at end of table, p. 177.



TABLE 34.—GROWTH OF MANUFACTURE IN THE UNITED STATES AS MEASURED BY THE VALUE OF PRODUCTS OF INDIVIDUAL INDUSTRIES, BY CENSUS YEARS: 1869 TO 1923—Continued

[See note at head of this table, p. 168]

| INDUSTRY  | VALUE OF PRODUCTS (EXPRESSED IN THOUSANDS OF DOLLARS)                       |            |           |   |         |         |         |         |         |         |         |
|---|---|------------|-----------|---|---------|---------|---------|---------|---------|---------|---------|
|   | Excluding data for establishments with products valued at less than \$5,000 |            |           | Including data for establishments with products valued at \$500 or more |         |         |         |         |         |         |         |
|   | 1923  | 1921       | 1919      | 1919  | 1914    | 1909    | 1904    | 1899    | 1889    | 1879    | 1869    |
| Hats and caps, other than felt, straw, and wool   | 42,812  | 36,987     | 44,231    | 44,540  | 18,593  | 13,689  | 12,956  | 21,394  | 37,312  | 21,303  | -----   |
| Hats, fur-felt  | 75,253  | 52,614     | 82,685    | 82,745  | 37,350  | 47,865  | 36,629  | 27,811  | -----   | -----   | -----   |
| Hats, straw   | 32,569  | 28,617     | 32,171    | 32,187  | 25,444  | 21,424  | 10,357  | (1)     | (1)     | (1)     | -----   |
| Hats, wool-felt   | 8,043   | 4,964      | 6,727     | 6,740   | 1,944   | 4,382   | 2,457   | 8,592   | 5,330   | 8,517   | -----   |
| Hones and whetstones  | 546   | 300        | 794       | 784   | 1,260   | 258     | 308     | 196     | 54      | 224     | 259     |
| Horseshoes, not made in steel works or rolling mills  | 1,814   | 1,932      | 8,343     | 8,367   | 1,786   | 1,015   | 799     | 498     | 1,110   | -----   | (1)     |
| House-furnishing goods, not elsewhere specified   | 69,333  | 54,551     | 60,004    | 60,212  | 26,453  | 18,509  | 15,011  | 14,278  | 8,347   | 1,332   | -----   |
| Ice, manufactured   | 164,662   | 158,889    | 135,985   | 137,005   | 60,386  | 42,953  | 23,790  | 13,781  | 4,901   | 545     | 258     |
| Ink, printing   | 29,412  | 20,869     | 26,231    | 26,244  | 13,830  | 8,865   | 5,774   | 3,080   | 2,377   | (1)     | 600     |
| Ink, writing  | 6,107   | 4,980      | 6,888     | 6,434   | 2,784   | 2,505   | 1,881   | 1,293   | 1,128   | (1)     | 366     |
| Instruments, professional and scientific  | 63,074  | 42,132     | 57,987    | 58,137  | 17,495  | 10,504  | 6,378   | 4,853   | 3,272   | 1,639   | 1,724   |
| Iron and steel, blast furnaces  | 10 1,007,613  | 10 419,771 | 794,467   | 794,467   | 317,654 | 391,429 | 231,823 | 206,757 | 145,643 | 89,316  | 69,640  |
| Iron and steel, steel works and rolling mills   | 3,154,325   | 1,481,659  | 2,868,202 | 2,828,902   | 918,665 | 985,723 | 673,955 | 597,212 | 333,044 | 207,242 | 137,568 |
| Iron and steel, bolts, nuts, washers, and rivets, not made in rolling mills                                       | 84,431  | 35,774     | 89,731    | 89,744  | 23,403  | 24,485  | 14,687  | 13,978  | 12,373  | 10,073  | 7,191   |
| Iron and steel, cast-iron pipe  | 92,674  | 44,322     | 50,235    | 50,235  | 26,659  | 29,154  | (10)    | (10)    | (10)    | (10)    | (10)    |
| Iron and steel, doors and shutters  | 15,367  | 12,467     | 10,869    | 10,877  | 5,184   | 3,006   | 1,477   | 320     | 89      | 495     | -----   |
| Iron and steel, forgings, not made in steel works or rolling mills  | 179,011   | 83,151     | 173,729   | 173,752   | 28,961  | 20,293  | 12,110  | 10,438  | 9,043   | 6,492   | -----   |
| Iron and steel, nails and spikes, cut and wrought, including wire nails, not made in steel works or rolling mills | 13,300  | 10,976     | 17,688    | 17,683  | 7,199   | 8,192   | 8,923   | 14,777  | 34,228  | 5,629   | 24,824  |
| Iron and steel, nail tempering and welding  | 9,112   | 6,202      | 10,505    | (10)  | (10)    | (10)    | (10)    | (10)    | (10)    | (10)    | (10)    |
| Iron and steel, wrought pipe  | 90,823  | 56,662     | 81,889    | 81,869  | 37,655  | 30,886  | 17,401  | 21,292  | 37,907  | 13,292  | 7,369   |
| Ivory, shell, and bone work, not including combs and hairpins   | 2,441   | 2,395      | 2,787     | 2,817   | 1,896   | 1,865   | 2,864   | 1,873   | 1,919   | 1,455   | 1,080   |
| Japanning   | 1,021   | 497        | 739       | 771   | 381     | 331     | 607     | 216     | 351     | 190     | 216     |
| Jewelry   | 174,034   | 127,231    | 202,911   | 203,939   | 81,006  | 80,350  | 53,226  | 46,129  | 34,781  | 22,202  | 22,104  |
| Jewelry and instrument cases  | 10,506  | 7,036      | 8,080     | 8,128   | 3,621   | 3,117   | 2,292   | 1,157   | 1,454   | 132     | 217     |
| Jute goods  | 25,421  | 17,506     | 34,445    | 34,443  | 16,514  | 10,795  | 9,066   | 5,884   | 1,120   | 697     | -----   |
| Knit goods  | 848,177   | 634,074    | 712,749   | 713,140   | 258,913 | 200,143 | 137,076 | 95,534  | 67,447  | 29,614  | 18,412  |
| Labels and tags   | 26,023  | 19,538     | 24,208    | 24,244  | 6,584   | 4,670   | 2,462   | 1,105   | 1,058   | 866     | -----   |
| Lamps and reflectors  | 67,229  | 29,164     | 38,040    | 38,039  | 16,638  | 15,213  | 9,000   | 8,341   | 4,039   | 3,358   | 995     |
| Lapidary work   | 9,130   | 4,345      | 29,982    | 30,051  | 5,360   | 9,173   | 7,647   | 5,786   | 316     | 544     | 107     |

|   |           |         |           |           |         |         |         |         |         |         |         |         |         |
|---|-----------|---------|-----------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Lard, not made in slaughtering and meat-packing establishments.....                     | (9)       | (9)     | 220       | 220       | 147     | (9)     | (9)     | (9)     | (9)     | (9)     | (9)     | (9)     | (9)     |
| Leads.....  | 9,900     | 12,377  | 12,452    | 12,471    | 4,589   | 4,159   | 2,520   | 1,890   | 1,239   | 765     | 686     | 1,239   | 686     |
| Lead, bar, pipe, and sheet.....   | 18,295    | 10,474  | 17,174    | 17,174    | 7,431   | 9,145   | 9,277   | 7,478   | 6,352   | 5,601   | 18,510  | 6,352   | 5,601   |
| Leather goods, not elsewhere specified.....   | 40,134    | 47,715  | 52,790    | 52,953    | 19,334  | 18,838  | 17,655  | 11,788  | 6,292   | 2,737   | 167,238 | 6,292   | 2,737   |
| Leather, tanned, curried, and finished.....   | 488,898   | 383,565 | 928,518   | 928,592   | 307,202 | 327,874 | 252,621 | 204,038 | 172,136 | 200,265 | 157,238 | 200,265 | 157,238 |
| Lime.....   | 47,244    | 31,015  | 33,678    | 33,970    | 18,391  | 17,952  | 14,761  | 28,674  | 17,142  | 17,772  | 6,917   | 17,142  | 6,917   |
| Linen goods.....  | 11,390    | 8,210   | 6,998     | 6,998     | 6,998   | 6,985   | 5,856   | 4,368   | 2,880   | 1,802   | 2,179   | 4,368   | 2,880   |
| Liquors, distilled.....   | 83,000    | 22,789  | 31,854    | 31,854    | 206,779 | 204,699 | 131,270 | 96,794  | 104,198 | 41,004  | 36,191  | 96,794  | 104,198 |
| Liquors, malt, including cereal beverages.....  | 75,535    | 122,050 | 378,883   | 379,905   | 442,149 | 374,790 | 293,346 | 236,915 | 182,732 | 101,058 | 55,707  | 236,915 | 182,732 |
| Liquors, vinous.....  | 5,831     | 4,757   | 17,116    | 17,454    | 16,618  | 13,121  | 11,098  | 6,547   | 2,846   | 2,169   | 2,225   | 6,547   | 2,846   |
| Lithographing.....  | 91,371    | 79,472  | 73,059    | 73,151    | 36,136  | 34,109  | 25,245  | 22,241  | 17,988  | 6,912   | 2,516   | 22,241  | 17,988  |
| Locomotives, not made by railroad companies.....  | 215,393   | 102,023 | 156,270   | 156,270   | 43,374  | 31,582  | 59,552  | (9)     | (9)     | (9)     | (9)     | (9)     | (9)     |
| Looking-glass and picture frames.....   | 18,642    | 15,448  | 18,043    | 18,385    | 11,014  | 13,475  | 12,270  | 10,847  | 16,376  | 9,696   | 5,062   | 10,847  | 9,696   |
| Lubricating greases.....  | 12,584    | 8,912   | 8,856     | 8,869     | 4,919   | 1,481   | 879     | 718     | 846     | 365     | (9)     | 718     | 846     |
| Lumber and timber products.....   | 1,494,462 | 902,501 | 1,363,112 | 1,387,471 | 715,310 | 753,388 | 579,777 | 555,048 | 437,899 | 233,609 | 210,401 | 555,048 | 437,899 |
| Lumber, planing-mill products, not including planing mills connected with sawmills..... | 692,784   | 462,649 | 498,278   | 500,438   | 307,672 | 327,898 | 247,442 | 167,786 | 183,682 | 73,425  | 80,278  | 247,442 | 167,786 |
| Machine tools.....  | 137,296   | 67,729  | 212,351   | (9)       | 38,262  | (9)     | (9)     | (9)     | (9)     | (9)     | (9)     | (9)     | (9)     |
| Malt.....   | 16,431    | 21,035  | 39,340    | 39,340    | 48,133  | 30,289  | 30,289  | 19,374  | 23,443  | 18,273  | 12,017  | 30,289  | 19,374  |
| Marble and stone work.....  | 191,538   | 137,241 | 126,564   | 129,165   | 107,055 | 113,093 | 84,844  | 73,637  | 65,723  | 32,446  | 30,234  | 73,637  | 65,723  |
| Matches.....  | 23,940    | 30,274  | 18,496    | 18,496    | 12,556  | 11,353  | 5,647   | 6,006   | 2,194   | 4,668   | 3,540   | 6,006   | 2,194   |
| Mats and matting, from cocoa fiber, grass, and corl.....                                | 3,890     | 2,322   | 4,861     | 4,861     | 2,236   | 2,432   | 1,243   | 1,165   | 609     | 439     | (9)     | 1,165   | 609     |
| Mattresses and bed springs, not elsewhere specified.....                                | 107,562   | 74,624  | 83,496    | 83,953    | 38,717  | 35,783  | 27,755  | 17,956  | 15,684  | 5,288   | (9)     | 17,956  | 15,684  |
| Millinery and lace goods, not elsewhere specified.....                                  | 297,505   | 269,714 | 254,532   | 265,725   | 114,160 | 85,894  | 60,778  | 29,489  | 18,047  | 9,578   | 6,513   | 29,489  | 18,047  |
| Millstones.....   | (9)       | (9)     | 67        | 67        | (9)     | (9)     | (9)     | 76      | 47      | 356     | 819     | (9)     | (9)     |
| Mineral and soda waters.....  | 153,195   | 115,577 | 131,153   | 135,341   | 58,401  | 43,608  | 30,251  | 29,269  | 14,854  | 4,742   | 4,222   | 29,269  | 14,854  |
| Minerals and earths, ground or otherwise treated.....                                   | 35,309    | 26,174  | 45,969    | 46,067    | 10,307  | 4,681   | 4,439   | 3,722   | 2,847   | 1,456   | 388     | 4,439   | 3,722   |
| Mirrors, framed and unframed, not elsewhere specified.....                              | 33,468    | 16,740  | 20,771    | 20,831    | 10,189  | 9,571   | 7,695   | 8,004   | 6,001   | 304     | 489     | 7,695   | 8,004   |
| Models and patterns, not including paper patterns.....                                  | 30,165    | 16,742  | 24,742    | 25,300    | 8,605   | 8,868   | 4,545   | 3,834   | 2,734   | 1,021   | 1,211   | 4,545   | 3,834   |
| Motor cycles, bicycles, and parts.....  | 32,259    | 23,098  | 53,090    | 53,106    | 22,224  | 10,699  | 5,153   | 31,916  | 2,568   | (9)     | (9)     | 5,153   | 31,916  |
| Mucilage, paste, and other adhesives, not elsewhere specified.....                      | 10,621    | 9,930   | 11,162    | 11,230    | 5,695   | 4,918   | 3,556   | 2,556   | 1,277   | 17      | 126     | 3,556   | 2,556   |
| Musical instruments and materials, not elsewhere specified.....                         | 15,619    | 12,354  | 12,255    | 12,506    | 3,625   | 3,228   | 3,482   | 3,395   | 1,889   | 854     | 2,019   | 3,395   | 1,889   |
| Musical instruments, organs.....  | 9,693     | 10,185  | 5,949     | 5,973     | 6,207   | 6,042   | 6,042   | (9)     | (9)     | (9)     | (9)     | (9)     | (9)     |
| Musical instruments, pianos.....  | 111,160   | 73,640  | 107,080   | 107,085   | 62,775  | 66,569  | 46,922  | 41,016  | 34,980  | 18,401  | (9)     | 46,922  | 41,016  |
| Musical instruments, piano and organ materials.....                                     | 33,839    | 18,597  | 36,774    | 36,790    | 19,376  | 15,473  | 13,126  | (9)     | (9)     | (9)     | (9)     | (9)     | (9)     |
| Needles, pins, and hooks and eyes.....  | 22,147    | 18,896  | 20,289    | 20,305    | 7,891   | 6,694   | 4,751   | 3,238   | 2,100   | 1,748   | 1,225   | 3,238   | 2,100   |
| Nets and seines.....  | 4,628     | 3,018   | 5,714     | 5,114     | 3,088   | 1,898   | 1,725   | 1,476   | 1,002   | 392     | 167     | 1,476   | 1,002   |
| Oakum.....  | (9)       | (9)     | 983       | 359       | 338     | 361     | 338     | 440     | 263     | (9)     | (9)     | 338     | 263     |
| Oil and cake, cottonseed.....   | 226,388   | 217,225 | 581,245   | 581,245   | 212,127 | 147,868 | 96,408  | 53,727  | 19,336  | 7,691   | 2,206   | 96,408  | 53,727  |
| Oil, essential.....   | 3,184     | 3,421   | 5,698     | 5,698     | 2,314   | 1,737   | 1,465   | 813     | 256     | 249     | 631     | 1,465   | 813     |
| Oil, linseed.....   | 113,221   | 71,032  | 120,638   | 120,638   | 44,833  | 36,739  | 27,577  | 27,184  | 23,534  | 15,394  | 8,882   | 27,577  | 23,534  |
| Oil, not elsewhere specified.....   | 118,158   | 93,275  | 156,440   | 156,490   | 38,040  | 31,770  | 23,596  | 19,607  | 11,750  | 9,208   | 15,340  | 23,596  | 19,607  |
| Oilcloth and linoleum, floor.....   | 77,697    | 48,622  | 52,673    | 52,673    | 17,992  | 15,813  | 10,368  | 7,907   | 3,878   | 4,753   | 4,212   | 7,907   | 3,878   |
| Onion, enameled.....  | 17,719    | 13,692  | 15,437    | 15,437    | 7,996   | 7,526   | 4,404   | 3,596   | 1,693   | 1,062   | (9)     | 7,526   | 4,404   |
| Oleomargarine and other butter substitutes.....   | 35,953    | 39,177  | 79,815    | 79,816    | 15,080  | 8,148   | 6,574   | 12,500  | 2,989   | 6,989   | (9)     | 6,574   | 2,989   |
| Optical goods.....  | 54,462    | 44,262  | 53,559    | 53,718    | 18,188  | 11,735  | 6,117   | 5,211   | 3,606   | 1,182   | 433     | 6,117   | 5,211   |

See footnotes at end of table, p. 177.

TABLE 34.—GROWTH OF MANUFACTURE IN THE UNITED STATES AS MEASURED BY THE VALUE OF PRODUCTS OF INDIVIDUAL INDUSTRIES, BY CENSUS YEARS: 1869 TO 1923—Continued

[See note at head of this table, p. 168]

| INDUSTRY   | VALUE OF PRODUCTS (EXPRESSED IN THOUSANDS OF DOLLARS)                       |                      |                      |   |                  |                     |                     |                     |                     |                    |                  |
|--|---|----------------------|----------------------|---|------------------|---------------------|---------------------|---------------------|---------------------|--------------------|------------------|
|  | Excluding data for establishments with products valued at less than \$5,000 |                      |                      | Including data for establishments with products valued at \$500 or more |                  |                     |                     |                     |                     |                    |                  |
|  | 1923  | 1921                 | 1919                 | 1919  | 1914             | 1909                | 1904                | 1899                | 1889                | 1879               | 1869             |
| Ordnance and accessories.....  | ( <sup>o</sup> )  | ( <sup>o</sup> )     | 69,496               | 69,496  | ( <sup>o</sup> ) | ( <sup>o</sup> )    | 558                 | 2,240               | 2,425               | ( <sup>o</sup> )   |                  |
| Paints.....  | 291,124   | 203,071              | 258,601              | 258,714   | 112,409          | 94,572              | 67,278              | 50,875              | 40,438              | 23,391             | 16,932           |
| Paper and wood pulp.....   | 907,347   | 667,436              | 788,049              | 788,059   | 332,147          | 267,667             | 188,715             | 127,328             | 78,937              | 57,367             | 48,849           |
| Paper goods, not elsewhere specified.....  | 116,162   | 84,129               | 107,239              | 107,285   | 48,871           | 37,938              | 22,159              | 16,785              | 4,179               | ( <sup>o</sup> )   | ( <sup>o</sup> ) |
| Paper patterns.....  | 9,259   | 10,531               | 1,516                | 1,528   | 3,026            | 2,611               | 2,265               | 562                 |                     | 513                | ( <sup>o</sup> ) |
| Patent medicines and compounds.....  | 237,494   | 175,868              | 210,184              | 212,162   | 102,463          | 83,771              | 74,521              | 58,988              | 32,620              | 14,682             | 16,258           |
| Paving materials.....  | 71,456  | 61,129               | 45,299               | 45,741  | 35,678           | 6,229               | 5,033               | 3,986               | ( <sup>o</sup> )    | 1,024              | 447              |
| Peanuts, grading, roasting, cleaning, and shelling.....                                      | 18,189  | 19,669               | 33,327               | 33,354  | 14,996           | 9,737               | 7,261               | ( <sup>o</sup> )    | ( <sup>o</sup> )    | ( <sup>o</sup> )   | ( <sup>o</sup> ) |
| Pencils, lead.....   | 24,568  | 21,382               | 24,134               | 24,134  | 8,328            | 7,379               | 4,426               | 2,222               | 1,688               | 270                | 181              |
| Pens, fountain and stylographic.....   | 20,239  | 12,795               | 15,979               | 15,997  | 6,865            | 3,542               | 2,082               | 906                 | 352                 | ( <sup>o</sup> )   | ( <sup>o</sup> ) |
| Pens, gold.....  | 2,320   | 1,335                | 1,801                | 1,801   | 642              | 1,197               | 692                 | 799                 | 718                 | 533                | 467              |
| Pens, steel.....   | 1,171   | 846                  | 1,679                | 1,680   | 513              | 577                 | 474                 | 294                 | 268                 | 164                | 180              |
| Perfumery and cosmetics.....   | 100,241   | 72,541               | 59,231               | 59,613  | 16,899           | 14,212              | 11,133              | 7,088               | 4,630               | 2,203              | 2,030            |
| Petroleum refining.....  | 1,793,700   | 1,727,440            | 1,632,622            | 1,632,633   | 396,361          | 236,998             | 175,005             | 123,929             | 85,001              | 43,705             | 26,942           |
| Phonographs and graphophones.....  | 107,311   | 98,213               | 158,623              | 158,648   | 27,116           | 11,726              | 10,237              | 2,246               | ( <sup>o</sup> )    |                    |                  |
| Photo-engraving, not done in printing establishments.....                                    | 43,660  | 36,215               | 29,276               | 29,389  | 15,559           | 11,624              | 7,268               | 4,190               | 2,072               |                    |                  |
| Photographic apparatus.....  | ( <sup>o</sup> )  | ( <sup>o</sup> )     | ( <sup>o</sup> )     | 9,384   | 4,273            | 1,184               | 3,479               | 2,026               | 624                 |                    | 104              |
| Photographic materials.....  | <sup>o</sup> 158,246  | <sup>o</sup> 147,992 | <sup>o</sup> 125,014 | 115,714   | 34,708           | 21,378              | 9,644               | 5,773               | 2,121               |                    |                  |
| Pickles, preserves, and sauces.....  | 144,918   | 117,611              | 145,426              | 145,785   | 60,915           | 37,334              | 29,639              | 23,477              | 9,791               | 2,407              |                  |
| Pipes, tobacco.....  | 9,705   | 7,124                | 11,514               | 11,514  | 4,220            | 5,312               | 2,834               | 2,472               | 1,881               | 829                | 447              |
| Plated ware.....   | 63,899  | 33,944               | 47,657               | 41,835  | 18,484           | 18,526              | 12,139              | 12,609              | 11,503              | 8,596              | 8,142            |
| Plumbers' supplies, not elsewhere specified.....   | 132,665   | 69,119               | 60,028               | 60,055  | 43,386           | 43,687              | 21,642              | 11,771              | 11,960              |                    |                  |
| Pocketbooks.....   | 82,732  | 13,085               | 14,494               | 14,550  | 3,351            | 3,628               | 3,767               | 2,495               | 2,165               | 1,769              | 1,108            |
| Pottery.....   | 114,392   | 84,217               | 74,759               | 74,919  | 36,943           | <sup>o</sup> 76,119 | <sup>o</sup> 64,201 | <sup>o</sup> 44,263 | <sup>o</sup> 22,057 | <sup>o</sup> 8,977 | ( <sup>o</sup> ) |
| Poultry, killing and dressing, not done in slaughtering and meat-packing establishments..... | 26,424  | 34,717               | 41,705               | 41,705  | 12,917           | ( <sup>o</sup> )    | ( <sup>o</sup> )    | ( <sup>o</sup> )    | ( <sup>o</sup> )    | ( <sup>o</sup> )   | ( <sup>o</sup> ) |
| Printing and publishing, book and job.....   | 738,227   | 690,075              | 587,304              | 597,663   | 307,331          | 250,926             | 182,612             | 121,798             | 98,909              | 90,970             | 41,076           |
| Printing and publishing, music.....  | 14,627  | 14,025               | 14,482               | 14,692  | 7,271            | 5,576               | 4,148               | 2,272               | 1,683               |                    |                  |
| Printing and publishing, newspaper and periodical.....                                       | 1,268,502   | 1,123,710            | 904,129              | 924,163   | 495,906          | 406,090             | 309,302             | 222,984             | 179,860             | ( <sup>o</sup> )   | 26,393           |
| Printing materials.....  | 4,806   | 5,319                | 4,883                | 4,919   | 2,111            | 1,982               | 1,207               | 1,088               | 1,459               | 421                |                  |
| Pulp, from fiber other than wood.....  | ( <sup>o</sup> )  | ( <sup>o</sup> )     | 624                  | 624   | ( <sup>o</sup> ) | ( <sup>o</sup> )    | ( <sup>o</sup> )    | 103                 | 624                 | ( <sup>o</sup> )   | ( <sup>o</sup> ) |
| Pulp goods.....  | <sup>o</sup> 20,436   | 31,213               | 23,602               | 23,908  | 4,483            | 1,770               | 1,467               | 1,267               | 353                 | ( <sup>o</sup> )   | ( <sup>o</sup> ) |
| Pumps, not including power pumps.....  | ( <sup>o</sup> )  | ( <sup>o</sup> )     | ( <sup>o</sup> )     | 31,656  | 6,360            | 5,583               | 2,853               | 1,342               | 4,103               | 3,645              | 2,818            |

|  |           |           |           |           |           |           |         |         |         |         |        |
|--|-----------|-----------|-----------|-----------|-----------|-----------|---------|---------|---------|---------|--------|
| Pumps, steam and other power   | 82,930    | 65,982    | 85,390    | 53,748    | 17,864    | (10)      | (10)    | (10)    | (10)    | (10)    | (10)   |
| Refrigerators  | 60,078    | 33,019    | 26,038    | 26,049    | 15,052    | 10,689    | 7,348   | 5,818   | 4,514   | 1,740   | 666    |
| Regalia, and society badges and emblems                                    | 10,688    | 10,359    | 9,348     | 9,395     | 6,025     | 6,130     | 7,753   | 8,049   | 3,204   | 816     | 636    |
| Rice, cleaning and polishing   | 47,068    | 41,213    | 90,031    | 90,038    | 23,039    | 22,371    | 16,297  | 8,724   | 6,693   | 8,133   | 2,725  |
| Roofing materials  | 84,342    | 76,138    | 85,887    | 85,895    | 27,078    | 19,204    | 19,871  | 13,691  | (1)     | 6,227   | 3,257  |
| Rubber tires, tubes, and rubber goods, not elsewhere specified             | 826,778   | 610,870   | 1,021,260 | 987,083   | 223,611   | 128,436   | 62,996  | 52,622  | 18,709  | 14,519  | 14,566 |
| Rules, ivory and wood  | 769       | 534       | 469       | 481       | 634       | 144       | 249     | 208     | 154     | 66      | 66     |
| Saddlery and harness   | 42,113    | 30,164    | 81,480    | 83,718    | 63,559    | 54,225    | 42,055  | 33,703  | 52,971  | 38,052  | 32,710 |
| Sales and vaults   | 19,101    | 19,726    | 16,268    | 15,294    | 7,267     | 6,491     | 7,861   | 8,928   | 6,042   | 3,852   | 2,725  |
| Salt   | 36,837    | 33,158    | 37,487    | 37,514    | 14,070    | 11,328    | 9,438   | 7,967   | 6,485   | 4,330   | 4,801  |
| Sand and emery paper and cloth   | 13,753    | 6,463     | 9,304     | 9,304     | 4,328     | 4,358     | 1,477   | 1,176   | 1,260   | 282     | 340    |
| Sand-lime brick  | 2,408     | 1,200     | 1,663     | 1,663     | 994       | (1)       | (1)     | (1)     | (1)     | (1)     | (1)    |
| Sausage, not made in slaughtering and meat-packing establishments          | 69,510    | 63,087    | 56,396    | 56,510    | 22,014    | 15,024    | 8,123   | 4,588   | 3,055   | (1)     | (1)    |
| Saws   | 30,787    | 18,185    | 31,416    | 31,461    | 12,517    | 11,536    | 9,820   | 6,444   | 5,573   | 3,943   | 3,175  |
| Scales and balances  | 24,157    | 15,885    | 20,611    | 20,641    | 9,734     | 8,786     | 5,008   | 5,240   | 2,323   | 3,252   | 2,824  |
| Screws, machine  | 39,239    | 18,365    | 39,997    | 40,018    | 7,248     | 3,014     | 2,712   | 2,059   | 1,183   | 2,185   | (1)    |
| Screws, wood   | 13,707    | 7,419     | 15,460    | 15,460    | 6,217     | 6,199     | 2,134   | 2,600   | 2,327   | 2,065   | (1)    |
| Sewing-machine cases   | (1)       | (1)       | (1)       | 14,243    | 6,846     | 5,752     | 2,811   | 2,250   | (1)     | (1)     | (1)    |
| Sewing machines and attachments  | 35,067    | 35,608    | 67,018    | 43,695    | 21,392    | 22,611    | 20,870  | 18,310  | 12,823  | 13,863  | 15,847 |
| Shipbuilding, steel  | 177,703   | 356,216   | 1,456,483 | 1,456,490 | 66,217    | 49,617    | 58,483  | 60,368  | 38,065  | 36,600  | 21,484 |
| Shipbuilding, wooden, including boat building                              | 85,629    | 44,619    | 165,248   | 165,872   | 22,465    | 23,743    | 24,336  | 24,165  | (1)     | (1)     | (1)    |
| Shirts   | 241,331   | 203,944   | 205,084   | 205,327   | 95,815    | 82,390    | 50,971  | 47,122  | 33,639  | 20,130  | 830    |
| Show cases   | (1)       | (1)       | (1)       | 8,244     | 6,232     | 7,167     | 5,722   | 2,468   | 3,570   | (1)     | (1)    |
| Signs and advertising novelties  | 67,224    | 68,271    | 42,722    | 43,343    | 24,792    | 18,546    | (1)     | (1)     | (1)     | (1)     | (1)    |
| Silk goods, including throwsters   | 761,322   | 633,419   | 688,639   | 688,470   | 254,011   | 190,912   | 133,288 | 107,256 | 87,298  | 41,033  | 12,211 |
| Silversmithing and silverware  | 27,207    | 24,411    | 29,118    | 29,126    | 19,786    | 23,702    | 20,701  | 15,506  | 6,435   | 3,618   | 2,944  |
| Slaughtering and meat packing  | 2,585,504 | 2,200,942 | 4,246,228 | 4,246,201 | 1,651,985 | 1,355,544 | 913,915 | 753,779 | 561,912 | 303,552 | 75,826 |
| Smelting and refining, copper  | 688,868   | 234,895   | 651,102   | 651,102   | 444,022   | 378,806   | 240,780 | 165,132 | (1)     | (1)     | (1)    |
| Smelting and refining, lead  | 227,735   | 150,594   | 196,795   | 196,795   | 171,579   | 167,406   | 185,827 | 175,466 | (1)     | (1)     | (1)    |
| Smelting and refining, metals, not elsewhere specified                     | 5,382     | 7,060     | 20,074    | 20,075    | (1)       | (1)       | (1)     | (1)     | (1)     | (1)     | (1)    |
| Smelting and refining, not from the ore                                    | 35,785    | 15,150    | 60,846    | 50,246    | 39,902    | 28,072    | 17,403  | 7,735   | 28,189  | 8,411   | (1)    |
| Smelting and refining, zinc  | 94,184    | 37,483    | 104,123   | 104,123   | 53,538    | 34,206    | 24,791  | 18,188  | (1)     | (1)     | (1)    |
| Soap   | 276,408   | 240,195   | 316,610   | 316,740   | 127,942   | 111,858   | 68,275  | 53,291  | 43,000  | 26,553  | 22,625 |
| Soda-water apparatus   | 18,169    | 15,407    | 15,171    | 15,185    | 8,781     | 6,556     | 4,634   | 3,015   | 2,712   | 1,076   | 813    |
| Sporting and athletic goods  | 41,797    | 31,711    | 39,711    | 39,840    | 13,335    | 11,452    | 7,032   | 5,709   | 1,556   | (1)     | (1)    |
| Springs, steel, car and carriage, not made in steel works or rolling mills | 59,392    | 31,750    | 51,462    | 51,480    | 11,595    | 9,005     | 5,741   | 4,332   | 3,655   | 2,920   | (1)    |
| Stamped and enameled ware, not elsewhere specified                         | 170,923   | 100,585   | 143,520   | 143,654   | 65,121    | 51,622    | 21,958  | 14,546  | 11,722  | 4,319   | (1)    |
| Stationary goods, not elsewhere specified                                  | 77,689    | 64,597    | 58,288    | 58,323    | 21,903    | 16,647    | 8,867   | 5,066   | 9,456   | 5,968   | (1)    |
| Statuary and art goods   | 7,550     | 6,667     | 4,855     | 5,020     | 3,910     | 3,442     | 2,417   | (1)     | (1)     | (1)     | (1)    |
| Steam fittings and steam and hot-water heating apparatus                   | 221,954   | 127,367   | 160,259   | 160,285   | 63,922    | 54,084    | 24,911  | 22,085  | 23,147  | 5,128   | 3,425  |
| Steel packing  | 32,961    | 29,112    | 40,805    | 40,525    | 14,218    | 13,952    | 10,952  | 3,494   | 1,033   | (1)     | (1)    |
| Steel barrels, drums, and tanks, portable                                  | 23,249    | 14,525    | 24,945    | (1)       | (1)       | (1)       | (1)     | (1)     | (1)     | (1)     | (1)    |
| Stencils and brands  | (1)       | (1)       | (1)       | 1,598     | 1,103     | 760       | 793     | 674     | 733     | 473     | (1)    |
| Stereotyping and electrotyping   | 20,596    | 17,359    | 15,905    | 15,919    | 8,154     | 6,384     | 5,005   | 3,772   | 2,184   | 725     | 1,075  |
| Stoves and hot-air furnaces  | 155,801   | 101,573   | 145,685   | 145,718   | 67,941    | 65,998    | 54,409  | (1)     | (1)     | (1)     | (1)    |
| Stoves, gas and oil  | 112,461   | 42,718    | 55,741    | 55,792    | 21,449    | 12,856    | 7,724   | 4,580   | 2,138   | (1)     | (1)    |

See footnotes at end of table, p. 177.

TABLE 34.—GROWTH OF MANUFACTURE IN THE UNITED STATES AS MEASURED BY THE VALUE OF PRODUCTS OF INDIVIDUAL INDUSTRIES, BY CENSUS YEARS: 1869 TO 1923—Continued.

[See note at head of this table, p. 168]

| INDUSTRY  | VALUE OF PRODUCTS (EXPRESSED IN THOUSANDS OF DOLLARS)                       |          |          |   |                  |                  |                  |                  |                  |                  |                  |
|---|---|----------|----------|---|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
|   | Excluding data for establishments with products valued at less than \$5,000 |          |          | Including data for establishments with products valued at \$500 or more |                  |                  |                  |                  |                  |                  |                  |
|   | 1923  | 1921     | 1919     | 1919  | 1914             | 1909             | 1904             | 1899             | 1889             | 1879             | 1869             |
| Structural ironwork, not made in steel works or rolling mills | 406, 117  | 250, 086 | 294, 633 | 294, 962  | 159, 378         | 133, 241         | 90, 945          | 66, 927          | 37, 745          | 3, 410           | ( <sup>o</sup> ) |
| Sugar, beet   | 118, 314  | 139, 110 | 149, 156 | 149, 156  | 62, 605          | 48, 122          | 24, 394          | 7, 324           |                  | 283              | ( <sup>o</sup> ) |
| Sugar, cane   | 27, 181   | 22, 961  | 57, 667  | 57, 741   | 21, 635          | 30, 621          |                  |                  |                  |                  |                  |
| Sugar, refining, not including beet sugar                     | 726, 241  | 466, 602 | 730, 967 | 730, 967  | 289, 399         | 248, 629         |                  | 277, 285         | 239, 711         | 123, 118         | 155, 485         |
| Sulphuric, nitric, and mixed acids                            | 24, 405   | 21, 463  | 31, 470  | 31, 470   | 15, 215          | 9, 884           | 9, 053           | 8, 596           | ( <sup>o</sup> ) | ( <sup>o</sup> ) | ( <sup>o</sup> ) |
| Surgical appliances   | 44, 968   | 32, 495  | 43, 320  | 43, 534   | 14, 920          | 11, 075          | 5, 386           | 3, 932           | 1, 650           | 906              | ( <sup>o</sup> ) |
| Suspenders, garters, and elastic woven goods                  | * 24, 297   | 44, 696  | 60, 718  | 60, 775   | 24, 453          | 28, 350          | ( <sup>o</sup> ) | ( <sup>o</sup> ) | ( <sup>o</sup> ) | ( <sup>o</sup> ) | ( <sup>o</sup> ) |
| Textile machinery and parts                                   | 140, 661  | 128, 935 | 121, 985 | ( <sup>o</sup> )  | ( <sup>o</sup> ) | ( <sup>o</sup> ) | ( <sup>o</sup> ) | ( <sup>o</sup> ) | ( <sup>o</sup> ) | ( <sup>o</sup> ) | ( <sup>o</sup> ) |
| Theatrical scenery  | 1, 626  | 1, 214   | 1, 067   | 1, 067  | 327              | ( <sup>o</sup> ) | ( <sup>o</sup> ) | ( <sup>o</sup> ) | ( <sup>o</sup> ) | ( <sup>o</sup> ) | ( <sup>o</sup> ) |
| Tin and other foils, not elsewhere specified                  | 23, 465   | 14, 037  | 17, 912  | 17, 921   | 5, 068           | 3, 419           | 2, 795           | 1, 593           | ( <sup>o</sup> ) | 417              | ( <sup>o</sup> ) |
| Tin plate and terneplate                                      | ( <sup>o</sup> )  | * 6, 418 | 97, 405  | 97, 405   | 68, 343          | 47, 970          | 35, 283          | 31, 892          | ( <sup>o</sup> ) | ( <sup>o</sup> ) | ( <sup>o</sup> ) |
| Tinware, not elsewhere specified                              | 215, 971  | 168, 305 | 233, 890 | 233, 964  | 81, 931          | 68, 814          | 41, 893          | ( <sup>o</sup> ) | ( <sup>o</sup> ) | ( <sup>o</sup> ) | ( <sup>o</sup> ) |
| Tobacco, chewing and smoking, and snuff                       | 222, 966  | 241, 741 | 238, 944 | 239, 271  | 175, 281         | 156, 607         | 119, 768         | 103, 754         | 65, 844          | 52, 793          | 35, 388          |
| Tobacco, cigars and cigarettes                                | 821, 226  | 806, 749 | 761, 790 | 773, 662  | 314, 884         | 260, 088         | 214, 244         | 159, 959         | 129, 693         | 63, 980          | 33, 374          |
| Tools, not elsewhere specified                                | 123, 158  | 70, 524  | 143, 660 | 144, 202  | 33, 893          | 30, 381          | 20, 407          | 13, 358          | 10, 528          | 4, 237           | ( <sup>o</sup> ) |
| Toys and games  | 56, 066   | 35, 491  | 45, 387  | 45, 657   | 13, 757          | 8, 294           | 5, 678           | 4, 010           | 3, 750           | 1, 663           | 580              |
| Trunks and valises  | 63, 023   | 46, 649  | 63, 635  | 63, 932   | 26, 472          | 28, 028          | 18, 644          | 12, 429          | 10, 822          | 7, 252           | 7, 725           |
| Turpentine and rosin  | 35, 167   | 23, 501  | 62, 772  | 53, 051   | 20, 990          | 25, 295          | 23, 937          | 20, 345          | 8, 077           | 5, 877           | 3, 585           |
| Type founding   | 2, 512  | 2, 130   | 2, 066   | 2, 090  | 2, 320           | 2, 721           | 2, 728           | 2, 842           | 3, 917           | 2, 330           | 2, 180           |
| Typewriters and supplies                                      | 52, 498   | 41, 790  | 52, 704  | 52, 738   | 24, 500          | 19, 719          | 10, 640          | 6, 932           | 3, 630           | ( <sup>o</sup> ) | ( <sup>o</sup> ) |
| Umbrellas and canes   | 28, 395   | 20, 808  | 25, 195  | 25, 309   | 13, 813          | 15, 864          | 13, 296          | 13, 669          | 13, 772          | 6, 917           | 4, 822           |
| Upholstering materials, not elsewhere specified               | 41 40, 561  | 23, 910  | 39, 830  | 39, 830   | 16, 492          | 13, 054          | * 12, 678        | * 10, 045        | * 5, 733         | * 1, 338         | * 1, 545         |
| Varnishes   | 113, 011  | 71, 239  | 83, 612  | 83, 622   | 33, 215          | 30, 317          | 23, 569          | 18, 637          | 13, 796          | 5, 721           | 4, 991           |
| Vault lights and ventilators                                  | 2, 991  | 2, 150   | 2, 138   | 2, 156  | 2, 051           |                  | 957              | 484              | 336              | 455              |                  |
| Vinegar and cider   | 12, 535   | 18, 249  | 24, 032  | 24, 723   | 7, 811           | 8, 448           | 7, 265           | 5, 932           | 6, 649           | 3, 418           | 3, 471           |
| Wall paper, not made in paper mills                           | 34, 756   | 29, 148  | 23, 048  | 23, 048   | 15, 887          | 14, 449          | 12, 637          | 10, 663          | 7, 432           | 6, 267           | 2, 166           |
| Wall plaster and composition flooring                         | * 73, 801   | 82, 354  | 26, 856  | 26, 875   | 16, 544          | 12, 804          | 10, 164          | ( <sup>o</sup> ) | ( <sup>o</sup> ) | ( <sup>o</sup> ) | 2, 692           |
| Washing machines and clothes wringers                         | 50, 373   | 30, 199  | 40, 740  | 40, 771   | 7, 600           | 5, 825           | 3, 839           | 3, 735           | 2, 489           | 1, 183           | 1, 380           |
| Waste   | * 33, 701   | 16, 791  | 29, 692  | 29, 700   | 17, 600          | 11, 398          | 8, 343           | 4, 880           | 1, 907           |                  |                  |
| Watch and clock materials, except watchcases                  | 1, 269  | 1, 086   | 1, 330   | 1, 342  | 1, 015           | 675              | 429              | 345              | 831              | 351              | 574              |
| Watchcases  | 17, 817   | 13, 806  | 19, 619  | 19, 619   | 7, 831           | 10, 515          | 8, 627           | 7, 784           | 8, 618           | 4, 689           | 2, 333           |
| Watches   | 30, 630   | 24, 397  | 32, 044  | 32, 044   | 14, 275          | 11, 771          | 11, 806          | 6, 823           | 6, 061           | 3, 271           | 2, 819           |
| Wheelbarrows  | 2, 692  | 1, 455   | 1, 680   | 1, 680  | 942              | 1, 635           | 1, 178           | 454              | 1, 186           | 227              | 473              |
| Whips   | 742   | 1, 022   | 2, 975   | 2, 986  | 3, 162           | 3, 949           | 3, 147           | 2, 734           | 2, 154           | 1, 699           | 1, 243           |

|   |           |         |           |           |         |         |         |         |         |         |         |
|---|-----------|---------|-----------|-----------|---------|---------|---------|---------|---------|---------|---------|
| Windmills.....                                  | 6,311     | 6,530   | 9,925     | 9,933     | 5,497   | 6,677   | 4,795   | 4,364   | 2,475   | 1,011   |         |
| Window and door screens and weather strips..... | 21,236    | 12,038  | 10,773    | 10,933    | 9,107   | (*)     | (*)     | (*)     | (*)     | (*)     | (*)     |
| Window shades and fixtures.....                 | 47,940    | 29,648  | 29,018    | 29,191    | 17,444  | 13,871  | 9,931   | 9,072   | 9,240   | 2,827   | 5,058   |
| Wire.....                                       | 195,354   | 99,946  | 169,161   | 162,151   | 81,841  | 84,487  | 37,914  | 37,914  | 22,013  | 10,837  | 2,959   |
| Wirework, not elsewhere specified.....          | 100,248   | 66,385  | 90,225    | 90,549    | 41,789  | 41,938  | 33,038  | 19,840  | 15,553  | 9,128   |         |
| Wood distillation.....                          | 49,297    | 9,258   | 32,539    | 32,545    | 9,883   | 9,737   | 7,813   | 6,001   |         |         |         |
| Wood preserving.....                            | 71,083    | 47,422  | 55,859    | 33,239    | 21,055  | 14,069  | 3,368   | 2,396   | 143     | 101     |         |
| Wood, turned and carved.....                    | 38,077    | 31,322  | 34,396    | 34,847    | 19,047  | 22,199  | 20,169  | 14,318  | 10,940  | 8,427   | 4,959   |
| Wooden goods, not elsewhere specified.....      | 21,734    | 20,231  | 21,646    | 21,793    | 10,162  | 10,627  | 8,531   | 3,598   | 3,598   | 5,235   | 4,142   |
| Wool pulling.....                               | 15,176    | 6,767   | 17,361    | 17,361    | 8,273   | 8,181   | 882     | 531     | (*)     | (*)     | (*)     |
| Wool scouring.....                              | 8,190     | 6,820   | 19,680    | 13,690    | 4,565   | 3,269   | 1,053   | 890     | (*)     | (*)     | (*)     |
| Wool shoddy.....                                | 16,697    | 6,803   | 22,524    | 23,254    | 7,707   | 7,446   | 8,406   | 6,731   | 7,887   | 4,990   | 1,769   |
| Woolen and worsted goods.....                   | 1,062,659 | 755,584 | 1,065,357 | 1,065,434 | 376,484 | 419,744 | 307,942 | 238,745 | 212,773 | 194,157 | 177,496 |

1 Based on figures shown in left-hand column for 1919.  
 2 The figures shown in the right-hand column for 1919 were used in calculating the percentages in this column.  
 3 Because of a change in classification, statistics not comparable.  
 4 "Airplanes, seaplanes, airships, and parts," included in "Motor cycles, bicycles, and parts."  
 5 Not shown separately.  
 6 "Feathers and plumes" included in "Artificial flowers."  
 7 "Artificial stone products" included in "Marble and stone work."  
 8 Includes "Asbestos textiles."  
 9 Not called for on schedule.  
 10 Included in "Foundry and machine-shop products."  
 11 "Belting and hose, rubber" included in "Rubber tires, tubes, and rubber goods, not elsewhere specified."  
 12 Prior to 1914 "Sand-lime brick" was included in "Brick and tile"; "Terra-cotta, and fire-clay products," included in "Pottery."  
 13 "Cheese" and "Condensed milk" included in "Butter."  
 14 None reported.  
 15 "Candles" included with "Soap."  
 16 "Repairing" included prior to 1923.  
 17 "Cement and wall plaster" included with "Lime."  
 18 "Coal-tar products" included in "Chemicals" prior to 1919. Comparable figures shown for 1919.  
 19 "Ferro-alloys (electric-furnace)" included with "Iron and steel, blast furnaces" and "Chemicals."  
 20 "Chewing gum" included in "Confectionery and ice cream." Prior to 1914 the manufacture of ice cream was not included except in cases where it was made a subsidiary product in the manufacture of confectionery or some other class of product for which statistics were collected.  
 21 No data.  
 22 "Roasting and grinding of peanuts" included in "Coffee and spice, roasting and grinding."  
 23 The following industries, formerly a part of "Foundry and machine-shop products," are now treated as separate industries: "Machine tools," "Steel barrels, drums, and

tanks," "Textile machinery and parts," and the tempering and welding of iron and steel prior to 1919; "Engines, steam, gas, and water," and "Pumps, steam and power," prior to 1914; "Automobile repairing" in 1909 and 1904; "Iron and steel—cast-iron pipe," prior to 1909; "Locomotives" and "Stoves and furnaces" prior to 1904. Percentages are computed from comparable figures.  
 24 "Gloves and mittens, cloth, not including gloves made in textile mills;" "Suspenders, garters, and elastic woven goods" included prior to 1919.  
 25 "Show cases" included in "Furniture."  
 26 Included in "Furnishing goods, men's."  
 27 Title changed to "Corn sirup, corn oil, and starch."  
 28 "Millstones and pulpstones," included in "Grindstones."  
 29 "Haircloth" included in "Upholstery."  
 30 "Stencils and brands," included with "Hand stamps."  
 31 "Straw hats" included in "Hats and caps, other than felt, straw, and wool."  
 32 "Lard, not made in slaughtering and meat-packing establishments" included with "Food preparations, not elsewhere classified," for 1923. For 1921 such data are included with those for "Sausage, not made in slaughtering and meat-packing establishments."  
 33 "Cereal beverages," only.  
 34 "Window and door screens and weather strips," included under "Lumber, planing-mill products."  
 35 "Oakum" included in "Waste" for 1923.  
 36 Includes "Linoleum" and "Asphalted-felt-base floor covering."  
 37 "Photographic apparatus," and "Motion pictures" included in "Photographic materials." Comparable figures shown for 1919.  
 38 Statistics for 1923 are not comparable with prior years, because "Wall board, other than gypsum wall board," formerly treated as a product of the "Pulp-goods" industry, for 1923 was classified as a product of the "Wall plaster, wall board, and floor-composition" industry.  
 39 "Pumps, not including power pumps" included in "Pumps, steam and other power."  
 40 "Sewing machines, cases, and attachments," combined. Comparable figures shown for 1919.  
 41 Includes "Artificial leather" and "Excelsior."  
 42 "Charcoal," included in census publications for 1923, not included here.

TABLE 35.—AVERAGE NUMBER OF WAGE EARNERS IN GEOGRAPHIC DIVISIONS AND STATES, BY CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923

| DIVISION AND STATE           | AVERAGE NUMBER OF WAGE EARNERS  |           |           |   |           |           |           |           | PER CENT OF INCREASE OR DECREASE (-)   |                        |                        |                        |                        |                        |                        |                        |
|------------------------------|---|-----------|-----------|---|-----------|-----------|-----------|-----------|--|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
|                              | Excluding data for establishments with products valued at less than \$5,000 |           |           | Including data for establishments with products valued at \$500 or more |           |           |           |           | 24-year period, 1899-1923 <sup>1</sup> | Intercensal period     |                        |                        |                        |                        |                        |                        |
|                              | 1923  | 1921      | 1919      | 1919  | 1914      | 1909      | 1904      | 1899      |  | 1919-1923 <sup>2</sup> | 1921-1923 <sup>3</sup> | 1919-1921 <sup>4</sup> | 1914-1919 <sup>5</sup> | 1909-1914 <sup>6</sup> | 1904-1909 <sup>7</sup> | 1899-1904 <sup>8</sup> |
| UNITED STATES.....           | 6,778,166   | 6,946,570 | 9,000,059 | 9,096,872   | 7,036,247 | 6,615,046 | 5,468,383 | 4,712,763 | 88.2                                   | -2.5                   | 26.4                   | -22.8                  | 29.3                   | 6.4                    | 21.0                   | 16.0                   |
| <b>GEOGRAPHIC DIVISIONS:</b> |   |           |           |   |           |           |           |           |  |                        |                        |                        |                        |                        |                        |                        |
| New England.....             | 1,254,496   | 1,071,699 | 1,348,190 | 1,351,389   | 1,140,233 | 1,101,290 | 940,752   | 851,903   | 47.7                                   | -6.9                   | 17.1                   | -20.5                  | 18.5                   | 8.5                    | 17.1                   | 10.4                   |
| Middle Atlantic.....         | 2,694,027   | 2,246,104 | 2,862,484 | 2,872,653   | 2,355,940 | 2,207,747 | 1,886,565 | 1,604,844 | 68.4                                   | -5.9                   | 19.9                   | -21.5                  | 21.9                   | 6.7                    | 17.0                   | 17.6                   |
| East North Central.....      | 2,387,049   | 1,710,939 | 2,388,970 | 2,396,618   | 1,680,281 | 1,513,764 | 1,224,528 | 1,073,322 | 123.1                                  | -1                     | 39.5                   | -23.4                  | 42.6                   | 11.0                   | 23.6                   | 14.1                   |
| West North Central.....      | 499,725   | 384,797   | 494,255   | 499,635   | 381,595   | 374,337   | 312,361   | 266,051   | 78.4                                   | -5.0                   | 22.1                   | -22.1                  | 30.9                   | 1.9                    | 19.8                   | 17.4                   |
| South Atlantic.....          | 832,016   | 646,207   | 808,894   | 817,212   | 685,252   | 663,015   | 522,611   | 456,344   | 83.5                                   | 2.9                    | 28.8                   | -20.1                  | 19.3                   | 3.4                    | 26.9                   | 14.0                   |
| East South Central.....      | 847,200   | 259,256   | 324,762   | 329,226   | 204,378   | 201,772   | 221,229   | 177,208   | 98.6                                   | 6.9                    | 33.9                   | -20.2                  | 24.5                   | 1.0                    | 18.3                   | 24.8                   |
| West South Central.....      | 267,111   | 229,549   | 282,212   | 285,244   | 211,940   | 204,520   | 143,470   | 113,368   | 188.0                                  | -4                     | 16.4                   | -18.7                  | 34.6                   | 3.6                    | 42.6                   | 26.5                   |
| Mountain.....                | 106,080   | 82,000    | 107,759   | 109,216   | 81,113    | 75,435    | 52,700    | 44,497    | 141.5                                  | -1.6                   | 23.3                   | -23.9                  | 34.6                   | 7.5                    | 42.9                   | 18.6                   |
| Pacific.....                 | 420,472   | 316,019   | 432,968   | 435,179   | 235,515   | 213,166   | 164,077   | 123,206   | 243.0                                  | -2.7                   | 33.1                   | -27.0                  | 34.8                   | 10.5                   | 29.9                   | 33.2                   |
| <b>NEW ENGLAND:</b>          |   |           |           |   |           |           |           |           |  |                        |                        |                        |                        |                        |                        |                        |
| Maine.....                   | 83,328  | 75,710    | 88,606    | 88,651  | 82,149    | 79,955    | 74,958    | 69,914    | .1                                     | -5.3                   | 10.1                   | -14.0                  | 7.9                    | 2.7                    | 6.7                    | 7.2                    |
| New Hampshire.....           | 75,314  | 67,416    | 82,838    | 83,074  | 78,993    | 78,668    | 65,366    | 67,646    | 20.6                                   | -9.1                   | 11.7                   | -18.6                  | 5.2                    | .4                     | 20.8                   | -3.4                   |
| Vermont.....                 | 50,783  | 25,767    | 33,178    | 33,491  | 32,704    | 33,798    | 33,106    | 28,179    | 111.3                                  | -7.2                   | 19.5                   | -22.3                  | 2.4                    | -3.2                   | 2.1                    | 17.5                   |
| Massachusetts.....           | 607,172   | 579,071   | 712,846   | 713,836   | 606,698   | 584,559   | 468,809   | 438,234   | 520.5                                  | -6.4                   | 15.2                   | -18.8                  | 17.7                   | 3.8                    | 19.7                   | 11.4                   |
| Rhode Island.....            | 124,667   | 112,745   | 139,309   | 139,685   | 113,425   | 113,538   | 97,318    | 86,197    | 83.2                                   | -3.8                   | 19.4                   | -19.1                  | 23.1                   | -1                     | 16.7                   | 10.3                   |
| Connecticut.....             | 283,232   | 210,990   | 292,013   | 292,672   | 226,264   | 210,792   | 181,605   | 159,738   | 65.1                                   | -6.9                   | 24.8                   | -27.7                  | 29.3                   | 7.3                    | 16.1                   | 13.7                   |
| <b>MIDDLE ATLANTIC:</b>      |   |           |           |   |           |           |           |           |  |                        |                        |                        |                        |                        |                        |                        |
| New York.....                | 1,150,901   | 1,000,414 | 1,223,333 | 1,228,130   | 1,057,857 | 1,003,981 | 856,947   | 726,909   | 59.0                                   | -5.9                   | 15.0                   | -18.2                  | 16.1                   | 5.4                    | 17.2                   | 17.9                   |
| New Jersey.....              | 448,069   | 381,773   | 507,334   | 503,686   | 373,605   | 326,223   | 266,336   | 213,975   | 109.9                                  | -11.7                  | 17.4                   | -24.7                  | 36.2                   | 24.5                   | 22.5                   | 24.5                   |
| Pennsylvania.....            | 1,095,067   | 863,917   | 1,131,617 | 1,135,837   | 924,478   | 877,543   | 793,282   | 668,960   | 65.6                                   | -3.2                   | 26.8                   | -23.7                  | 22.9                   | 5.3                    | 15.0                   | 15.0                   |
| <b>EAST NORTH CENTRAL:</b>   |   |           |           |   |           |           |           |           |  |                        |                        |                        |                        |                        |                        |                        |
| Ohio.....                    | 699,132   | 494,288   | 728,631   | 730,733   | 510,435   | 446,924   | 384,298   | 308,109   | 127.7                                  | -4.0                   | 41.4                   | -32.2                  | 43.2                   | 14.2                   | 22.7                   | 18.2                   |
| Indiana.....                 | 291,131   | 206,534   | 276,060   | 277,680   | 197,503   | 186,934   | 154,174   | 139,017   | 110.7                                  | 5.5                    | 41.0                   | -25.2                  | 40.5                   | 5.6                    | 21.8                   | 10.9                   |
| Illinois.....                | 645,627   | 513,876   | 651,146   | 653,114   | 508,943   | 465,764   | 379,436   | 332,871   | 94.6                                   | -8                     | 25.6                   | -21.1                  | 28.8                   | 8.8                    | 22.8                   | 14.0                   |
| Michigan.....                | 503,808   | 304,471   | 470,326   | 471,242   | 271,090   | 231,499   | 175,229   | 155,800   | 223.7                                  | 7.0                    | 65.3                   | -35.3                  | 73.9                   | 17.1                   | 32.1                   | 12.5                   |
| Wisconsin.....               | 247,861   | 191,770   | 262,807   | 263,949   | 194,310   | 182,583   | 151,391   | 137,526   | 81.0                                   | -5.7                   | 29.2                   | -27.0                  | 35.8                   | 6.4                    | 20.6                   | 10.1                   |
| <b>WEST NORTH CENTRAL:</b>   |   |           |           |   |           |           |           |           |  |                        |                        |                        |                        |                        |                        |                        |
| Minnesota.....               | 103,964   | 85,804    | 114,614   | 115,623   | 92,834    | 84,767    | 69,636    | 64,557    | 62.4                                   | -9.3                   | 21.2                   | -25.1                  | 24.5                   | 9.5                    | 21.7                   | 7.9                    |
| Iowa.....                    | 77,847  | 62,274    | 79,621    | 80,551  | 63,113    | 61,635    | 49,481    | 44,420    | 77.8                                   | -2.2                   | 25.0                   | -21.8                  | 27.6                   | 2.4                    | 24.6                   | 11.4                   |
| Missouri.....                | 196,694   | 156,384   | 193,254   | 195,037   | 152,182   | 152,993   | 133,167   | 107,704   | 84.4                                   | 1.8                    | 25.8                   | -19.1                  | 28.2                   | -1.5                   | 14.9                   | 23.6                   |
| North Dakota.....            | 3,562   | 3,107     | 4,270     | 4,472   | 3,275     | 2,789     | 1,755     | 1,358     | 174.0                                  | -16.8                  | 14.3                   | -27.2                  | 36.5                   | 17.4                   | 58.9                   | 29.2                   |
| South Dakota.....            | 5,146   | 4,635     | 6,102     | 6,382   | 3,788     | 3,602     | 2,492     | 2,224     | 141.9                                  | -15.7                  | 11.0                   | -24.0                  | 68.5                   | 5.2                    | 44.5                   | 12.1                   |
| Nebraska.....                | 31,267  | 27,655    | 35,985    | 36,521  | 25,144    | 24,336    | 20,280    | 18,969    | 70.0                                   | -13.1                  | 18.1                   | -23.1                  | 45.2                   | 3.3                    | 20.1                   | 8.5                    |
| Kansas.....                  | 51,255  | 44,938    | 60,409    | 61,049  | 41,269    | 44,215    | 35,570    | 27,119    | 90.9                                   | -15.2                  | 14.1                   | -25.6                  | 48.0                   | -6.7                   | 24.3                   | 31.2                   |

|                            |          |          |          |          |          |          |          |         |       |       |      |       |       |      |       |       |
|----------------------------|----------|----------|----------|----------|----------|----------|----------|---------|-------|-------|------|-------|-------|------|-------|-------|
| <b>SOUTH ATLANTIC:</b>     |          |          |          |          |          |          |          |         |       |       |      |       |       |      |       |       |
| Delaware.....              | 23, 116  | 17, 754  | 28, 010  | 29, 035  | 22, 155  | 31, 238  | 18, 478  | 20, 562 | 18.0  | -20.0 | 80.2 | -38.6 | 81.1  | 4.8  | 15.0  | -10.1 |
| Maryland.....              | 128, 826 | 107, 085 | 189, 401 | 140, 842 | 111, 585 | 107, 921 | 94, 174  | 94, 170 | 37.7  | -7.6  | 20.3 | -23.2 | 25.8  | 8.4  | 14.6  | .1    |
| District of Columbia.....  | 9, 823   | 8, 640   | 10, 440  | 10, 482  | 8, 877   | 7, 707   | 6, 299   | 6, 155  | 00.3  | -5.9  | 13.7 | -17.2 | 18.1  | 15.2 | 22.4  | 2.8   |
| Virginia.....              | 111, 578 | 86, 556  | 117, 376 | 119, 852 | 102, 820 | 105, 676 | 80, 285  | 86, 228 | 71.4  | -4.9  | 26.0 | -24.6 | 16.1  | -2.7 | 31.6  | 21.2  |
| West Virginia.....         | 65, 661  | 60, 586  | 82, 467  | 83, 036  | 71, 078  | 68, 898  | 43, 758  | 33, 080 | 160.8 | 3.9   | 41.5 | -26.0 | 16.8  | 11.2 | 46.0  | 32.3  |
| North Carolina.....        | 173, 887 | 126, 833 | 155, 635 | 157, 659 | 136, 844 | 121, 473 | 85, 339  | 72, 322 | 143.8 | 11.6  | 27.9 | -12.7 | 15.2  | 12.7 | 42.8  | 18.0  |
| South Carolina.....        | 96, 802  | 76, 261  | 78, 829  | 78, 450  | 71, 824  | 78, 046  | 59, 441  | 47, 026 | 107.5 | 22.8  | 27.0 | -8.3  | 10.6  | -1.7 | 22.9  | 26.4  |
| Georgia.....               | 137, 476 | 96, 264  | 121, 949 | 123, 441 | 104, 461 | 104, 588 | 92, 749  | 83, 336 | 96.9  | 12.7  | 39.9 | -19.4 | 18.2  | -1.1 | 12.8  | 11.2  |
| Florida.....               | 65, 047  | 53, 289  | 73, 857  | 74, 415  | 56, 608  | 57, 473  | 42, 091  | 36, 471 | 84.8  | -11.9 | 22.1 | -27.8 | 33.8  | -3.2 | 33.5  | 18.1  |
| <b>EAST SOUTH CENTRAL:</b> |          |          |          |          |          |          |          |         |       |       |      |       |       |      |       |       |
| Kentucky.....              | 76, 724  | 58, 840  | 68, 191  | 69, 340  | 64, 586  | 65, 400  | 59, 794  | 51, 735 | 50.8  | 12.5  | 30.4 | -13.7 | 7.4   | -1.2 | 9.4   | 15.6  |
| Tennessee.....             | 106, 504 | 76, 446  | 93, 866  | 95, 167  | 74, 373  | 73, 840  | 60, 572  | 45, 963 | 135.1 | 13.5  | 41.2 | -19.6 | 23.0  | .7   | 21.9  | 31.8  |
| Alabama.....               | 109, 820 | 82, 748  | 106, 014 | 107, 159 | 78, 717  | 72, 148  | 62, 173  | 52, 711 | 96.4  | 3.4   | 32.5 | -21.9 | 86.1  | 9.1  | 16.0  | 18.0  |
| Mississippi.....           | 54, 352  | 42, 222  | 56, 691  | 57, 560  | 46, 702  | 50, 384  | 38, 690  | 26, 799 | 106.0 | -4.1  | 28.7 | -25.5 | 23.2  | -7.3 | 30.0  | 44.4  |
| <b>WEST SOUTH CENTRAL:</b> |          |          |          |          |          |          |          |         |       |       |      |       |       |      |       |       |
| Arkansas.....              | 44, 545  | 33, 431  | 49, 032  | 49, 954  | 41, 979  | 44, 982  | 33, 989  | 31, 525 | 43.9  | -9.2  | 33.2 | -31.8 | 19.0  | -6.7 | 35.9  | 5.9   |
| Louisiana.....             | 94, 719  | 85, 170  | 97, 743  | 98, 265  | 77, 665  | 76, 165  | 55, 359  | 40, 373 | 132.9 | -3.1  | 11.2 | -12.9 | 23.5  | 2.0  | 30.4  | 36.6  |
| Oklahoma.....              | 25, 489  | 22, 241  | 29, 106  | 29, 503  | 17, 443  | 13, 143  | 8, 456   | 2, 381  | 985.5 | -12.4 | 14.6 | -23.8 | 69.1  | 32.7 | 140.9 | 123.1 |
| Texas.....                 | 102, 358 | 88, 707  | 106, 431 | 107, 522 | 74, 853  | 70, 230  | 49, 068  | 38, 604 | 167.9 | -3.8  | 15.4 | -16.7 | 43.6  | 6.6  | 43.1  | 27.1  |
| <b>MOUNTAIN:</b>           |          |          |          |          |          |          |          |         |       |       |      |       |       |      |       |       |
| Montana.....               | 15, 943  | 11, 394  | 16, 871  | 17, 160  | 13, 704  | 11, 655  | 8, 957   | 9, 854  | 64.5  | -5.5  | 40.0 | -32.5 | 25.2  | 17.6 | 30.1  | -9.1  |
| Idaho.....                 | 16, 347  | 10, 783  | 13, 733  | 13, 917  | 8, 919   | 8, 220   | 3, 061   | 1, 552  | 967.1 | 19.0  | 51.6 | -21.5 | 56.0  | 8.5  | 168.5 | 97.2  |
| Wyoming.....               | 7, 510   | 7, 294   | 6, 531   | 6, 634   | 2, 989   | 2, 867   | 1, 834   | 2, 060  | 270.3 | 15.0  | 3.5  | 11.1  | 121.9 | 4.3  | 56.3  | -11.0 |
| Colorado.....              | 81, 228  | 27, 625  | 34, 815  | 35, 254  | 27, 278  | 28, 067  | 19, 496  | 14, 496 | 62.2  | -10.3 | 18.0 | -20.7 | 29.2  | -2.8 | 23.7  | 11.9  |
| New Mexico.....            | 5, 459   | 4, 477   | 5, 624   | 5, 728   | 3, 776   | 4, 143   | 3, 473   | 2, 490  | 123.7 | -2.9  | 21.9 | -20.4 | 51.9  | -5.9 | 39.1  | 39.7  |
| Arizona.....               | 9, 008   | 4, 774   | 8, 443   | 8, 523   | 6, 593   | 6, 441   | 4, 733   | 3, 123  | 130.8 | 6.6   | 33.7 | -43.5 | 22.6  | 7.1  | 34.4  | 33.9  |
| Utah.....                  | 15, 901  | 13, 310  | 18, 637  | 18, 869  | 13, 894  | 11, 785  | 8, 052   | 5, 413  | 197.4 | -14.7 | 19.5 | -28.6 | 35.9  | 17.0 | 46.4  | 43.3  |
| Nevada.....                | 4, 666   | 2, 393   | 3, 100   | 3, 119   | 3, 655   | 2, 237   | 802      | 504     | 821.3 | 60.5  | 95.0 | -22.8 | -14.7 | 61.9 | 131.4 | 39.1  |
| <b>PACIFIC:</b>            |          |          |          |          |          |          |          |         |       |       |      |       |       |      |       |       |
| Washington.....            | 111, 683 | 77, 513  | 132, 398 | 132, 928 | 67, 205  | 69, 120  | 45, 199  | 31, 528 | 255.5 | -15.7 | 44.0 | -41.5 | 97.8  | -2.8 | 52.9  | 43.4  |
| Oregon.....                | 62, 655  | 40, 137  | 58, 186  | 58, 559  | 28, 829  | 28, 750  | 13, 623  | 14, 459 | 336.2 | 7.7   | 56.0 | -61.0 | 103.1 | .3   | 55.2  | 28.1  |
| California.....            | 246, 154 | 198, 334 | 242, 379 | 243, 692 | 139, 481 | 115, 296 | 100, 355 | 77, 224 | 220.6 | 1.6   | 24.1 | -18.2 | 74.7  | 21.0 | 14.9  | 30.0  |

<sup>1</sup> For explanation of method of computing percentages in this column, see general remarks preceding these tables, par. 4, p. 125.

<sup>2</sup> Based on figures shown in left-hand column for 1919.

<sup>3</sup> The figures shown in the right-hand column for 1919 were used in calculating the percentages in this column.



**TABLE 36.—AMOUNT OF PRIMARY HORSEPOWER INSTALLED IN GEOGRAPHIC DIVISIONS AND STATES, BY CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923**

[No data in regard to prime movers were collected for 1921]

| DIVISION AND STATE           | PRIMARY HORSEPOWER                                  |            |   |            |            |            |            | PER CENT OF INCREASE OR DECREASE (-) |                    |           |           |           |           |
|------------------------------|---|------------|---|------------|------------|------------|------------|--------------------------------------|--------------------|-----------|-----------|-----------|-----------|
|                              | Excluding data for rented power other than electric |            | Including data for rented power other than electric |            |            |            |            | 24-year period, 1899-1923            | Intercensal period |           |           |           |           |
|                              | 1923  | 1919       | 1919  | 1914       | 1909       | 1904       | 1899       |                                      | 1919-1923          | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |
| UNITED STATES.....           | 33,094,228  | 29,327,669 | 29,504,792  | 22,437,072 | 18,675,376 | 13,487,707 | 10,097,893 | 229.6                                | 12.8               | 31.5      | 20.1      | 38.5      | 33.6      |
| <b>GEOGRAPHIC DIVISIONS:</b> |   |            |   |            |            |            |            |                                      |                    |           |           |           |           |
| New England.....             | 4,151,136   | 3,775,510  | 3,796,846   | 3,124,329  | 2,715,121  | 2,125,815  | 1,792,342  | 132.8                                | 9.9                | 21.5      | 15.1      | 27.7      | 18.6      |
| Middle Atlantic.....         | 9,627,898   | 8,497,533  | 8,537,660   | 6,699,576  | 5,531,502  | 4,255,264  | 3,139,128  | 208.2                                | 13.3               | 37.4      | 21.1      | 30.0      | 35.6      |
| East North Central.....      | 9,061,680   | 7,688,365  | 7,735,137   | 5,421,435  | 4,382,070  | 3,120,369  | 2,401,808  | 279.8                                | 17.9               | 42.7      | 23.7      | 40.4      | 29.9      |
| West North Central.....      | 1,714,030   | 1,577,007  | 1,594,112   | 1,238,989  | 1,101,990  | 763,709    | 605,098    | 186.3                                | 8.7                | 28.7      | 12.4      | 46.2      | 24.6      |
| South Atlantic.....          | 3,143,936   | 2,789,953  | 2,795,094   | 2,274,785  | 1,832,001  | 1,221,940  | 851,050    | 270.8                                | 12.9               | 22.9      | 24.2      | 50.0      | 48.5      |
| East South Central.....      | 1,461,604   | 1,410,445  | 1,415,577   | 1,157,367  | 1,036,560  | 753,928    | 613,425    | 185.6                                | 3.6                | 22.3      | 11.7      | 37.5      | 46.8      |
| West South Central.....      | 1,269,347   | 1,175,743  | 1,185,939   | 956,500    | 873,350    | 555,717    | 397,471    | 222.3                                | 8.0                | 22.8      | 10.6      | 57.2      | 39.8      |
| Mountain.....                | 777,745   | 678,981    | 686,579   | 460,278    | 400,766    | 241,825    | 123,012    | 539.0                                | 14.5               | 49.2      | 14.8      | 65.7      | 96.6      |
| Pacific.....                 | 1,886,942   | 1,740,152  | 1,757,798   | 1,094,814  | 802,016    | 460,049    | 274,559    | 594.0                                | 8.4                | 60.6      | 36.5      | 74.3      | 67.6      |
| <b>NEW ENGLAND:</b>          |   |            |   |            |            |            |            |                                      |                    |           |           |           |           |
| Maine.....                   | 570,532   | 544,840    | 547,028   | 487,211    | 459,599    | 343,627    | 259,232    | 120.9                                | 4.7                | 12.3      | 6.0       | 33.7      | 32.6      |
| New Hampshire.....           | 352,656   | 248,672    | 349,136   | 344,093    | 293,991    | 218,344    | 200,975    | 75.6                                 | 1.1                | 1.5       | 17.0      | 34.6      | 8.6       |
| Vermont.....                 | 177,212   | 185,871    | 185,095   | 172,637    | 159,445    | 140,616    | 126,124    | 41.5                                 | -3.6               | 7.2       | 8.3       | 13.4      | 11.5      |
| Massachusetts.....           | 1,931,787   | 1,716,558  | 1,729,878   | 1,396,722  | 1,175,071  | 938,007    | 796,061    | 144.7                                | 12.6               | 23.9      | 18.9      | 25.3      | 17.8      |
| Rhode Island.....            | 391,928   | 319,346    | 321,016   | 269,854    | 226,740    | 181,017    | 156.4      | 156.4                                | 22.7               | 19.0      | 19.0      | 25.3      | 17.8      |
| Connecticut.....             | 727,021   | 663,223    | 664,691   | 453,812    | 400,275    | 304,204    | 256,331    | 184.2                                | 9.6                | 46.5      | 13.4      | 31.6      | 18.7      |
| <b>MIDDLE ATLANTIC:</b>      |   |            |   |            |            |            |            |                                      |                    |           |           |           |           |
| New York.....                | 3,263,325   | 2,921,066  | 2,936,530   | 2,356,655  | 1,997,662  | 1,516,592  | 1,099,931  | 198.2                                | 11.7               | 24.6      | 18.0      | 31.7      | 37.9      |
| New Jersey.....              | 1,256,930   | 1,138,471  | 1,146,744   | 793,093    | 612,293    | 436,274    | 322,503    | 282.6                                | 10.4               | 44.6      | 29.5      | 49.3      | 35.3      |
| Pennsylvania.....            | 5,107,593   | 4,437,936  | 4,454,366   | 3,549,858  | 2,921,547  | 2,302,998  | 1,716,994  | 198.7                                | 15.1               | 25.5      | 21.5      | 26.9      | 34.1      |
| <b>EAST NORTH CENTRAL:</b>   |   |            |   |            |            |            |            |                                      |                    |           |           |           |           |
| Ohio.....                    | 3,307,726   | 2,981,340  | 2,897,497   | 1,993,090  | 1,583,155  | 1,116,932  | 783,665    | 324.4                                | 14.8               | 45.4      | 25.9      | 41.7      | 42.5      |
| Indiana.....                 | 1,372,007   | 1,092,876  | 1,095,912   | 709,703    | 633,377    | 380,758    | 325,919    | 322.1                                | 25.5               | 54.4      | 12.1      | 66.3      | 16.8      |
| Illinois.....                | 1,960,508   | 1,650,983  | 1,660,918   | 1,305,930  | 1,013,071  | 741,555    | 559,347    | 266.3                                | 20.0               | 27.2      | 28.9      | 36.6      | 32.6      |
| Michigan.....                | 1,471,550   | 1,192,349  | 1,202,128   | 730,333    | 598,288    | 440,890    | 368,497    | 302.5                                | 23.4               | 64.6      | 22.1      | 35.7      | 19.6      |
| Wisconsin.....               | 929,889   | 871,117    | 878,682   | 682,339    | 554,179    | 440,234    | 364,390    | 157.3                                | 6.7                | 28.8      | 23.1      | 25.9      | 20.9      |

|                            |         |         |         |         |         |         |         |         |       |      |       |       |       |
|----------------------------|---------|---------|---------|---------|---------|---------|---------|---------|-------|------|-------|-------|-------|
| <b>WEST NORTH CENTRAL:</b> |         |         |         |         |         |         |         |         |       |      |       |       |       |
| Minnesota.....             | 460,128 | 470,830 | 478,957 | 358,737 | 297,670 | 220,934 | 180,124 | 157.0   | -2.8  | 82.1 | 20.5  | 84.7  | 22.7  |
| Iowa.....                  | 282,333 | 299,592 | 242,046 | 190,049 | 150,384 | 113,035 | 100,944 | 168.9   | 17.6  | 27.5 | 22.3  | 81.6  | 10.7  |
| Missouri.....              | 553,897 | 474,772 | 477,308 | 391,385 | 340,477 | 247,981 | 199,117 | 194.3   | 16.6  | 22.0 | 15.0  | 87.4  | 81.1  |
| North Dakota.....          | 16,730  | 17,024  | 17,791  | 14,062  | 13,196  | 9,873   | 7,351   | 137.9   | -1.7  | 26.5 | 6.8   | 33.7  | 34.3  |
| South Dakota.....          | 16,458  | 20,107  | 22,191  | 16,324  | 17,066  | 11,154  | 11,775  | 64.4    | -18.1 | 35.9 | -7.6  | 58.4  | -5.3  |
| Nebraska.....              | 129,429 | 122,957 | 125,814 | 89,285  | 60,466  | 46,372  | 41,825  | 216.7   | 5.3   | 40.9 | 38.5  | 39.0  | 10.9  |
| Kansas.....                | 255,555 | 231,825 | 234,110 | 179,146 | 213,141 | 96,441  | 68,242  | 278.1   | 10.2  | 80.7 | -15.9 | 114.0 | 45.7  |
| <b>SOUTH ATLANTIC:</b>     |         |         |         |         |         |         |         |         |       |      |       |       |       |
| Delaware.....              | 112,495 | 85,095  | 85,150  | 64,408  | 52,779  | 49,490  | 40,134  | 180.5   | 32.2  | 32.2 | 22.0  | 6.6   | 22.3  |
| Maryland.....              | 497,945 | 405,545 | 406,708 | 263,753 | 218,244 | 168,449 | 132,052 | 278.2   | 22.8  | 54.2 | 20.9  | 31.9  | 25.3  |
| District of Columbia.....  | 31,846  | 32,911  | 33,079  | 24,775  | 16,583  | 12,502  | 10,255  | 212.3   | -3.2  | 33.5 | 49.6  | 31.5  | 22.8  |
| Virginia.....              | 431,237 | 419,329 | 419,946 | 337,567 | 283,928 | 176,998 | 136,096 | 215.8   | 2.8   | 24.4 | 18.9  | 60.4  | 29.5  |
| West Virginia.....         | 371,699 | 327,389 | 328,653 | 278,504 | 217,496 | 138,578 | 91,894  | 305.9   | 13.5  | 18.0 | 28.1  | 56.9  | 50.8  |
| North Carolina.....        | 702,832 | 549,090 | 549,878 | 508,085 | 378,556 | 216,022 | 154,467 | 356.4   | 28.2  | 8.2  | 34.2  | 74.8  | 40.2  |
| South Carolina.....        | 407,735 | 394,615 | 395,556 | 340,224 | 276,378 | 197,479 | 112,697 | 262.6   | 3.8   | 16.3 | 23.1  | 40.0  | 75.2  |
| Georgia.....               | 449,888 | 432,538 | 436,608 | 357,403 | 298,241 | 220,419 | 136,499 | 232.7   | 4.0   | 22.2 | 19.8  | 35.3  | 61.5  |
| Florida.....               | 128,269 | 188,501 | 139,456 | 100,071 | 89,816  | 43,413  | 36,356  | 282.8   | -1.2  | 39.4 | 11.4  | 106.9 | 19.4  |
| <b>EAST SOUTH CENTRAL:</b> |         |         |         |         |         |         |         |         |       |      |       |       |       |
| Kentucky.....              | 251,554 | 245,138 | 247,573 | 238,314 | 230,224 | 174,625 | 144,161 | 76.2    | 2.6   | 3.9  | 3.5   | 31.8  | 21.1  |
| Tennessee.....             | 891,463 | 337,707 | 338,814 | 286,857 | 242,277 | 175,780 | 130,318 | 201.3   | 15.9  | 18.1 | 18.4  | 37.8  | 34.9  |
| Alabama.....               | 640,892 | 627,300 | 628,376 | 445,762 | 357,837 | 293,185 | 173,208 | 270.8   | 2.2   | 41.0 | 24.6  | 32.1  | 69.3  |
| Mississippi.....           | 177,693 | 206,300 | 200,814 | 186,434 | 206,222 | 110,338 | 65,738  | 171.0   | -11.3 | 7.7  | -9.6  | 88.9  | 67.8  |
| <b>WEST SOUTH CENTRAL:</b> |         |         |         |         |         |         |         |         |       |      |       |       |       |
| Arkansas.....              | 185,154 | 211,614 | 214,194 | 177,208 | 173,088 | 109,509 | 79,550  | 110.0   | -22.0 | 20.9 | 2.4   | 58.1  | 37.6  |
| Louisiana.....             | 402,938 | 386,399 | 388,605 | 355,193 | 346,652 | 251,963 | 190,182 | 113.1   | 4.3   | 6.4  | 2.5   | 37.6  | 82.5  |
| Oklahoma.....              | 152,956 | 138,509 | 139,983 | 97,308  | 71,139  | 29,608  | 11,572  | 1,235.5 | 10.4  | 43.9 | 60.8  | 140.3 | 155.9 |
| Texas.....                 | 643,299 | 439,221 | 443,207 | 335,791 | 282,471 | 164,637 | 116,157 | 376.2   | 24.8  | 32.0 | 18.9  | 71.6  | 41.7  |
| <b>MOUNTAIN:</b>           |         |         |         |         |         |         |         |         |       |      |       |       |       |
| Montana.....               | 190,516 | 152,304 | 153,491 | 91,671  | 90,402  | 46,736  | 43,679  | 339.6   | 25.1  | 67.4 | 1.4   | 93.4  | 7.0   |
| Idaho.....                 | 72,146  | 73,355  | 73,876  | 50,326  | 42,804  | 16,987  | 5,649   | 1,188.9 | -1.6  | 46.3 | 17.6  | 152.0 | 200.7 |
| Wyoming.....               | 23,959  | 17,027  | 17,869  | 10,004  | 7,628   | 3,604   | 3,320   | 558.2   | 40.7  | 78.0 | 31.1  | 111.7 | -5.7  |
| Colorado.....              | 176,076 | 203,881 | 205,309 | 162,328 | 154,615 | 124,907 | 43,434  | 310.4   | -13.6 | 28.7 | 5.3   | 23.8  | 187.6 |
| New Mexico.....            | 16,863  | 16,901  | 17,290  | 12,468  | 15,465  | 5,948   | 3,658   | 370.9   | -1.2  | 38.4 | -19.4 | 160.0 | 62.6  |
| Arizona.....               | 128,531 | 103,536 | 103,958 | 54,697  | 39,140  | 21,412  | 8,537   | 1,411.2 | 24.1  | 90.1 | 39.7  | 82.6  | 150.3 |
| Utah.....                  | 141,671 | 92,201  | 93,942  | 59,836  | 42,947  | 19,397  | 12,674  | 1,039.2 | 53.7  | 57.8 | 38.6  | 121.4 | 53.0  |
| Nevada.....                | 27,983  | 19,756  | 19,874  | 18,748  | 7,765   | 2,834   | 1,661   | 1,702.9 | 41.6  | 6.0  | 141.4 | 174.0 | 81.6  |
| <b>PACIFIC:</b>            |         |         |         |         |         |         |         |         |       |      |       |       |       |
| Washington.....            | 593,330 | 680,764 | 687,436 | 389,567 | 297,897 | 168,342 | 87,601  | 384.3   | -12.8 | 76.5 | 80.8  | 77.0  | 92.2  |
| Oregon.....                | 322,297 | 302,617 | 304,346 | 214,222 | 175,019 | 81,348  | 60,005  | 440.2   | 6.5   | 42.1 | 22.4  | 115.1 | 36.6  |
| California.....            | 971,315 | 756,771 | 766,016 | 491,025 | 329,100 | 210,359 | 126,953 | 674.2   | 28.3  | 56.0 | 49.2  | 56.4  | 66.7  |

<sup>1</sup> For explanation of method of computing percentages in this column, see general remarks preceding these tables, par. 4, p. 125.

<sup>2</sup> Based on figures shown in left-hand column for 1919.

<sup>3</sup> The figures shown in the right-hand column for 1919 were used in calculating the percentages in this column.

TABLE 37.—QUANTITY OF MATERIALS CONSUMED AND PRODUCTS MANUFACTURED IN SELECTED INDUSTRIES, BY CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923

| MATERIAL AND PRODUCT                                      | ACTUAL QUANTITY REPORTED |          |          |         |         |          |          | PER CENT OF INCREASE OR DECREASE (-) |                    |               |               |               |               |               |               |
|---|--------------------------|----------|----------|---------|---------|----------|----------|--------------------------------------|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|
|   | 1923                     | 1921     | 1919     | 1914    | 1909    | 1904     | 1899     | 24-year<br>period,<br>1899-<br>1923  | Intercensal period |               |               |               |               |               |               |
|   |                          |          |          |         |         |          |          |                                      | 1919-<br>1923      | 1921-<br>1923 | 1919-<br>1921 | 1914-<br>1919 | 1909-<br>1914 | 1904-<br>1909 | 1899-<br>1904 |
| <b>FOOD AND KINDRED PRODUCTS</b>                          |                          |          |          |         |         |          |          |                                      |                    |               |               |               |               |               |               |
| <b>Butter, cheese, and condensed and evaporated milk:</b> |                          |          |          |         |         |          |          |                                      |                    |               |               |               |               |               |               |
| <b>Materials—</b>   |                          |          |          |         |         |          |          |                                      |                    |               |               |               |               |               |               |
| Milk..... mill. lbs.                                      | (1)                      | (1)      | 10,244.9 | 8,431.4 | 9,888.7 | 12,147.3 | 11,678.1 |                                      |                    |               |               | 21.5          | -14.7         | -18.6         | 4.0           |
| Cream..... mill. lbs.                                     | (1)                      | (1)      | 2,551.7  | 2,384.0 | 1,406.1 | 688.2    | 203.7    |                                      |                    |               |               | 7.0           | 69.5          | 139.1         | 188.8         |
| <b>Products—</b>  |                          |          |          |         |         |          |          |                                      |                    |               |               |               |               |               |               |
| Butter..... mill. lbs.                                    | 1,303.5                  | 1,118.2  | 920.6    | 769.8   | 624.8   | 531.5    | 420.1    | 210.3                                | 41.6               | 16.6          | 21.5          | 19.6          | 23.2          | 17.6          | 26.5          |
| Cheese..... mill. lbs.                                    | 553.6                    | 423.4    | 473.6    | 370.3   | 311.1   | 317.1    | 282.0    | 99.9                                 | 19.0               | 33.1          | -10.6         | 27.9          | 19.0          | -1.9          | 12.4          |
| Condensed and evaporated milk..... mill. lbs.             | 1,821.1                  | 1,758.5  | 2,150.2  | 873.4   | 494.8   | 308.5    | 186.9    | 874.4                                | -15.3              | 3.6           | -18.2         | 146.2         | 76.5          | 60.4          | 65.1          |
| <b>Slaughtering and meat packing:</b>                     |                          |          |          |         |         |          |          |                                      |                    |               |               |               |               |               |               |
| <b>Materials—</b>   |                          |          |          |         |         |          |          |                                      |                    |               |               |               |               |               |               |
| Beeves, dressed weight..... mill. lbs.                    | 5,151.4                  | 4,358.0  | 5,118.7  | 3,786.3 | 4,409.7 | 4,066.2  | 3,222.7  | 59.8                                 | .6                 | 18.2          | -14.9         | 35.2          | -14.1         | 8.4           | 26.2          |
| Calves, dressed weight..... mill. lbs.                    | 535.7                    | 438.0    | 457.5    | 206.3   | 262.3   | 161.0    | 79.5     | 573.8                                | 17.1               | 22.3          | -4.3          | 121.8         | -21.3         | 62.9          | 102.5         |
| Sheep and lambs, dressed weight..... mill. lbs.           | 515.0                    | 508.0    | 499.7    | 629.7   | 496.6   | 464.9    | 389.1    | 32.4                                 | 3.1                | -9.3          | 13.7          | -20.6         | 26.8          | 6.8           | 19.5          |
| Hogs, dressed weight..... mill. lbs.                      | 9,439.1                  | 6,873.3  | 7,358.9  | 5,476.2 | 5,201.9 | 5,048.8  | 5,203.3  | 81.4                                 | 28.3               | 37.3          | -6.6          | 34.4          | 5.3           | 3.0           | -3.0          |
| <b>Products—</b>  |                          |          |          |         |         |          |          |                                      |                    |               |               |               |               |               |               |
| Meat, fresh and cured..... mill. lbs.                     | 13,603.2                 | 10,976.0 | 12,634.0 | 9,660.3 | 9,719.1 | 8,772.1  | 9,981.6  | 70.4                                 | 7.7                | 23.9          | -13.1         | 30.8          | -6            | 10.9          | 9.9           |
| Lard and lard compounds..... mill. lbs.                   | 2,419.7                  | 1,952.4  | 1,894.0  | 1,515.6 | 1,243.6 | 1,169.1  | 1,019.8  | 137.3                                | 27.8               | 23.9          | 3.1           | 25.0          | 21.9          | 8.4           | 14.6          |
| Hides and skins, cattle and calf..... mill. lbs.          | 626.5                    | 524.1    | 627.5    | 434.5   | 604.9   | 456.4    | 336.0    | 86.5                                 | -2                 | 19.5          | -16.5         | 44.4          | -13.9         | 10.6          | 35.8          |
| <b>Flour-mill and grain-mill products:</b>                |                          |          |          |         |         |          |          |                                      |                    |               |               |               |               |               |               |
| <b>Material—</b>  |                          |          |          |         |         |          |          |                                      |                    |               |               |               |               |               |               |
| Grain, ground or milled..... mill. bush.                  | 743.2                    | 713.6    | 830.0    | 818.9   | 806.2   | 754.9    | 729.1    | 1.9                                  | -10.5              | 4.1           | -14.0         | 1.4           | 1.6           | 6.8           | 3.5           |
| <b>Products—</b>  |                          |          |          |         |         |          |          |                                      |                    |               |               |               |               |               |               |
| Wheat flour..... mill. bbls.                              | 114.4                    | 110.8    | 132.5    | 116.4   | 105.8   | 104.0    | 99.8     | 14.6                                 | -13.7              | 3.2           | -16.4         | 13.8          | 10.0          | 1.7           | 4.2           |
| Corn meal and corn flour..... mill. bbls.                 | 12.2                     | 10.9     | 10.7     | 16.3    | 21.6    | 23.6     | 27.8     | -56.1                                | 14.0               | 11.9          | 1.9           | -34.4         | -24.5         | -8.5          | -15.1         |
| Bran, middlings, feed, and offal..... mill. tons          | 9.7                      | 8.9      | 9.3      | 9.4     | 9.2     | 7.9      | 7.2      | 34.7                                 | 4.3                | 9.0           | -4.3          | -1.1          | 2.2           | 16.5          | -9.7          |
| <b>Sugar, beet:</b>                                       |                          |          |          |         |         |          |          |                                      |                    |               |               |               |               |               |               |
| <b>Material—</b>  |                          |          |          |         |         |          |          |                                      |                    |               |               |               |               |               |               |
| Beets..... thous. short tons                              | 5,786.1                  | 7,872.8  | 5,648.6  | 5,639.1 | 3,965.3 | 2,175.4  | 794.6    | 628.2                                | 2.4                | -26.5         | 39.4          | .2            | 42.2          | 82.3          | 173.8         |
| <b>Product—</b>   |                          |          |          |         |         |          |          |                                      |                    |               |               |               |               |               |               |
| Beet sugar..... thous. short tons                         | 754.5                    | 1,029.9  | 721.9    | 743.5   | 501.7   | 253.9    | 81.7     | 823.5                                | 4.5                | -26.7         | 42.7          | -2.9          | 48.2          | 97.6          | 210.8         |
| <b>Sugar refining, cane:</b>                              |                          |          |          |         |         |          |          |                                      |                    |               |               |               |               |               |               |
| <b>Product—</b>   |                          |          |          |         |         |          |          |                                      |                    |               |               |               |               |               |               |
| Refined sugar..... thous. short tons                      | 4,429.1                  | 3,770.2  | 3,521.5  | 3,333.1 | (1)     | (1)      | (1)      |                                      | 25.8               | 17.5          | 7.1           | 5.7           |               |               |               |

|   |                    |                  |                  |         |         |         |                  |                  |       |       |       |       |       |       |       |       |      |
|---|--------------------|------------------|------------------|---------|---------|---------|------------------|------------------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| <b>Canning and preserving, fruits and vegetables, etc.:</b> |                    |                  |                  |         |         |         |                  |                  |       |       |       |       |       |       |       |       |      |
| Canned vegetables.....                                      | mill. cases..      | 75.8             | 88.2             | 58.1    | 50.3    | 83.5    | 29.7             | 19.3             | 292.7 | 80.5  | 98.4  | -34.3 | 15.5  | 48.8  | 18.8  | 58.9  |      |
| Canned fruits.....  | mill. cases..      | 20.3             | 12.5             | 21.4    | 9.4     | 5.5     | 4.6              | 4.5              | 351.1 | -5.1  | 62.4  | -41.6 | 127.7 | 70.9  | 19.6  | 2.2   |      |
| Dried fruits.....   | mill. lbs.         | 6791.8           | 6504.9           | 615.4   | 568.6   | 485.3   | 343.6            | 85.4             | 827.2 | 28.7  | 56.8  | -18.0 | 8.2   | 17.2  | 41.2  | 302.3 |      |
| Canned soups.....   | mill. cases..      | 14.2             | 6.9              | 5.8     | 4.9     | .9      | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ----- | 144.8 | 105.8 | 19.0  | 18.4  | 444.4 | ----- | ----- |      |
| <b>Canning and preserving, fish and oysters:</b>            |                    |                  |                  |         |         |         |                  |                  |       |       |       |       |       |       |       |       |      |
| Canned fish, oysters.....                                   | mill. cases..      | 7.4              | 4.9              | 10.3    | 8.8     | 7.6     | 7.1              | ( <sup>1</sup> ) | ----- | -28.2 | 51.0  | -52.4 | 17.0  | 39.7  | 630.0 | ----- |      |
| <b>Corn sirup, corn oil, and starch:</b>                    |                    |                  |                  |         |         |         |                  |                  |       |       |       |       |       |       |       |       |      |
| Starch.....   | mill. lbs.         | 858.4            | 894.1            | 783.5   | 620.8   | 677.5   | 356.7            | ( <sup>1</sup> ) | ----- | 9.6   | -4.0  | 14.1  | 26.2  | -8.4  | 69.9  | ----- |      |
| Rice cleaning and polishing:                                |                    |                  |                  |         |         |         |                  |                  |       |       |       |       |       |       |       |       |      |
| Clean rice.....   | mill. lbs.         | 1,171.6          | 1,154.2          | 1,062.8 | 674.9   | 626.1   | 623.9            | 243.0            | 382.1 | 10.2  | 1.5   | 8.6   | 57.5  | 7.8   | .4    | 156.7 |      |
| Ice, manufactured:  |                    |                  |                  |         |         |         |                  |                  |       |       |       |       |       |       |       |       |      |
| Ice.....  | mill. tons..       | 85.84            | 81.38            | 27.95   | 21.04   | 14.23   | 8.01             | 4.29             | 735.4 | 28.2  | 14.2  | 12.3  | 32.8  | 47.9  | 77.7  | 88.7  |      |
| <b>TEXTILES AND THEIR PRODUCTS</b>                          |                    |                  |                  |         |         |         |                  |                  |       |       |       |       |       |       |       |       |      |
| <b>Cotton goods:</b>  |                    |                  |                  |         |         |         |                  |                  |       |       |       |       |       |       |       |       |      |
| <b>Materials--</b>  |                    |                  |                  |         |         |         |                  |                  |       |       |       |       |       |       |       |       |      |
| Cotton, raw.....  | mill. lbs.         | ( <sup>1</sup> ) | ( <sup>1</sup> ) | 2,731.4 | 2,523.5 | 2,335.3 | 1,876.4          | 1,817.6          | ----- | ----- | ----- | ----- | ----- | 8.2   | 8.1   | 24.5  | 3.2  |
| Cotton yarns.....   | mill. lbs.         | ( <sup>1</sup> ) | ( <sup>1</sup> ) | 230.1   | 139.5   | 126.7   | 105.4            | 94.7             | ----- | ----- | ----- | ----- | ----- | 64.9  | 10.1  | 20.2  | 11.3 |
| <b>Products--</b>   |                    |                  |                  |         |         |         |                  |                  |       |       |       |       |       |       |       |       |      |
| Woven goods (over 12 inches in width).....                  | mill. sq. yds.     | 8,264.2          | 6,768.8          | 6,317.4 | 6,813.5 | 6,267.6 | 5,056.8          | 4,485.6          | 94.2  | 30.8  | 23.3  | 6.1   | -7.3  | 8.7   | 23.9  | 12.7  |      |
| Yarns, manufactured for sale.....                           | mill. lbs.         | 620.7            | 494.2            | 618.0   | 498.0   | 470.4   | 364.6            | 332.3            | 86.8  | .4    | 28.2  | -21.7 | 24.1  | 5.9   | 29.0  | 9.7   |      |
| Thread.....   | mill. lbs.         | 31.6             | 23.3             | 26.4    | 26.5    | 23.7    | 17.2             | 15.9             | 98.7  | 19.7  | 35.6  | -11.7 | -4    | 11.8  | 37.5  | 9.2   |      |
| <b>Knit goods:</b>  |                    |                  |                  |         |         |         |                  |                  |       |       |       |       |       |       |       |       |      |
| <b>Materials--</b>  |                    |                  |                  |         |         |         |                  |                  |       |       |       |       |       |       |       |       |      |
| Cotton.....   | mill. lbs.         | ( <sup>1</sup> ) | ( <sup>1</sup> ) | 118.7   | 114.0   | 75.4    | 50.6             | 49.5             | ----- | ----- | ----- | ----- | ----- | 3.6   | 52.0  | 49.0  | 2.2  |
| Cotton yarns.....   | mill. lbs.         | ( <sup>1</sup> ) | ( <sup>1</sup> ) | 217.4   | 205.5   | 217.0   | 161.3            | 131.8            | ----- | ----- | ----- | ----- | ----- | 5.9   | -5.3  | 34.4  | 22.5 |
| Worsted yarns.....  | mill. lbs.         | ( <sup>1</sup> ) | ( <sup>1</sup> ) | 12.6    | 14.3    | 10.4    | 8.8              | 5.8              | ----- | ----- | ----- | ----- | ----- | -11.9 | 37.5  | 18.2  | 51.7 |
| <b>Products--</b>   |                    |                  |                  |         |         |         |                  |                  |       |       |       |       |       |       |       |       |      |
| Hosiery.....  | mill. doz. pairs.. | 97.4             | 80.2             | 84.6    | 75.2    | 62.9    | 44.2             | 29.9             | 225.8 | 15.0  | 21.4  | -5.3  | 12.0  | 19.7  | 42.1  | 47.6  |      |
| <b>Underwear--</b>  |                    |                  |                  |         |         |         |                  |                  |       |       |       |       |       |       |       |       |      |
| Shirts and drawers.....                                     | mill. doz.         | 12.7             | 11.7             | 17.2    | 21.8    | 25.3    | 19.7             | 15.9             | -20.1 | -26.2 | 8.5   | -32.0 | -21.1 | -13.8 | 28.4  | 28.9  |      |
| Union suits.....  | mill. doz.         | 10.7             | 9.3              | 9.2     | 6.3     | 2.5     | 1.4              | 1.0              | 970.0 | 16.3  | 15.1  | 1.1   | 46.0  | 152.0 | 78.6  | 40.0  |      |
| Gloves and mittens.....                                     | mill. doz. pairs.. | 2.1              | 2.7              | 3.6     | 2.5     | 2.5     | 2.3              | 1.9              | 10.5  | -41.7 | -22.2 | -25.0 | 44.0  | ----- | 6.7   | 21.1  |      |
| Sweaters, jerseys, hoods, scarfs, shawls, etc.....          | mill. doz.         | 6.3              | 3.6              | 3.0     | 3.3     | 3.3     | 1.8              | 1.1              | 472.7 | 110.0 | 75.0  | 20.0  | -9.1  | ----- | 83.3  | 68.6  |      |
| <b>Silk manufactures:</b>                                   |                    |                  |                  |         |         |         |                  |                  |       |       |       |       |       |       |       |       |      |
| <b>Materials--</b>  |                    |                  |                  |         |         |         |                  |                  |       |       |       |       |       |       |       |       |      |
| Raw silk.....   | mill. lbs.         | ( <sup>1</sup> ) | ( <sup>1</sup> ) | 25.9    | 22.4    | 17.5    | 11.6             | 9.8              | ----- | ----- | ----- | ----- | ----- | 15.8  | 28.0  | 50.9  | 18.4 |
| Organzine and tram.....                                     | mill. lbs.         | ( <sup>1</sup> ) | ( <sup>1</sup> ) | 6.1     | 3.9     | 3.4     | 3.2              | 2.3              | ----- | ----- | ----- | ----- | ----- | 56.4  | 14.7  | 6.2   | 39.1 |
| Yarns, other than silk.....                                 | mill. lbs.         | ( <sup>1</sup> ) | ( <sup>1</sup> ) | 19.6    | 23.2    | 15.8    | 9.7              | 7.1              | ----- | ----- | ----- | ----- | ----- | -15.5 | 46.8  | 63.9  | 36.6 |
| <b>Products--</b>   |                    |                  |                  |         |         |         |                  |                  |       |       |       |       |       |       |       |       |      |
| Broad silks.....  | mill. linear yds.  | 357.0            | 273.6            | 310.1   | 216.0   | 135.7   | 124.9            | 87.6             | 307.5 | 15.1  | 30.5  | -11.8 | 43.6  | 16.3  | 43.7  | 42.6  |      |
| Velvets, plushes, upholstery, and tapestries.....           | mill. linear yds.  | 28.4             | 18.0             | 22.5    | 25.9    | 13.1    | 11.6             | 10.3             | 156.3 | 17.3  | 46.7  | -19.0 | -13.1 | 97.7  | 12.9  | 12.8  |      |
| Other silk goods.....                                       | mill. lbs.         | 13.7             | 13.1             | 10.9    | 7.2     | 5.4     | 4.3              | 4.6              | 187.8 | 25.7  | 4.2   | 20.2  | 51.4  | 33.3  | 25.6  | -3.5  |      |

See footnotes at end of table, p. 191.

TABLE 87.—QUANTITY OF MATERIALS CONSUMED AND PRODUCTS MANUFACTURED IN SELECTED INDUSTRIES, BY CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923—Continued

| MATERIAL AND PRODUCT  | ACTUAL QUANTITY REPORTED |                  |                    |         |         |                  |                  | PER CENT OF INCREASE OR DECREASE (-) |                    |           |           |           |           |           |           |
|---|--------------------------|------------------|--------------------|---------|---------|------------------|------------------|--------------------------------------|--------------------|-----------|-----------|-----------|-----------|-----------|-----------|
|   | 1923                     | 1921             | 1919               | 1914    | 1909    | 1904             | 1899             | 24-year period, 1899-1923            | Intercensal period |           |           |           |           |           |           |
|   |                          |                  |                    |         |         |                  |                  |                                      | 1919-1923          | 1921-1923 | 1919-1921 | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |
| <b>TEXTILES AND THEIR PRODUCTS—Continued</b>                        |                          |                  |                    |         |         |                  |                  |                                      |                    |           |           |           |           |           |           |
| <b>Woolen and worsted goods:</b>                                    |                          |                  |                    |         |         |                  |                  |                                      |                    |           |           |           |           |           |           |
| <b>Materials—</b>   |                          |                  |                    |         |         |                  |                  |                                      |                    |           |           |           |           |           |           |
| Woolen in condition purchased.....mill. lbs.                        | ( <sup>1</sup> )         | ( <sup>1</sup> ) | 443.5              | 434.7   | 474.8   | 418.7            | 330.2            | -----                                | -----              | -----     | 2.0       | -8.4      | 13.4      | 26.8      |           |
| Tops.....mill. lbs.   | ( <sup>1</sup> )         | ( <sup>1</sup> ) | 26.3               | 29.1    | 20.8    | 9.2              | 5.6              | -----                                | -----              | -----     | -9.6      | 39.9      | 128.1     | 64.3      |           |
| Worsted yarns.....mill. lbs.  | ( <sup>1</sup> )         | ( <sup>1</sup> ) | 43.0               | 53.6    | 59.1    | 31.0             | 25.1             | -----                                | -----              | -----     | -19.8     | -9.3      | 90.6      | 23.5      |           |
| <b>Products—</b>  |                          |                  |                    |         |         |                  |                  |                                      |                    |           |           |           |           |           |           |
| All-wool woven goods <sup>10</sup> .....mill. sq. yds.              | 399.1                    | 326.7            | 326.7              | 323.0   | 322.9   | 260.6            | 216.4            | 84.4                                 | 22.2               | 22.2      | -----     | 1.1       | .03       | 23.9      | 20.4      |
| Union or cotton-mixed woven goods <sup>11</sup> .....mill. sq. yds. | 47.4                     | 24.9             | 47.8               | 46.2    | 37.5    | 63.2             | 57.3             | -17.3                                | -8                 | 90.4      | -47.0     | 3.5       | 23.2      | -40.7     | 10.3      |
| Cotton-warp, woven goods <sup>12</sup> .....mill. sq. yds.          | 181.5                    | 142.2            | 161.4              | 196.2   | 210.3   | 182.1            | 152.9            | 18.7                                 | 12.5               | 27.6      | -11.9     | -17.7     | -6.7      | 15.5      | 19.1      |
| Yarns and tops.....mill. lbs.                                       | 200.6                    | 136.0            | 128.2              | 141.5   | 145.4   | 118.1            | 96.2             | 108.5                                | 56.5               | 47.5      | 6.1       | -9.4      | -2.7      | 23.1      | 22.8      |
| <b>Carpets and rugs, wool, other than rag:</b>                      |                          |                  |                    |         |         |                  |                  |                                      |                    |           |           |           |           |           |           |
| <b>Materials—</b>   |                          |                  |                    |         |         |                  |                  |                                      |                    |           |           |           |           |           |           |
| Wool in condition purchased.....mill. lbs.                          | ( <sup>1</sup> )         | ( <sup>1</sup> ) | 36.3               | 52.6    | 64.1    | 51.3             | 51.9             | -----                                | -----              | -----     | -31.0     | -17.9     | 25.0      | -1.2      |           |
| Yarns.....mill. lbs.  | ( <sup>1</sup> )         | ( <sup>1</sup> ) | 87.2               | 122.6   | 128.3   | 129.7            | 109.3            | -----                                | -----              | -----     | -28.9     | -4.4      | -1.1      | 18.7      |           |
| <b>Products—</b>  |                          |                  |                    |         |         |                  |                  |                                      |                    |           |           |           |           |           |           |
| Carpets and rugs.....mill. sq. yds.                                 | 83.2                     | 52.9             | 52.2               | 66.3    | 81.2    | 82.7             | 76.4             | 8.9                                  | 59.4               | 57.3      | 1.3       | -21.3     | -18.3     | -1.8      | 8.2       |
| <b>Cordage and twine, jute goods and linen goods:</b>               |                          |                  |                    |         |         |                  |                  |                                      |                    |           |           |           |           |           |           |
| <b>Materials—</b>   |                          |                  |                    |         |         |                  |                  |                                      |                    |           |           |           |           |           |           |
| Hard fibers.....mill. lbs.  | ( <sup>1</sup> )         | ( <sup>1</sup> ) | 427.9              | 437.3   | 352.7   | ( <sup>1</sup> ) | 275.9            | -----                                | -----              | -----     | -2.1      | 24.0      | -----     | -----     |           |
| Soft fibers.....mill. lbs.  | ( <sup>1</sup> )         | ( <sup>1</sup> ) | 206.0              | 338.3   | 307.0   | ( <sup>1</sup> ) | 248.8            | -----                                | -----              | -----     | -39.1     | 10.2      | -----     | -----     |           |
| <b>Products—</b>  |                          |                  |                    |         |         |                  |                  |                                      |                    |           |           |           |           |           |           |
| Rope and binder twine, exclusive of cotton rope.....mill. lbs.      | 432.9                    | 358.3            | 443.2              | 487.4   | 411.4   | ( <sup>1</sup> ) | 305.8            | 41.6                                 | -2.3               | 20.8      | -19.2     | -9.1      | 18.5      | -----     |           |
| Twine, other than binder.....mill. lbs.                             | 120.1                    | 80.4             | 92.4               | 105.2   | 75.8    | ( <sup>1</sup> ) | 36.2             | 231.8                                | 80.0               | 49.9      | -13.3     | -12.2     | 88.8      | -----     |           |
| <b>Hats, fur-felt:</b>  |                          |                  |                    |         |         |                  |                  |                                      |                    |           |           |           |           |           |           |
| Hats, fur-felt.....thous. doz.                                      | 1,989.6                  | 1,756.0          | 2,100.0            | 2,118.6 | 2,989.3 | 2,611.9          | 1,882.4          | 4.6                                  | -6.2               | 12.2      | -16.4     | -9        | -29.1     | 14.4      | 38.8      |
| <b>Oilcloth and floor coverings:</b>                                |                          |                  |                    |         |         |                  |                  |                                      |                    |           |           |           |           |           |           |
| Piece goods, rugs, etc.....mill. sq. yds.                           | 205.2                    | 135.8            | 109.9              | 119.5   | 109.2   | 66.5             | ( <sup>1</sup> ) | -----                                | 51.1               | 86.7      | 23.6      | -8.0      | 9.4       | 64.2      | -----     |
| <b>IRON AND STEEL AND THEIR PRODUCTS</b>                            |                          |                  |                    |         |         |                  |                  |                                      |                    |           |           |           |           |           |           |
| <b>Blast furnaces:</b>  |                          |                  |                    |         |         |                  |                  |                                      |                    |           |           |           |           |           |           |
| <b>Materials—</b>   |                          |                  |                    |         |         |                  |                  |                                      |                    |           |           |           |           |           |           |
| Iron ore.....mill. long tons  | ( <sup>1</sup> )         | ( <sup>1</sup> ) | 55.9               | 43.3    | 48.4    | 30.0             | 25.4             | -----                                | -----              | -----     | 29.1      | -10.5     | 61.3      | 18.1      |           |
| Fluxes.....mill. short tons   | ( <sup>1</sup> )         | ( <sup>1</sup> ) | 15.6               | 11.5    | 13.0    | 8.3              | 7.3              | -----                                | -----              | -----     | 35.7      | -15.4     | 63.9      | 13.7      |           |
| Coke.....mill. short tons   | ( <sup>1</sup> )         | ( <sup>1</sup> ) | 34.6               | 26.9    | 31.4    | 19.7             | 15.5             | -----                                | -----              | -----     | 28.0      | -14.3     | 59.4      | 18.4      |           |
| <b>Products—</b>  |                          |                  |                    |         |         |                  |                  |                                      |                    |           |           |           |           |           |           |
| Pig iron, including ferro-alloys.....mill. long tons.               | 40.2                     | 16.6             | <sup>13</sup> 30.5 | 23.3    | 25.7    | 16.6             | 14.4             | 179.2                                | 81.8               | 142.2     | -45.0     | 30.9      | -9.3      | 54.8      | 15.8      |

|   |       |       |         |         |         |         |         |         |       |       |       |       |       |       |       |
|---|-------|-------|---------|---------|---------|---------|---------|---------|-------|-------|-------|-------|-------|-------|-------|
| <b>Steel works and rolling mills:</b>   |       |       |         |         |         |         |         |         |       |       |       |       |       |       |       |
| <b>Materials—</b>   |       |       |         |         |         |         |         |         |       |       |       |       |       |       |       |
| Fig iron, including ferro-alloys.....mill. long tons..                                | (1)   | (1)   | 24.4    | 17.4    | 19.1    | 12.2    | 10.4    | -----   | ----- | ----- | ----- | 40.2  | -8.9  | 56.6  | 17.8  |
| Scrap, from outside sources.....mill. long tons..                                     | (1)   | (1)   | 7.0     | 5.1     | 4.8     | 5.1     | 4.1     | -----   | ----- | ----- | ----- | 37.3  | 6.2   | -5.9  | 24.4  |
| Ingots, blooms, billets, etc.....mill. long tons..                                    | (1)   | (1)   | 8.9     | 6.5     | 6.5     | 4.9     | 8.9     | -----   | ----- | ----- | ----- | 36.0  | ----- | 32.7  | 25.6  |
| <b>Products—</b>  |       |       |         |         |         |         |         |         |       |       |       |       |       |       |       |
| Rolled, forged, and other classified iron<br>and steel products.....mill. long tons.. | 47.8  | 20.6  | 36.2    | 25.5    | 28.7    | 18.2    | 18.1    | 214.6   | 31.2  | 130.6 | -43.1 | 42.0  | -4.5  | 46.7  | 20.5  |
| <b>Engines and water wheels:</b>  |       |       |         |         |         |         |         |         |       |       |       |       |       |       |       |
| <b>Steam engines (not including traction engines).....thousands..</b>                 |       |       |         |         |         |         |         |         |       |       |       |       |       |       |       |
| Internal-combustion engines (not including tractors).....thousands..                  | 607.7 | 313.9 | 589.3   | 369.5   | (1)     | (1)     | (1)     | -----   | -20.4 | 59.3  | -55.7 | 32.0  | ----- | ----- | ----- |
| Tractors and traction engines.....thousands..   | 140.8 | 74.4  | 215.0   | 15.2    | (1)     | (1)     | (1)     | -----   | 8.1   | 98.6  | -46.7 | 59.5  | ----- | ----- | ----- |
| <b>Machine tools:</b>   |       |       |         |         |         |         |         |         |       |       |       |       |       |       |       |
| Boring machines.....thousands..   | 8.9   | 9     | 1.4     | (1)     | (1)     | (1)     | (1)     | -----   | -42.9 | -11.1 | -35.7 | ----- | ----- | ----- | ----- |
| Drilling machines (except portable).....thousands..                                   | 8.1   | 4.5   | 16.6    | (1)     | (1)     | (1)     | (1)     | -----   | -51.2 | 60.0  | -72.9 | ----- | ----- | ----- | ----- |
| Grinding machines.....thousands..   | 16.8  | 3.7   | 12.9    | (1)     | (1)     | (1)     | (1)     | -----   | 30.2  | 354.0 | -71.3 | ----- | ----- | ----- | ----- |
| Lathes.....thousands..  | 12.0  | 7.6   | 29.0    | (1)     | (1)     | (1)     | (1)     | -----   | -58.6 | 57.9  | -73.8 | ----- | ----- | ----- | ----- |
| Milling machines.....thousands..  | 2.9   | 2.3   | 11.5    | (1)     | (1)     | (1)     | (1)     | -----   | -74.8 | 26.1  | -80.0 | ----- | ----- | ----- | ----- |
| Presses.....thousands..   | 12.7  | 23.8  | 35.8    | (1)     | (1)     | (1)     | (1)     | -----   | -64.5 | -46.6 | -33.5 | ----- | ----- | ----- | ----- |
| Screw machines (automatic).....thousands..  | 2.1   | 2.7   | 6.2     | (1)     | (1)     | (1)     | (1)     | -----   | -66.1 | -22.2 | -56.5 | ----- | ----- | ----- | ----- |
| <b>Textile machinery and parts:</b>   |       |       |         |         |         |         |         |         |       |       |       |       |       |       |       |
| Fiber-to-fabric machinery.....thousands..   | 48.1  | 37.9  | 40.6    | (1)     | (1)     | (1)     | (1)     | -----   | 18.5  | 26.9  | -6.7  | ----- | ----- | ----- | ----- |
| Fabric machinery.....thousands..  | 83.0  | 89.7  | 53.5    | (1)     | (1)     | (1)     | (1)     | -----   | 55.1  | -7.5  | 67.7  | ----- | ----- | ----- | ----- |
| <b>LUMBER AND ITS REMANUFACTURES</b>  |       |       |         |         |         |         |         |         |       |       |       |       |       |       |       |
| <b>Lumber:</b>  |       |       |         |         |         |         |         |         |       |       |       |       |       |       |       |
| Softwoods.....mill. M ft. b. m..  | 30.9  | 22.2  | 27.4    | 29.4    | 33.9    | 27.4    | 26.2    | 17.9    | 12.8  | 39.2  | -19.0 | -6.8  | -13.3 | 23.7  | 4.6   |
| Hardwoods.....mill. M ft. b. m..  | 6.3   | 4.6   | 7.1     | 7.9     | 10.6    | 6.8     | 8.6     | -26.7   | -11.8 | 31.3  | -32.4 | -10.1 | -25.5 | 55.9  | -20.9 |
| <b>LEATHER AND ITS FINISHED PRODUCTS</b>  |       |       |         |         |         |         |         |         |       |       |       |       |       |       |       |
| <b>Leather, tanned, curried, and finished:</b>  |       |       |         |         |         |         |         |         |       |       |       |       |       |       |       |
| <b>Materials—</b>   |       |       |         |         |         |         |         |         |       |       |       |       |       |       |       |
| Cattle hides.....mill. hides..  | (1)   | (1)   | 22.2    | 17.5    | 18.4    | 17.6    | 15.8    | -----   | ----- | ----- | ----- | 26.9  | -4.9  | 4.5   | 11.4  |
| Calf and kip skins.....mill. skins..  | (1)   | (1)   | 12.0    | 16.1    | 19.7    | 12.5    | 8.9     | -----   | ----- | ----- | ----- | -19.9 | -18.3 | 57.8  | 40.4  |
| Goat and kid skins.....mill. skins..  | (1)   | (1)   | 55.4    | 37.8    | 43.1    | 47.7    | 48.0    | -----   | ----- | ----- | ----- | 46.8  | -21.4 | 8     | -8    |
| Sheep and lamb skins.....mill. skins..  | (1)   | (1)   | 22.8    | 40.1    | 26.1    | 27.5    | 24.5    | -----   | ----- | ----- | ----- | -43.1 | 53.6  | -5.1  | 12.2  |
| <b>Products—</b>  |       |       |         |         |         |         |         |         |       |       |       |       |       |       |       |
| Sole leather.....mill. sides..  | 18.9  | 13.1  | 19.7    | 18.1    | 17.8    | 17.9    | 18.5    | 21.9    | -4.1  | 4.4   | -8.1  | 8.8   | 1.7   | 6     | 15.5  |
| Harness leather.....mill. sides..   | 1.5   | 9     | 1.7     | 2.8     | 3.9     | 4.4     | 3.4     | -55.9   | -11.8 | 37.5  | -52.9 | -39.3 | -28.2 | -11.4 | 29.4  |
| Upper leather (other than patent).....mill. skins, total..                            | 88.2  | 67.0  | 78.4    | 66.8    | (1)     | (1)     | (1)     | -----   | 12.5  | 31.6  | -14.5 | 18.3  | ----- | ----- | ----- |
| Cattle sides.....mill. sides..  | 18.6  | 12.0  | 16.7    | 8.3     | 7.9     | 6.9     | 8.1     | 129.6   | 11.4  | 47.6  | -24.6 | 103.7 | 8.8   | 14.5  | -14.8 |
| <b>Boots and shoes, leather:</b>  |       |       |         |         |         |         |         |         |       |       |       |       |       |       |       |
| Boots, shoes, and slippers.....mill. pairs..  | 351.1 | 286.8 | 331.2   | 292.7   | 285.0   | 242.1   | 218.0   | 61.1    | 6.0   | 22.4  | -13.4 | 13.2  | 2.7   | 17.7  | 11.1  |
| <b>Gloves, mittens, leather:</b>  |       |       |         |         |         |         |         |         |       |       |       |       |       |       |       |
| Gloves, mittens, and gauntlets.....thous. doz. pairs..                                | (1)   | (1)   | 2,582.4 | 3,615.7 | 3,082.4 | 3,368.7 | 3,870.1 | 2,895.7 | ----- | ----- | ----- | -28.5 | 17.3  | -8.5  | .05   |

See footnotes at end of table, p. 191.

TABLE 37.—QUANTITY OF MATERIALS CONSUMED AND PRODUCTS MANUFACTURED IN SELECTED INDUSTRIES, BY CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923—Continued

| MATERIAL AND PRODUCT   | ACTUAL QUANTITY REPORTED |         |         |         |         |         |         | PER CENT OF INCREASE OR DECREASE (-) |                     |           |           |           |           |           |           |      |
|--|--------------------------|---------|---------|---------|---------|---------|---------|--------------------------------------|---------------------|-----------|-----------|-----------|-----------|-----------|-----------|------|
|  | 1923                     | 1921    | 1919    | 1914    | 1909    | 1904    | 1899    | 24-year period, 1899-1923            | Inter-censal period |           |           |           |           |           |           |      |
|  |                          |         |         |         |         |         |         |                                      | 1919-1923           | 1921-1923 | 1919-1921 | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |      |
| <b>PAPER AND PRINTING</b>  |                          |         |         |         |         |         |         |                                      |                     |           |           |           |           |           |           |      |
| Paper and wood pulp:   |                          |         |         |         |         |         |         |                                      |                     |           |           |           |           |           |           |      |
| Materials—   |                          |         |         |         |         |         |         |                                      |                     |           |           |           |           |           |           |      |
| Pulpwood.....thous. cords.....   | 46,872.9                 | 4,557.2 | 5,477.8 | 4,470.8 | 4,001.8 | 3,050.7 | 1,986.8 | 195.7                                | 7.2                 | 28.9      | -16.8     | 22.6      | 11.7      | 31.2      | 53.6      |      |
| Wood pulp purchased.....thous. short tons.....                                 | (1)                      | (1)     | 1,596.0 | 1,522.0 | 1,241.9 | 877.7   | 644.0   |                                      |                     |           |           | 4.9       | 22.6      | 41.5      | 36.3      |      |
| Rags, including cotton and flax waste and sweepings.....thous. short tons..... | (1)                      | (1)     | 277.8   | 361.7   | 257.5   | 294.6   | 234.5   |                                      |                     |           |           |           | -23.2     | 1.2       | 21.4      | 25.6 |
| Old or waste paper.....thous. short tons.....                                  | (1)                      | (1)     | 1,854.4 | 1,510.0 | 983.9   | 588.5   | 356.2   |                                      |                     |           |           |           | 22.8      | 53.5      | 67.2      | 65.2 |
| Products—  |                          |         |         |         |         |         |         |                                      |                     |           |           |           |           |           |           |      |
| News paper, in rolls and sheets.....thous. short tons.....                     | 1,521.1                  | 1,237.4 | 1,323.9 | 1,813.3 | 1,168.1 | 912.8   | 569.2   | 167.2                                | 14.9                | 22.9      | -6.5      | .8        | 12.4      | 28.0      | 60.4      |      |
| Book paper.....thous. short tons.....  | 1,207.9                  | 792.3   | 951.3   | 904.0   | 670.1   | 434.5   | 282.1   | 328.2                                | 27.0                | 52.5      | -16.7     | 5.2       | 34.9      | 54.2      | 54.0      |      |
| Fine paper.....thous. short tons.....  | 377.0                    | 230.9   | 325.2   | 247.8   | 198.2   | 146.8   | 112.7   | 234.5                                | 15.9                | 63.3      | -29.0     | 31.2      | 25.0      | 35.0      | 30.3      |      |
| Wrapping paper.....thous. short tons.....                                      | 1,027.0                  | 703.8   | 831.4   | 881.8   | 763.1   | 644.3   | 535.2   | 91.9                                 | 23.5                | 45.9      | -15.3     | -5.7      | 15.6      | 18.4      | 20.4      |      |
| Boards.....thous. short tons.....  | 2,792.8                  | 1,739.8 | 1,867.1 | 1,291.8 | 883.1   | 559.7   | 394.1   | 608.7                                | 49.6                | 60.5      | -6.8      | 44.5      | 46.3      | 57.8      | 42.0      |      |
| Miscellaneous papers.....thous. short tons.....                                | 1,103.6                  | 727.1   | 799.8   | 631.5   | 530.4   | 408.5   | 274.2   | 302.5                                | 38.0                | 51.8      | -9.1      | 26.7      | 19.1      | 29.8      | 49.0      |      |
| Wood pulp, total production.....thous. short tons.....                         | 3,789.2                  | 2,876.3 | 3,518.0 | 2,893.2 | 2,405.5 | 1,921.8 | 1,179.5 | 221.3                                | 7.7                 | 31.7      | 18.2      | 21.6      | 15.9      | 29.9      | 62.9      |      |
| <b>CHEMICALS AND ALLIED PRODUCTS</b>   |                          |         |         |         |         |         |         |                                      |                     |           |           |           |           |           |           |      |
| Coke not including gas-house coke:   |                          |         |         |         |         |         |         |                                      |                     |           |           |           |           |           |           |      |
| Material—  |                          |         |         |         |         |         |         |                                      |                     |           |           |           |           |           |           |      |
| Coal.....mill. short tons.....   | 84.4                     | 37.3    | 65.6    | 161.6   | 59.4    | 87.4    | 80.2    | 179.5                                | 28.7                | 126.3     | -43.1     | 27.1      | -13.1     | 58.8      | 23.8      |      |
| Product—   |                          |         |         |         |         |         |         |                                      |                     |           |           |           |           |           |           |      |
| Coke.....mill. short tons.....   | 57.0                     | 25.3    | 44.2    | 34.6    | 89.3    | 25.1    | 19.6    | 189.3                                | 29.0                | 125.3     | -42.8     | 27.7      | -12.0     | 56.6      | 28.1      |      |
| Fertilizers:   |                          |         |         |         |         |         |         |                                      |                     |           |           |           |           |           |           |      |
| Material—  |                          |         |         |         |         |         |         |                                      |                     |           |           |           |           |           |           |      |
| Phosphate rock.....thous. short tons.....                                      | (1)                      | (1)     | 2,247.3 | 2,081.0 | 1,549.5 | 888.6   | 787.9   |                                      |                     |           |           | 8.0       | 84.3      | 74.4      | 12.8      |      |
| Product—   |                          |         |         |         |         |         |         |                                      |                     |           |           |           |           |           |           |      |
| Fertilizers.....thous. short tons.....   | 7,549.3                  | 5,994.2 | 5,237.0 | 5,432.2 | 5,618.2 | 3,591.8 | 2,887.0 | 161.5                                | -8.3                | 25.9      | -27.2     | -2.3      | 50.1      | 56.4      | 24.4      |      |
| Gas, illuminating and heating:   |                          |         |         |         |         |         |         |                                      |                     |           |           |           |           |           |           |      |
| Materials—   |                          |         |         |         |         |         |         |                                      |                     |           |           |           |           |           |           |      |
| Coal.....thous. short tons.....  | 7,338.3                  | 6,972.0 | 7,657.8 | 6,116.7 | 4,940.6 | 4,431.8 | 2,487.8 | 195.0                                | -4.2                | 5.3       | -9.0      | 25.2      | 23.8      | 11.5      | 78.2      |      |
| Oil, benzol, and benzine.....mill. gals.....                                   | 874.3                    | 841.9   | 881.8   | 716.8   | 579.7   | 411.0   | 194.9   | 348.6                                | - .9                | 3.8       | -4.5      | 23.0      | 23.7      | 41.0      | 110.9     |      |
| Product—   |                          |         |         |         |         |         |         |                                      |                     |           |           |           |           |           |           |      |
| Gas for sale.....bill. cu. ft.....   | 356.6                    | 806.1   | 808.4   | 203.6   | 150.8   | 112.5   | 67.1    | 431.4                                | 15.6                | 16.5      | - .8      | 51.5      | 35.0      | 34.0      | 67.7      |      |

|  |                    |         |          |         |         |         |         |          |         |       |       |       |       |       |       |       |
|--|--------------------|---------|----------|---------|---------|---------|---------|----------|---------|-------|-------|-------|-------|-------|-------|-------|
| <b>Paint and varnish:</b>                  |                    |         |          |         |         |         |         |          |         |       |       |       |       |       |       |       |
| <b>Materials—</b>                          |                    |         |          |         |         |         |         |          |         |       |       |       |       |       |       |       |
| Pig lead.....                              | thous. short tons. | (1)     | (1)      | 192.6   | 150.9   | 150.2   | 129.6   | 99.1     |         |       |       |       | 27.7  | .4    | 15.9  | 80.8  |
| Linseed oil.....                           | mill. gals.        | (1)     | (1)      | 27.0    | 24.5    | (1)     | 20.6    | 16.2     |         |       |       |       | 10.2  |       |       | 27.2  |
| <b>Products—</b>                           |                    |         |          |         |         |         |         |          |         |       |       |       |       |       |       |       |
| White lead pigment.....                    | mill. lbs.         | 301.1   | 334.9    | 293.0   | 279.3   | 248.0   | 240.1   | 254.7    | 18.2    | 14.5  | -10.1 | 27.3  | -5.8  | 12.6  | 3.3   | -5.7  |
| White lead paint.....                      | mill. lbs.         | 272.5   | 329.7    | 237.4   | 231.4   | 246.6   | 229.6   | 119.0    | 129.0   | 14.8  | -17.8 | 38.9  | -15.8 | 14.1  | 7.4   | 92.9  |
| Zinc and other paints in paste form.....   | mill. lbs.         | 153.4   | 98.5     | 160.9   | 138.6   | 165.0   | 134.0   | 191.4    | -19.9   | -4.7  | 55.7  | -38.8 | 16.1  | -16.0 | 23.1  | -30.0 |
| Paints in oil.....                         | mill. gals.        | 71.3    | 48.1     | 59.6    | 40.9    | 34.3    | 22.8    | 17.4     | 309.8   | 19.4  | 48.2  | -19.3 | 46.1  | 19.0  | 50.4  | 31.0  |
| Oleo-resinous varnishes.....               | mill. gals.        | 40.4    | 22.2     | 28.1    | 17.8    | 18.7    | 17.3    | 14.8     | 173.0   | 43.8  | 82.0  | -21.0 | 57.9  | -4.8  | 8.1   | 16.9  |
| Other varnishes, japans, and lacquers..... | mill. gals.        | 39.9    | 22.9     | 21.2    | 18.6    | 16.3    | 6.4     | 7.3      | 446.6   | 88.2  | 74.2  | 8.0   | 14.0  | 14.1  | 154.7 | -12.6 |
| <b>Petroleum refining:</b>                 |                    |         |          |         |         |         |         |          |         |       |       |       |       |       |       |       |
| <b>Material—</b>                           |                    |         |          |         |         |         |         |          |         |       |       |       |       |       |       |       |
| Crude petroleum.....                       | mill. bbls.        | 601.7   | 10 443.4 | 365.3   | 191.3   | 120.8   | 67.0    | 52.0     | 1,057.1 | 64.7  | 35.7  | 21.4  | 91.0  | 58.4  | 80.3  | 28.8  |
| <b>Products—</b>                           |                    |         |          |         |         |         |         |          |         |       |       |       |       |       |       |       |
| Naphthas.....                              | mill. bbls.        | 8.0     | 4.0      | 7.9     | (1)     |         |         |          |         | -1.3  | 100.0 | -49.4 |       |       |       |       |
| Gasoline.....                              | mill. bbls.        | 146.6   | 102.0    | 73.0    | 23.9    | 10.8    | 5.8     | 5.6      | 180.4   | 100.8 | 43.7  | 39.7  | 205.4 | 170.4 | 86.2  | 8.6   |
| Other light products of distillation.....  | mill. bbls.        | 2.4     | 1.5      | 3.2     | 5.3     |         |         |          |         | -25.0 | 60.0  | 53.1  | -39.6 |       |       |       |
| Illuminating oils.....                     | mill. bbls.        | 44.8    | 38.2     | 46.1    | 38.7    | 33.5    | 27.1    | 25.2     | 77.8    | -2.8  | 15.5  | 15.8  | 19.1  | 15.5  | 23.6  | 7.5   |
| Fuel oils.....                             | mill. bbls.        | 239.5   | 195.0    | 155.4   | 74.7    | 34.0    | 7.2     | 6.1      | 3,823.2 | 54.1  | 22.8  | 25.5  | 108.0 | 119.7 | 372.2 | 18.0  |
| Lubricating oils.....                      | mill. bbls.        | 23.0    | 19.0     | 16.4    | 10.4    | 10.7    | 6.3     | 3.4      | 576.5   | 40.2  | 21.1  | 15.9  | 57.7  | -2.8  | 69.8  | 85.3  |
| <b>Chemicals and acids:</b>                |                    |         |          |         |         |         |         |          |         |       |       |       |       |       |       |       |
| <b>Products—</b>                           |                    |         |          |         |         |         |         |          |         |       |       |       |       |       |       |       |
| Sulphuric acid.....                        | thous. short tons. | 6,555.5 | 4,369.9  | 5,552.6 | 4,071.6 | 2,764.5 | 1,869.4 | 1,549.1  | 823.5   | 18.1  | 50.0  | -21.8 | 36.4  | 47.3  | 47.9  | 20.8  |
| Soda ash.....                              | thous. short tons. | 1,708.0 | 959.6    | 1,507.4 | 935.3   | 646.1   | 619.0   | 390.7    | 337.2   | 13.3  | 78.0  | -36.3 | 61.2  | 44.8  | 24.5  | 32.8  |
| Glycerin.....                              | mill. lbs.         | 103.5   | 90.7     | 129.2   | 77.5    | 79.7    | 47.0    | 26.5     | 290.2   | -19.9 | 14.1  | -29.8 | 66.7  | -2.8  | 69.6  | 77.4  |
| <b>Explosives:</b>                         |                    |         |          |         |         |         |         |          |         |       |       |       |       |       |       |       |
| Explosives, total.....                     | mill. lbs.         | 577.2   | 407.4    | 508.1   | 481.8   | 487.5   | 361.0   | 212.8    | 171.2   | 14.0  | 41.7  | -19.5 | 5.0   | -1.2  | 35.0  | 69.6  |
| <b>Oil and cake, cottonseed:</b>           |                    |         |          |         |         |         |         |          |         |       |       |       |       |       |       |       |
| Crude oil.....                             | mill. gals.        | 129.8   | 170.3    | 190.7   | 191.2   | 157.1   | 132.1   | 93.8     | 39.1    | -31.9 | -23.8 | -10.7 | -.3   | 21.7  | 18.9  | 41.6  |
| Cake and meal.....                         | thous. short tons. | 1,475.8 | 1,790.1  | 2,191.8 | 2,191.6 | 1,661.7 | 1,344.0 | 884.4    | 66.9    | -32.7 | -17.6 | -18.3 | .01   | 31.9  | 23.6  | 52.0  |
| Hulls.....                                 | thous. short tons. | 918.4   | 1,248.7  | 1,313.1 | 1,386.0 | 1,258.6 | 1,201.1 | 1,169.3  | -21.5   | -30.1 | -26.5 | -4.9  | -5.3  | 10.1  | 4.8   | 2.7   |
| Linters.....                               | mill. lbs.         | 332.5   | 229.5    | 359.7   | 330.6   | 174.6   | 116.7   | 57.8     | 184.9   | -7.6  | 44.9  | -36.2 | 8.8   | 89.3  | 40.6  | 103.7 |
| <b>Turpentine and rosin: #</b>             |                    |         |          |         |         |         |         |          |         |       |       |       |       |       |       |       |
| Turpentine.....                            | mill. gals.        | 29.8    | 24.8     | 19.2    | 27.6    | 29.7    | 31.1    | 37.7     | -21.0   | 55.2  | 20.2  | 29.2  | +30.4 | -7.1  | -4.5  | -17.5 |
| Rosin.....                                 | thous. bbls.       | 3,555.1 | 3,018.6  | 2,451.2 | 2,936.9 | 3,263.9 | 3,508.3 | 43,451.1 | -18.2   | 45.0  | -17.7 | -23.2 | -18.5 | -10.0 | -7.0  | -19.3 |
| <b>Salt.....</b>                           |                    |         |          |         |         |         |         |          |         |       |       |       |       |       |       |       |
| Salt.....                                  | thous. short tons. | 7,130.7 | 4,981.2  | 6,882.9 | 4,872.7 | 4,195.6 | 2,401.5 | 2,130.0  | 234.8   | 8.6   | 43.2  | -27.6 | 41.3  | 16.1  | 74.7  | 12.7  |
| <b>Soap:</b>                               |                    |         |          |         |         |         |         |          |         |       |       |       |       |       |       |       |
| Hard soaps.....                            | mill. lbs.         | 2,000.8 | 1,752.1  | 1,836.0 | 1,696.5 | 1,493.1 | 1,386.6 | (9)      |         | 8.9   | 14.2  | -4.6  | 8.2   | 13.6  | 7.7   |       |

See footnotes at end of table, p. 191.



TABLE 37.—QUANTITY OF MATERIALS CONSUMED AND PRODUCTS MANUFACTURED IN SELECTED INDUSTRIES, BY CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923—Continued

| MATERIAL AND PRODUCT  | ACTUAL QUANTITY REPORTED |         |         |         |         |         |         | PER CENT OF INCREASE OR DECREASE (-) |                    |           |           |           |           |           |           |
|---|--------------------------|---------|---------|---------|---------|---------|---------|--------------------------------------|--------------------|-----------|-----------|-----------|-----------|-----------|-----------|
|   | 1923                     | 1921    | 1919    | 1914    | 1909    | 1904    | 1899    | 24-year period, 1899-1923            | Intercensal period |           |           |           |           |           |           |
|   |                          |         |         |         |         |         |         |                                      | 1919-1923          | 1921-1923 | 1919-1921 | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |
| <b>STONE, CLAY, AND GLASS PRODUCTS</b>  |                          |         |         |         |         |         |         |                                      |                    |           |           |           |           |           |           |
| Brick and tile, terra-cotta, and fire-clay products:  |                          |         |         |         |         |         |         |                                      |                    |           |           |           |           |           |           |
| Common brick.....mill. brick  | 7,282.2                  | 4,448.0 | 4,751.9 | 7,145.8 | 9,787.7 | 8,683.9 | 7,654.5 | -4.9                                 | 53.2               | 63.7      | -6.4      | -33.5     | -27.0     | 12.7      | 13.4      |
| Fire brick.....mill. brick  | 1,134.2                  | 621.0   | 963.4   | 816.8   | 838.2   | 678.4   | 800.9   | 41.6                                 | 17.7               | 82.6      | -35.5     | 17.9      | -2.6      | 23.6      | -15.3     |
| Glass:  |                          |         |         |         |         |         |         |                                      |                    |           |           |           |           |           |           |
| Window glass.....mill. sq. ft.  | 510.2                    | 280.0   | 368.9   | 401.0   | 246.1   | 242.6   | 217.1   | 135.0                                | 38.3               | 96.2      | -29.5     | -8.0      | 15.9      | 42.7      | 11.7      |
| Plate glass, polished.....mill. sq. ft.   | 94.5                     | 56.2    | 56.8    | 60.4    | 47.4    | 27.3    | 16.9    | 459.2                                | 66.4               | 68.1      | -1.1      | -6.0      | 27.4      | 73.6      | 61.5      |
| Bottles and jars.....mill. gross  | (1)                      | (1)     | 22.3    | 19.3    | 12.3    | 11.9    | 7.8     |                                      |                    |           |           | 15.5      | 56.9      | 3.4       | 52.6      |
| Pressed and blown glass.....mill. doz. pieces   | (1)                      | (1)     | 100.0   | 59.4    | 44.4    | 35.7    | 35.4    |                                      |                    |           |           | 68.4      | 33.8      | 24.4      | 4.8       |
| Cement.....mill. bbbls  | 138.8                    | 99.4    | 81.3    | 89.0    | 66.7    | 81.7    | 15.9    | 773.0                                | 70.7               | 39.6      | 22.3      | -8.7      | 33.4      | 110.4     | 99.4      |
| Lime:   |                          |         |         |         |         |         |         |                                      |                    |           |           |           |           |           |           |
| Quicklime and hydrated lime, total.....thous. tons  | 3,766.0                  | 2,391.4 | 3,071.4 | 3,380.9 | 3,473.0 | 2,707.8 | (1)     |                                      | 22.6               | 57.5      | -22.1     | -9.2      | -2.7      | 28.3      |           |
| <b>METALS AND METAL PRODUCTS, OTHER THAN IRON AND STEEL</b>                                 |                          |         |         |         |         |         |         |                                      |                    |           |           |           |           |           |           |
| Brass, bronze, and other nonferrous alloys, and manufactures of these alloys and of copper: |                          |         |         |         |         |         |         |                                      |                    |           |           |           |           |           |           |
| Semifinished products.....mill. lbs.  | 1,937.6                  | 783.0   | 1,434.3 | 448.5   | (1)     | (1)     | (1)     |                                      | 35.1               | 147.5     | -45.4     | 219.1     |           |           |           |
| Smelting and refining:  |                          |         |         |         |         |         |         |                                      |                    |           |           |           |           |           |           |
| Copper, primary <sup>11</sup> .....thous. short tons  | 989.9                    | 475.4   | 885.1   | 766.9   | 695.5   | 425.7   | 296.2   | 234.2                                | 11.8               | 108.2     | -46.3     | 15.4      | 10.3      | 63.4      | 43.7      |
| Lead, primary <sup>11</sup> .....thous. short tons  | 618.3                    | 448.6   | 482.2   | 542.1   | 446.9   | 393.4   | 298.0   | 107.5                                | 28.2               | 37.8      | -7.0      | -11.0     | 21.3      | 13.6      | 32.0      |
| Zinc, primary <sup>11</sup> .....thous. short tons  | 510.4                    | 200.5   | 465.7   | 353.0   | 255.8   | 186.7   | 129.1   | 295.4                                | 9.6                | 154.6     | -56.9     | 31.9      | 38.0      | 37.0      | 44.6      |
| Gold <sup>12</sup> .....thous. fine ozs.  | 2,593.0                  | 2,422.0 | 2,919.0 | 4,573.0 | 4,822.0 | 3,892.0 | 3,437.0 | -27.2                                | -14.3              | 3.3       | -17.0     | -36.2     | -5.2      | 23.9      | 13.2      |
| Silver <sup>12</sup> .....mill. fine ozs.   | 73.34                    | 53.05   | 56.68   | 72.46   | 54.72   | 57.68   | 54.76   | 33.9                                 | 29.4               | 38.2      | -6.4      | -21.8     | 32.4      | -5.1      | 5.3       |
| <b>TOBACCO MANUFACTURES</b>   |                          |         |         |         |         |         |         |                                      |                    |           |           |           |           |           |           |
| Tobacco, chewing and smoking, and snuff: <sup>13</sup>                                      |                          |         |         |         |         |         |         |                                      |                    |           |           |           |           |           |           |
| Tobacco and snuff.....mill. lbs.  | 412.8                    | 387.0   | 424.1   | 440.9   | 431.4   | 353.7   | 294.6   | 40.1                                 | -2.7               | 6.7       | -8.7      | -3.8      | 2.2       | 22.0      | 20.1      |
| Tobacco, cigars:  |                          |         |         |         |         |         |         |                                      |                    |           |           |           |           |           |           |
| Cigars, weighing more than 8 lbs. per 1,000.....millions                                    | 6,950                    | 6,726   | 7,072   | 7,174   | 6,668   | 6,640   | 4,910   | 41.6                                 | -1.7               | 3.3       | -4.9      | -1.4      | 7.6       | .4        | 35.3      |
| Tobacco, cigarettes:  |                          |         |         |         |         |         |         |                                      |                    |           |           |           |           |           |           |
| Cigarettes, weighing more than 8 lbs. per 1,000.....millions                                | 66,716                   | 52,085  | 63,120  | 16,856  | 6,819   | 3,427   | 3,742   | 1,682.7                              | 25.6               | 28.1      | -1.9      | 215.1     | 147.2     | 98.0      | -8.4      |

| VEHICLES FOR LAND TRANSPORTATION                   |                   |         |         |         |         |         |         |         |          |       |       |       |         |       |       |         |
|--|-------------------|---------|---------|---------|---------|---------|---------|---------|----------|-------|-------|-------|---------|-------|-------|---------|
| Automobiles <sup>1</sup> .....                     | thous. cars       | 3,902.4 | 1,603.1 | 1,893.2 | 573.0   | 127.3   | 22.8    | 25.0    | 77,048.0 | 108.1 | 143.4 | -15.3 | 230.4   | 350.1 | 458.3 | 356.0   |
| Motor cycles and bicycles:                         |                   |         |         |         |         |         |         |         |          |       |       |       |         |       |       |         |
| Motor cycles.....                                  | thousands         | 41.9    | 27.0    | 59.1    | 62.2    | 18.6    | 2.3     | 2       | 20,950.0 | -29.1 | 55.2  | -54.3 | -5.0    | 234.4 | 708.7 | 1,160.0 |
| Bicycles.....                                      | thousands         | 496.2   | 216.5   | 470.7   | 299.0   | 168.8   | 225.3   | 1,112.9 | -56.3    | 3.3   | 124.6 | -54.0 | 57.4    | 77.1  | -25.1 | -79.8   |
| Trucks, wagons, and repairs:                       |                   |         |         |         |         |         |         |         |          |       |       |       |         |       |       |         |
| Complete vehicles of all classes.....              | thous. vehicles   | 236.1   | 107.3   | 608.8   | 1,124.9 | 1,619.2 | 1,711.3 | 1,594.3 | -85.2    | -61.2 | 120.0 | -82.4 | -45.9   | -26.0 | -11.2 | 7.3     |
| Tram-railroad cars:                                |                   |         |         |         |         |         |         |         |          |       |       |       |         |       |       |         |
| Passenger service.....                             | number            | 1,642   | 1,383   | 254     | 3,568   | 1,819   | 2,444   | 1,869   | 34.6     | 625.2 | 35.1  | 436.6 | -92.9   | 96.2  | -25.6 | 78.5    |
| Freight service.....                               | thous. cars       | 179.3   | 56.3    | 155.7   | 127.3   | 87.7    | 117.5   | 143.1   | 25.6     | 15.5  | 219.4 | -53.9 | 22.3    | -45.2 | -25.4 | -17.9   |
| Locomotives (steam).....                           | number            | 3,598   | 1,757   | 3,411   | 2,235   | (1)     | (1)     | (1)     |          | 3.5   | 104.8 | -43.5 | 52.6    |       |       |         |
| SHIP AND BOAT BUILDING                             |                   |         |         |         |         |         |         |         |          |       |       |       |         |       |       |         |
| Vessels of 5 gross tons and over launched:         |                   |         |         |         |         |         |         |         |          |       |       |       |         |       |       |         |
| Steel.....   | thous. gross tons | 281.3   | 1,206.9 | 3,734.2 | 243.0   | 255.0   | 328.4   | 262.5   | 7.2      | -92.5 | -76.7 | -67.7 | 1,436.7 | -4.7  | -22.4 | 25.1    |
| Wooden.....  | thous. gross tons | 112.8   | 119.0   | 755.6   | 182.1   | 212.2   | 350.1   | 424.6   | -73.4    | -85.1 | -5.2  | -84.3 | 314.9   | -14.2 | -39.4 | -17.5   |
| RUBBER PRODUCTS                                    |                   |         |         |         |         |         |         |         |          |       |       |       |         |       |       |         |
| Rubber tires and inner tubes:                      |                   |         |         |         |         |         |         |         |          |       |       |       |         |       |       |         |
| Casings, pneumatic, automobile, and truck.....     | millions          | 45.43   | 27.30   | 33.84   | 8.02    | (1)     | (1)     | (1)     |          | 38.3  | 66.4  | -16.9 | 309.5   |       |       |         |
| Inner tubes, pneumatic, automobile, and truck..... | millions          | 57.23   | 32.08   | 33.26   | 7.91    | (1)     | (1)     | (1)     |          | 72.1  | 78.4  | -3.5  | 320.5   |       |       |         |
| Solid tires, truck.....                            | thousands         | 944.3   | 401.4   | 1,455.0 | (1)     | (1)     | (1)     | (1)     |          | 35.1  | 135.3 | -72.4 |         |       |       |         |
| Rubber boots and shoes:                            |                   |         |         |         |         |         |         |         |          |       |       |       |         |       |       |         |
| Rubber boots.....                                  | thous. prs.       | 9,098.0 | 6,532.0 | 9,207.7 | 4,024.5 | (1)     | (1)     | (1)     |          | -1.2  | 39.2  | -29.1 | 128.8   |       |       |         |
| Shoes and overshoes.....                           | mill. prs.        | 60.10   | 57.19   | 66.15   | 57.21   | (1)     | (1)     | (1)     |          | -9.1  | 5.1   | -13.5 | 15.6    |       |       |         |
| Canvas shoes with rubber soles.....                | mill. prs.        | 26.11   | 15.24   | 21.03   | (1)     | (1)     | (1)     | (1)     |          | 24.2  | 71.3  | -27.5 |         |       |       |         |
| Heels for sale.....                                | mill. prs.        | 289.2   | 137.5   | 138.5   | (1)     | (1)     | (1)     | (1)     |          | 108.8 | 110.2 | -0.7  |         |       |       |         |
| MUSICAL INSTRUMENTS                                |                   |         |         |         |         |         |         |         |          |       |       |       |         |       |       |         |
| Gramophones.....                                   | thousands         | 347.6   | 221.2   | 341.7   | 326.3   | 364.5   | 261.2   | (1)     |          | 1.7   | 57.1  | -35.3 | 4.7     | 10.5  | 39.5  |         |
| Gramophones.....                                   | thousands         | 997.5   | 596.0   | 2,226.4 | 514.2   | 344.7   | (1)     | 151.4   | 558.9    | -55.2 | 67.4  | -73.2 | 333.0   | 49.2  |       |         |
| Records and blanks.....                            | millions          | 98.10   | 105.19  | 107.00  | 27.22   | 27.18   | (1)     | 2.78    | 3,454.3  | -8.3  | -6.7  | -1.7  | 293.1   | .1    |       |         |

See footnotes at end of table, p. 191.

TABLE 37.—QUANTITY OF MATERIALS CONSUMED AND PRODUCTS MANUFACTURED IN SELECTED INDUSTRIES, BY CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923—Continued

| MATERIAL AND PRODUCT   | ACTUAL QUANTITY REPORTED |         |         |         |                  |                  |                  | PER CENT OF INCREASE OR DECREASE (-) |                     |           |           |           |           |           |           |       |
|--|--------------------------|---------|---------|---------|------------------|------------------|------------------|--------------------------------------|---------------------|-----------|-----------|-----------|-----------|-----------|-----------|-------|
|  |                          |         |         |         |                  |                  |                  | 24-year period, 1899-1923            | Inter-censal period |           |           |           |           |           |           |       |
|  | 1923                     | 1921    | 1919    | 1914    | 1909             | 1904             | 1899             |                                      | 1919-1923           | 1921-1923 | 1919-1921 | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |       |
| <b>MACHINERY, NOT INCLUDING TRANSPORTATION EQUIPMENT</b>         |                          |         |         |         |                  |                  |                  |                                      |                     |           |           |           |           |           |           |       |
| <b>Agricultural implements:</b>                                  |                          |         |         |         |                  |                  |                  |                                      |                     |           |           |           |           |           |           |       |
| <b>Plows—</b>  |                          |         |         |         |                  |                  |                  |                                      |                     |           |           |           |           |           |           |       |
| <b>Moldboard—</b>  |                          |         |         |         |                  |                  |                  |                                      |                     |           |           |           |           |           |           |       |
| Walking.....   | thousands                | 538.8   | 832.9   | 720.2   | 870.4            | 1,110.0          | 956.9            | 819.0                                | -34.2               | -25.2     | 61.9      | -53.8     | -17.3     | -21.6     | 18.0      | 16.8  |
| Sulky.....   | thousands                | 64.2    | 64.8    | 103.1   | 184.1            | 226.6            | 138.9            | 136.1                                | -62.8               | -37.7     | 17.2      | -46.8     | -44.0     | -18.8     | 63.1      | 2.1   |
| Tractor.....   | thousands                | 65.1    | 23.9    | 98.8    | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> )                     | -34.1               | 172.4     | -75.8     |           |           |           |           |       |
| Disk.....  | thousands                | 19.8    | 16.3    | 15.4    | 15.7             | 22.1             | 39.1             | 17.8                                 | 11.6                | 25.8      | 18.4      | 5.8       | -1.9      | -29.0     | -43.5     | 128.0 |
| Listers.....   | thousands                | 43.0    | 53.0    | 31.7    | 38.0             | 44.8             | 23.0             | 27.0                                 | 59.8                | 35.6      | 37.0      | -27.4     | -14.6     | -15.2     | 94.9      | -14.8 |
| Harrows, spike-tooth and spring-tooth.....                       | thousands                | 350.6   | 302.1   | 802.3   | 555.6            | 507.8            | 348.9            | 380.3                                | -7.9                | 18.0      | 16.1      | -1        | -45.6     | 9.4       | 45.5      | -8.3  |
| Harrows, disk.....   | thousands                | 126.6   | 118.5   | 175.7   | 209.1            | 193.0            | 104.3            | 97.3                                 | 30.1                | -27.9     | 6.8       | -32.6     | -16.0     | 8.3       | 85.0      | 7.2   |
| Corn and cotton planters.....                                    | thousands                | 127.6   | 101.7   | 181.4   | 215.9            | 202.1            | 218.0            | 123.9                                | 3.0                 | -20.7     | 25.5      | -43.9     | -16.0     | 6.8       | -7.3      | 75.9  |
| Grain drills.....  | thousands                | 30.6    | 42.6    | 63.3    | 89.4             | 89.9             | 78.9             | ( <sup>1</sup> )                     | ( <sup>1</sup> )    | -51.7     | -28.2     | -32.7     | -29.2     | -6        | 16.9      |       |
| Cultivators, wheeled, 1-row.....                                 | thousands                | 191.9   | 137.9   | 144.3   | 347.3            |                  | 313.1            | 295.8                                | -35.1               | 33.0      | 39.2      | -4.4      | -58.5     |           |           |       |
| Cultivators, wheeled, 2-row.....                                 | thousands                | 29.4    | 25.0    | 44.8    | 31.6             | 435.4            |                  |                                      |                     | -34.4     | 17.6      | -44.2     | 41.8      |           |           |       |
| Grain binders.....   | thousands                | 62.8    | 72.3    | 155.5   | 215.4            | 129.3            | 108.8            | 233.5                                | -73.1               | -50.6     | -13.1     | -53.5     | -27.8     | 66.6      | 18.8      | -53.4 |
| Corn binders.....  | thousands                | 15.7    | 5.8     | 22.9    | 52.1             | 19.7             | 6.9              | 20.7                                 | -24.2               | -31.4     | 170.7     | -74.7     | -56.0     | 164.5     | 185.5     | -66.7 |
| Combination harvesters and threshers.....                        | thousands                | 4.0     | 5.0     | 2.4     | .3               | .6               | ( <sup>1</sup> ) | ( <sup>1</sup> )                     | ( <sup>1</sup> )    | 66.7      | -20.0     | 108.3     | 700.0     | -40.0     |           |       |
| Potato diggers.....  | thousands                | 12.6    | 11.7    | 12.5    | 25.8             | 25.6             | 11.7             | ( <sup>1</sup> )                     | ( <sup>1</sup> )    | .8        | 7.7       | -6.4      | -51.6     | 5         | 120.5     |       |
| Mowers.....  | thousands                | 130.4   | 103.8   | 151.1   | 274.5            | 359.3            | 273.4            | 398.6                                | -67.3               | -13.7     | 25.6      | -31.3     | -45.0     | -23.6     | 31.4      | -31.4 |
| Hay rakes.....   | thousands                | 80.6    | 83.3    | 93.9    | 183.1            | 266.3            | 236.3            | 216.3                                | -62.7               | -14.2     | -3.2      | -11.3     | -48.7     | -31.2     | 12.7      | 9.2   |
| Hay loaders.....   | thousands                | 23.3    | 21.5    | 20.6    | 25.9             | 34.7             | 27.2             | 7.3                                  | 219.2               | 13.1      | 8.4       | 4.4       | -20.5     | -25.4     | 27.6      | 272.6 |
| Grain threshers.....   | thousands                | 13.3    | 14.5    | 19.9    | 13.5             | 13.8             | 10.2             | 5.0                                  | 166.0               | -33.2     | -8.3      | -27.1     | 47.4      | -2.2      | 35.3      | 104.0 |
| Ensilage and fodder cutters.....                                 | thousands                | 12.8    | 12.3    | 18.0    | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> )                     | ( <sup>1</sup> )    | -28.9     | 4.1       | -31.7     |           |           |           |       |
| Corn huskers and shredders.....                                  | thousands                | 3.2     | 4.7     | 2.9     | 4.3              | 1.3              | ( <sup>1</sup> ) | ( <sup>1</sup> )                     | ( <sup>1</sup> )    | 10.3      | -31.9     | 62.1      | 32.6      | 230.8     |           |       |
| Corn shellers, power.....  | thousands                | 6.2     | 4.3     | 8.5     | 11.1             | 9.0              | 6.1              | 8.2                                  | -24.4               | -27.1     | 44.2      | -48.4     | -23.4     | 23.3      | 47.6      | -25.6 |
| Hay presses.....   | thousands                | 5.5     | 6.1     | 7.2     | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> )                     | ( <sup>1</sup> )    | -23.6     | -9.8      | -15.3     |           |           |           |       |
| <b>Electrical machinery, apparatus, and supplies:</b>            |                          |         |         |         |                  |                  |                  |                                      |                     |           |           |           |           |           |           |       |
| <b>Generators, steam-turbine driven (not including turbine)—</b> |                          |         |         |         |                  |                  |                  |                                      |                     |           |           |           |           |           |           |       |
| Alternating current.....   | thous. kw.               | 2,267.0 | 1,693.5 | 1,902.8 | 600.2            | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> )                     |                     | 19.1      | 33.9      | -11.0     | 217.0     |           |           |       |
| Stationary motors, not including fan motors—                     |                          |         |         |         |                  |                  |                  |                                      |                     |           |           |           |           |           |           |       |
| Fractional horsepower.....                                       | thousands                | 1,994.9 | 992.6   | 198.3   | 64.1             | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> )                     |                     | 906.0     | 101.0     | 400.6     | 209.4     |           |           |       |

|  |         |         |         |         |                  |                  |                  |          |       |       |       |       |       |       |       |
|--|---------|---------|---------|---------|------------------|------------------|------------------|----------|-------|-------|-------|-------|-------|-------|-------|
| Motors, 1 horsepower and over, plus railway motors.....thous. horsepower.. | 5,167.9 | 8,995.8 | 4,094.8 | 2,882.8 | 2,410.4          | 1,892.1          | 1,182.4          | 337.1    | 28.2  | 29.3  | -2.4  | 42.0  | 19.6  | 73.1  | 17.7  |
| Electric fans.....thousands.....   | 683.1   | 425.1   | 709.4   | 398.3   | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | -----    | -8.0  | 61.9  | -40.1 | 78.1  | ----- | ----- | ----- |
| Storage batteries (weight of plates).....mill. lbs.                        | 230.11  | 115.41  | 135.44  | 41.05   | 23.12            | 15.11            | ( <sup>1</sup> ) | -----    | 63.9  | 95.9  | -16.6 | 237.0 | 77.7  | 43.5  | ----- |
| Dry batteries.....millions.....  | 221.86  | 115.82  | 173.78  | 71.09   | 33.99            | 4.89             | 1.95             | 11,277.4 | 27.7  | 91.6  | -33.4 | 144.9 | 109.1 | 595.1 | 150.8 |
| Incandescent lamps.....millions.....                                       | 389.37  | 248.56  | 224.71  | 83.83   | 66.78            | 112.71           | 25.22            | 1,437.8  | 73.9  | 57.9  | 9.7   | 153.8 | 32.6  | -40.8 | 245.1 |
| Telephone instruments.....thousands.....                                   | 2,602.8 | 1,251.6 | 1,096.4 | 920.2   | ( <sup>1</sup> ) | ( <sup>1</sup> ) | ( <sup>1</sup> ) | -----    | 137.4 | 108.0 | 14.2  | 19.1  | ----- | ----- | ----- |

<sup>1</sup> Figures not available.

<sup>2</sup> Goats and kids not included.

<sup>3</sup> Includes poultry dressed.

<sup>4</sup> Includes data for hides received as payment for custom slaughtering.

<sup>5</sup> Not shown separately.

<sup>6</sup> Figures for 1923 not strictly comparable with earlier years because of enlargement of scope of canvass for prunes and apricots.

<sup>7</sup> Figures not comparable.

<sup>8</sup> Includes ice manufactured as a subsidiary product.

<sup>9</sup> Includes organzine, tram, and crêpe twist, spun silk, machine twist, and sewing, embroidery, and other floss silks.

<sup>10</sup> Figures for 1923, include 574,731 square yards of woven shawls, and 786,830 square yards of carriage cloth; and 1921 includes 389,135 square yards of carriage cloth for which fibers were not reported on the 1923 and 1921 schedules but which were reported under "All-wool woven goods" in earlier years.

<sup>11</sup> Figures for 1923 include 535,631 square yards of carriage robe, for which fibers were not reported on the 1923 schedules. Data for upholstery not included prior to 1923.

<sup>12</sup> Figures for 1923 include 29,407,740 square yards of linings and Italian cloth and 20,765,015 square yards of woven goods, for which fibers were not specified; for 1921, 85,082,019 square yards of woven goods for which fibers were not specified.

<sup>13</sup> Data for "Ferro-alloys" not included, but includes 265,876 tons of other pig iron.

<sup>14</sup> Source, Census Bull., Forest Products, entitled "Pulpwood consumption and wood-pulp production."

<sup>15</sup> Source, United States Geological Survey. These figures differ from those published in the 1923 census report because of the inclusion of a larger number of establishments in the Geological Survey canvass.

<sup>16</sup> Estimated from Geological Survey figures.

<sup>17</sup> Since 1919 figures have been reported in barrels of 500 pounds, and reduced to equivalent 280-pound barrels in order to preserve comparability.

<sup>18</sup> Rosin distilled from wood not included in 1899, 1904, and 1909.

<sup>19</sup> Includes powdered soaps.

<sup>20</sup> Includes data reported as agricultural lime, 24,113 tons for 1923, and 67,764 tons for 1921.

<sup>21</sup> Compiled by United States Geological Survey.

<sup>22</sup> These figures were transcribed from the annual report of the Director of the Mint.

<sup>23</sup> "Statistics of production" of tobacco products were transcribed from the annual report of the Commissioner of Internal Revenue.

<sup>24</sup> Includes also data reported by the establishments engaged primarily in other industries.

<sup>25</sup> The number of "motor vehicles" (including both passenger cars and auto trucks) manufactured in 1899 was reported by the Twelfth Census (Vol. X, p. 265) as 4,192. The figure was raised slightly owing to the broadened scope of later canvasses.

TABLE 38.—INDEX OF PRODUCTION OF MANUFACTURES IN LEADING INDUSTRIES, BY CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1899 TO 1923<sup>1</sup>

| INDUSTRY   | INDEX NUMBERS, 1910=100 |                  |       |       |       |       |       | PER CENT OF INCREASE OR DECREASE (-) |                    |           |           |           |           |           |           |
|--|-------------------------|------------------|-------|-------|-------|-------|-------|--------------------------------------|--------------------|-----------|-----------|-----------|-----------|-----------|-----------|
|  | 1923                    | 1921             | 1919  | 1914  | 1909  | 1904  | 1899  | 24-year period, 1899-1923            | Intercensal period |           |           |           |           |           |           |
|  |                         |                  |       |       |       |       |       |                                      | 1919-1923          | 1921-1923 | 1919-1921 | 1914-1919 | 1909-1914 | 1904-1909 | 1899-1904 |
| Total.....   | 122.0                   | 79.4             | 100.0 | 79.3  | 74.5  | 57.9  | 48.8  | 160.7                                | 22.0               | 53.7      | -20.6     | 28.1      | 6.4       | 50.5      | 22.2      |
| Food and kindred products.....                     | 111.6                   | 93.5             | 100.0 | 80.8  | 74.8  | 65.1  | 53.0  | 110.6                                | 11.6               | 19.4      | -6.5      | 23.8      | 8.0       | 14.9      | 22.8      |
| Butter, cheese, and condensed milk.....            | 122.4                   | 104.9            | 100.0 | 67.8  | 52.6  | 44.0  | 34.0  | 280.0                                | 22.4               | 16.7      | 4.9       | 47.5      | 29.0      | 19.5      | 29.4      |
| Slaughtering and meat packing.....                 | 113.0                   | 90.1             | 100.0 | 75.7  | 74.8  | 67.9  | 60.6  | 86.5                                 | 13.0               | 25.4      | -9.9      | 32.1      | 1.2       | 10.2      | 12.0      |
| Flour-mill and grain-mill products.....            | 91.1                    | 86.9             | 100.0 | 95.4  | 91.2  | 87.5  | 84.1  | 8.3                                  | -8.9               | 4.8       | -13.1     | 4.8       | 4.6       | 4.2       | 4.0       |
| Canning and preserving, fruits and vegetables..... | 126.7                   | 69.6             | 100.0 | 77.3  | 54.5  | 45.2  | 24.6  | 415.0                                | 26.7               | 82.0      | -30.4     | 29.4      | 41.8      | 20.6      | 83.7      |
| Textiles and their products.....                   | 123.9                   | 96.8             | 100.0 | 96.8  | 91.9  | 71.9  | 60.7  | 162.5                                | 22.9               | 27.0      | -2.9      | 2.8       | 5.3       | 27.8      | 13.5      |
| Cotton goods.....                                  | 122.8                   | 98.6             | 100.0 | 101.6 | 93.8  | 74.8  | 66.9  | 83.6                                 | 22.8               | 24.5      | -1.4      | -1.6      | 8.3       | 25.4      | 11.8      |
| Knit goods.....                                    | 115.2                   | 94.0             | 100.0 | 92.9  | 86.8  | 61.5  | 44.3  | 160.0                                | 15.2               | 22.6      | -6.0      | 7.6       | 7.0       | 41.1      | 38.8      |
| Silk manufactures.....                             | 116.9                   | 92.6             | 100.0 | 73.2  | 59.5  | 42.1  | 32.5  | 259.7                                | 16.9               | 26.2      | -7.4      | 36.0      | 23.1      | 41.3      | 26.5      |
| Woolen and worsted goods.....                      | 128.2                   | 98.6             | 100.0 | 104.3 | 105.2 | 96.8  | 70.8  | 91.1                                 | 23.2               | 30.0      | -1.4      | -4.1      | 9         | 21.2      | 22.6      |
| Iron and steel and their products.....             | 131.2                   | 56.6             | 100.0 | 71.1  | 75.3  | 51.8  | 43.2  | 263.7                                | 31.2               | 131.8     | -42.4     | 40.6      | -5.6      | 45.4      | 19.9      |
| Lumber and its remanufactures.....                 | 110.1                   | 79.9             | 100.0 | 110.6 | 137.3 | 104.0 | 106.4 | 2.5                                  | 10.1               | 37.8      | -20.1     | 19.6      | -19.4     | 32.0      | -2.3      |
| Leather and its finished products.....             | 105.6                   | 85.2             | 100.0 | 87.4  | 87.7  | 81.5  | 69.2  | 51.2                                 | 5.6                | 28.9      | -14.3     | 14.4      | -3        | 7.6       | 16.8      |
| Leather, tanned, curried, and finished.....        | 104.7                   | 83.0             | 100.0 | 86.0  | 89.8  | 80.8  | 80.3  | 30.4                                 | 4.7                | 28.1      | -17.0     | 16.3      | -4.2      | 2         | 11.6      |
| Boots and shoes, leather.....                      | 106.0                   | 88.6             | 100.0 | 88.4  | 86.1  | 78.4  | 65.9  | 60.8                                 | 6.0                | 22.4      | -13.4     | 13.1      | 2.7       | 9.8       | 19.0      |
| Paper and printing.....                            | 137.1                   | 93.4             | 100.0 | 87.5  | 69.8  | 51.9  | 36.6  | 274.6                                | 37.1               | 46.8      | -6.6      | 14.3      | 25.4      | 84.5      | 41.8      |
| Paper and wood pulp.....                           | 124.3                   | 85.2             | 100.0 | 85.4  | 69.8  | 51.9  | 36.6  | 239.6                                | 24.3               | 45.9      | -14.3     | 15.7      | 23.7      | 84.5      | 41.8      |
| Printing and publishing.....                       | 141.8                   | 96.7             | 100.0 | 89.7  |       |       |       |                                      | 41.8               | 46.6      | -         | 11.5      |           |           |           |
| Liquors and beverages.....                         | ( <sup>2</sup> )        | ( <sup>2</sup> ) | 100.0 | 232.2 | 196.2 | 170.1 | 123.4 |                                      |                    |           |           | -56.9     | 13.3      | 15.3      | 32.5      |
| Chemicals and allied products.....                 | 125.1                   | 94.5             | 100.0 | 70.7  | 58.8  | 42.9  | 30.2  | 314.2                                | 25.1               | 32.4      | -5.5      | 41.4      | 29.2      | 37.1      | 42.1      |
| Chemicals and acids.....                           | 119.5                   | 84.1             | 100.0 | 62.6  | 47.5  | 32.4  | 23.8  | 402.1                                | 19.5               | 42.1      | -15.9     | 59.7      | 31.8      | 46.6      | 36.1      |
| Gas, illuminating and heating.....                 | 112.4                   | 98.4             | 100.0 | 68.3  | 50.6  | 37.7  | 22.5  | 399.6                                | 12.4               | 14.2      | -1.6      | 46.4      | 35.0      | 34.2      | 67.6      |
| Paint and varnish.....                             | 136.0                   | 88.4             | 100.0 | 73.7  | 68.7  | 55.0  | 45.1  | 201.6                                | 36.0               | 53.8      | -11.6     | 35.7      | 7.3       | 24.9      | 22.0      |
| Petroleum refining.....                            | 162.7                   | 120.2            | 100.0 | 49.4  | 34.9  | 20.0  | 14.8  | 868.5                                | 62.7               | 35.4      | 20.2      | 102.4     | 41.5      | 74.5      | 19.0      |

|   |       |       |       |       |       |       |       |           |       |       |       |         |       |       |       |
|---|-------|-------|-------|-------|-------|-------|-------|-----------|-------|-------|-------|---------|-------|-------|-------|
| Stone, clay, and glass products.....                      | 155.9 | 93.3  | 100.0 | 112.5 | 104.3 | 78.9  | 67.3  | 121.2     | 55.6  | 68.9  | -2.7  | -11.9   | 8.8   | 32.3  | 17.3  |
| Brick and tile, terra-cotta, and fire-clay products       | 154.8 | 88.1  | 100.0 | 122.6 | 158.6 | 138.1 | 129.1 | 19.9      | 54.8  | 76.7  | -11.9 | -18.4   | -22.7 | 14.8  | 7.0   |
| Cement.....   | 170.7 | 122.3 | 100.0 | 109.5 | 82.0  | 89.0  | 19.5  | 775.4     | 70.7  | 39.6  | 22.3  | -8.7    | 33.5  | 110.3 | 100.0 |
| Glass.....  | 151.7 | 83.5  | 100.0 | 107.5 | 77.2  | 62.9  | 47.9  | 216.7     | 51.7  | 81.7  | -18.5 | -7.0    | 39.3  | 22.7  | 31.3  |
| Metals and metal products, other than iron and steel..... | 125.7 | 66.5  | 100.0 | 64.9  | 60.6  | 44.5  | 31.4  | 306.3     | 25.7  | 69.0  | -32.5 | 54.1    | 7.1   | 36.3  | 41.7  |
| Tobacco manufactures.....                                 | 109.8 | 93.3  | 100.0 | 76.4  | 66.6  | 57.8  | 46.3  | 137.1     | 9.8   | 15.2  | -4.7  | 30.9    | 14.7  | 15.3  | 24.3  |
| Vehicles for land transportation.....                     | 199.5 | 76.3  | 100.0 | 36.0  | 15.6  | 8.2   | 4.4   | 4,434.0   | 99.5  | 159.8 | 32.3  | 177.8   | 130.8 | 90.0  | 86.4  |
| Automobiles.....  | 232.4 | 91.7  | 100.0 | 24.9  | 5.5   | 1.0   | .2    | 118,100.0 | 132.4 | 153.4 | -3.3  | 301.6   | 352.7 | 450.0 | 400.0 |
| Railway equipment.....                                    | 119.0 | 45.5  | 100.0 | 84.6  | 62.3  | 77.0  | 82.4  | 44.4      | 19.0  | 161.5 | -54.5 | 18.2    | 35.8  | -19.1 | -6.6  |
| Ship and boat building.....                               | 7.9   | 30.7  | 100.0 | 7.3   | 7.2   | 10.0  | 9.9   | -12.2     | -92.1 | -74.3 | -69.3 | 1,269.9 | 1.4   | -28.0 | 11.1  |
| Rubber products.....                                      | 130.8 | 66.0  | 100.0 | 32.3  | 21.0  |       |       |           | 30.8  | 68.5  | -20.0 | 209.6   | 53.8  |       |       |

<sup>1</sup> For data from which these indexes are computed, weights and relatives for individual products, and indexes for other industries, not given in this table, for census years, 1914 to 1925, see Table 28.

<sup>2</sup> Index not computed.

## APPENDIX C

### GROWTH OF MANUFACTURES TO 1925

After the preceding tables were prepared and text written, but before they were published, the results of an additional biennial census of manufactures, that for 1925, were compiled and available for use. In order to provide the latest possible information some of the figures from this census are given in the tables at the end of this chapter. The general conclusions, presented in the monograph, regarding the growth of manufactures since 1899 remain practically unchanged by the additional evidence provided by later figures. Table 39 gives data concerning the principal measures of the growth of manufactures from 1899, 1919, and 1923 to 1925.

**TABLE 39.—PER CENT OF INCREASE IN PHYSICAL PRODUCTION, AVERAGE NUMBER OF WAGE EARNERS EMPLOYED, AND PRIMARY HORSEPOWER INSTALLED, FROM SELECTED CENSUS YEARS TO 1925**

|                                     | PER CENT OF INCREASE OR DECREASE (—) |           |           |
|-------------------------------------|--------------------------------------|-----------|-----------|
|                                     | 1899-1925                            | 1919-1925 | 1923-1925 |
| Physical production index.....      | 174.6                                | 28.5      | 5.3       |
| Average number of wage earners..... | 79.9                                 | -4.3      | -4.4      |
| Primary horsepower.....             | 256.5                                | 22.0      | 8.2       |

The year 1925, like 1923, was a year of business prosperity and of activity in nearly all lines of manufacture. The index of production showed an increase of 5 per cent over 1923 in the quantity of goods manufactured, value added by manufacture increased 4 per cent, and amount of primary horsepower installed was 8 per cent larger. The average number of wage earners employed, however, decreased by over 4 per cent. The increases in quantity of goods produced and in horsepower, in contrast to the further decrease in number of wage earners, indicate a continuation of the tendency, noted in earlier periods, particularly between 1919 and 1923, toward greater use of machinery in production and illustrate the limitations of employment statistics as a measure of industrial growth.

For the 26-year period as a whole, production increased by 175 per cent, while the population of the country increased by 54 per cent, giving a per capita output in 1925 nearly 80 per cent larger than in 1899. The amount of primary horsepower installed increased

by over 250 per cent from 1899 to 1925, and the average number of wage earners employed by 80 per cent.

By industries and major industrial groups, the most rapid expansion between 1923 and 1925 occurred in the production of motor vehicles and allied products—rubber tires and gasoline. The large building activity of 1925 was reflected in the increased output of building materials, especially cement. The printing industry continued to expand, and growth was also shown in the canning and preserving, ice-cream, and cigarette industries. Two comparatively new industries which increased considerably in the two years were those manufacturing radio apparatus and rayon. The manufacture of engines and of machine tools also showed some increase. There were decreases, however, during the period in most of the textile industries (silk being the most notable exception) in meat packing and flour milling, in the manufacture of leather and its products, in the railway-equipment industries, and in the production of musical instruments.

By geographic divisions and States, the East South Central and the South Atlantic States appeared to have had the largest expansion between 1923 and 1925, with development of the Pacific Coast and East North Central States continuing at a more rapid rate than that for the country as a whole. Growth was smallest in the New England and Middle Atlantic States, and the Mountain States showed relatively less expansion than in any previous period.

#### TABLES OF 1925 FIGURES

NOTE.—The following tables give data from the 1925 census of manufactures corresponding to those provided for previous censuses in certain of the general tables in Appendix B. Tables 40, 41, and 42 give data for the census years 1914–1925, by major industrial groups, as classified in census reports for 1923 and 1925. Because of differences in grouping these tables do not correspond to any of the tables in Appendix B. Table 43 provides 1925 data corresponding to those given for earlier years in Tables 29, 30, and 31, and Table 44 corresponds to Tables 35 and 36.

The figures in the first three tables conform in manner of presentation more closely to recent, and probably future, census reports, whereas those given in the last two tables provide more exact comparisons with earlier census figures. Figures in Tables 40, 41, and 42 differ from those published in other tables of the monograph in the following respects: (1) The grouping of industries first adopted in the 1923 census has been followed, whereas in the previous tables the earlier classification was observed. (See Ch. IV.) (2) No adjustment has been made in the percentages, as in previous tables (and also in Tables 43 and 44), for the fact that the 1914 and 1919 figures include



data for establishments with products valued at less than \$5,000. (3) The all-industries totals differ from those previously published because data for coffee grinding and roasting, which were not compiled in the census of 1925, have been omitted for all years. Figures for automobile repairing have also been omitted from the 1914 and 1919 totals.

In Tables 43 and 44, the percentages have been computed as in previous tables: Those for the period from 1919 to 1925 by comparison of data only for establishments with products valued at over \$5,000, and those for the 1899-1925 period by chaining each 1923-1925 percentage to the corresponding percentage for 1899-1923 given in previous tables.

TABLE 40.—AVERAGE NUMBER OF WAGE EARNERS EMPLOYED IN INDUSTRIAL GROUPS, BY CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1914 TO 1925<sup>1</sup>

| Group No. | INDUSTRY  | WAGE EARNERS (AVERAGE NUMBER) |           |           |           |           | PER CENT OF INCREASE OR DECREASE (-) |                        |           |           |                        |           |
|-----------|---|-------------------------------|-----------|-----------|-----------|-----------|--------------------------------------|------------------------|-----------|-----------|------------------------|-----------|
|           |   | 1925                          | 1923      | 1921      | 1919      | 1914      | 1914-1925 <sup>1</sup>               | 1918-1925 <sup>1</sup> | 1923-1925 | 1921-1925 | 1919-1921 <sup>1</sup> | 1914-1919 |
|           | All industries.....   | 8,384,261                     | 8,768,491 | 6,937,688 | 9,030,771 | 7,015,186 | 19.5                                 | -7.2                   | -4.4      | 26.4      | -23.2                  | 23.7      |
| 1         | Food and kindred products.....                                  | 664,760                       | 672,472   | 617,736   | 723,124   | 527,687   | 25.9                                 | -8.1                   | -1.1      | 8.9       | -14.6                  | 37.0      |
| 2         | Textiles and their products.....                                | 1,627,141                     | 1,715,361 | 1,509,789 | 1,610,067 | 1,506,197 | 8.0                                  | 1.1                    | -5.1      | 13.6      | -6.2                   | 6.9       |
| 3         | Iron and steel and their products, not including machinery..... | 851,270                       | 802,660   | 571,798   | 838,571   | 618,349   | 37.7                                 | -9                     | -4.6      | 55.1      | -33.4                  | 38.8      |
| 4         | Lumber and allied products.....                                 | 921,145                       | 931,748   | 703,309   | 803,937   | 865,009   | 6.5                                  | 6.6                    | -1.1      | 32.5      | -18.6                  | -1        |
| 5         | Leather and its manufactures.....                               | 315,288                       | 344,545   | 280,071   | 349,892   | 307,960   | 2.7                                  | -9.8                   | -8.5      | 23.0      | -19.8                  | 13.8      |
| 6         | Rubber products.....  | 141,121                       | 157,806   | 103,278   | 158,549   | 74,022    | 90.3                                 | -11.0                  | 2.4       | 35.5      | -34.9                  | 114.2     |
| 7         | Paper, printing, and related industries.....                    | 535,763                       | 527,019   | 407,256   | 510,049   | 453,036   | 13.5                                 | 5.2                    | 1.3       | 12.3      | -3.4                   | 12.6      |
| 8         | Chemicals and allied products.....                              | 351,075                       | 354,493   | 314,231   | 450,641   | 349,154   | 9.1                                  | -17.3                  | -9        | 22.4      | -31.8                  | 31.9      |
| 9         | Stone, clay, and glass products.....                            | 353,036                       | 351,692   | 252,990   | 302,810   | 335,824   | 4.1                                  | 16.6                   | .4        | 39.0      | -16.5                  | -9.9      |
| 10        | Metals and metal products, other than iron and steel.....       | 275,292                       | 296,911   | 212,354   | 304,195   | 238,246   | 15.3                                 | -9.5                   | -7.8      | 39.8      | -30.2                  | 27.7      |
| 11        | Tobacco manufactures.....                                       | 132,132                       | 146,337   | 149,955   | 157,097   | 178,872   | -26.1                                | -15.9                  | -9.7      | -2.4      | -4.5                   | -12.2     |
| 12        | Machinery, not including transportation equipment.....          | 858,843                       | 907,707   | 662,277   | 998,494   | 618,737   | 38.8                                 | -14.0                  | -5.4      | 37.1      | -33.7                  | 61.4      |
| 13        | Musical instruments and phonographs.....                        | 43,980                        | 38,329    | 45,113    | 63,741    | 48,768    | -3.7                                 | -31.7                  | -19.5     | 29.3      | -34.4                  | 41.0      |
| 14        | Transportation equipment, air, land, and water.....             | 559,378                       | 606,328   | 405,773   | 838,532   | 312,592   | 75.0                                 | -34.8                  | -7.7      | 49.4      | -32.7                  | 174.7     |
| 15        | Railroad repair shops.....                                      | 457,755                       | 523,430   | 418,285   | 515,709   | 365,902   | 25.1                                 | -11.2                  | -12.5     | 25.1      | -18.9                  | 40.9      |
| 16        | Miscellaneous industries.....                                   | 262,079                       | 271,591   | 223,448   | 290,853   | 215,541   | 21.6                                 | -9.9                   | -8.5      | 21.5      | -22.2                  | 34.9      |

<sup>1</sup> Differences between figures given in this table and those given in other tables explained in preface note, p. 195.

data for establishments with products valued at less than \$5,000.

(3) The all-industries totals differ from those previously published because data for coffee grinding and roasting, which were not compiled in the census of 1925, have been omitted for all years. Figures for automobile repairing have also been omitted from the 1914 and 1919 totals.

In Tables 43 and 44, the percentages have been computed as in previous tables: Those for the period from 1919 to 1925 by comparison of data only for establishments with products valued at over \$5,000, and those for the 1899-1925 period by chaining each 1923-1925 percentage to the corresponding percentage for 1899-1923 given in previous tables.

TABLE 40.—AVERAGE NUMBER OF WAGE EARNERS EMPLOYED IN INDUSTRIAL GROUPS, BY CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1914 TO 1925<sup>1</sup>

| Group No. | INDUSTRY  | WAGE EARNERS (AVERAGE NUMBER) |           |           |           |           | PER CENT OF INCREASE OR DECREASE (-) |                        |           |           |                        |           |
|-----------|---|-------------------------------|-----------|-----------|-----------|-----------|--------------------------------------|------------------------|-----------|-----------|------------------------|-----------|
|           |   | 1925                          | 1923      | 1921      | 1919      | 1914      | 1914-1925 <sup>1</sup>               | 1919-1925 <sup>1</sup> | 1923-1925 | 1921-1923 | 1919-1921 <sup>1</sup> | 1914-1919 |
|           |   |                               |           |           |           |           |                                      |                        |           |           |                        |           |
|           | All industries.....   | 8,384,261                     | 8,768,491 | 6,937,688 | 9,030,771 | 7,015,136 | 19.5                                 | -7.2                   | -4.4      | 26.4      | -23.2                  | 28.7      |
| 1         | Food and kindred products.....                                  | 664,760                       | 672,472   | 617,736   | 723,124   | 527,887   | 25.9                                 | -8.1                   | -1.1      | 8.9       | -14.6                  | 37.0      |
| 2         | Textiles and their products.....                                | 1,627,141                     | 1,715,361 | 1,609,789 | 1,610,067 | 1,506,197 | 8.0                                  | 1.1                    | -5.1      | 13.6      | -8.2                   | 6.9       |
| 3         | Iron and steel and their products, not including machinery..... | 851,270                       | 692,660   | 571,798   | 858,571   | 618,349   | 37.7                                 | -9                     | -4.6      | 56.1      | -33.4                  | 38.8      |
| 4         | Lumber and allied products.....                                 | 921,145                       | 931,748   | 703,309   | 893,937   | 865,009   | 6.5                                  | 6.6                    | -1.1      | 32.5      | -18.6                  | -1        |
| 5         | Leather and its manufactures.....                               | 315,288                       | 344,545   | 280,071   | 349,362   | 307,060   | 2.7                                  | -9.8                   | -8.5      | 23.0      | -19.8                  | 13.8      |
| 6         | Rubber products.....  | 141,121                       | 137,868   | 103,273   | 155,549   | 74,622    | 90.6                                 | -11.0                  | 2.4       | 35.5      | -34.9                  | 114.2     |
| 7         | Paper, printing, and related industries.....                    | 536,766                       | 527,019   | 467,256   | 510,049   | 453,006   | 18.5                                 | 5.2                    | 1.8       | 12.8      | -8.4                   | 12.6      |
| 8         | Chemicals and allied products.....                              | 381,076                       | 384,483   | 314,231   | 460,641   | 349,154   | 6.1                                  | -17.3                  | -9        | 22.4      | -31.6                  | 31.8      |
| 9         | Stone, clay, and glass products.....                            | 353,036                       | 351,692   | 252,990   | 302,810   | 335,824   | 5.1                                  | 16.6                   | .4        | 39.0      | -16.5                  | -9.8      |
| 10        | Metals and metal products, other than iron and steel.....       | 275,292                       | 296,911   | 212,354   | 304,195   | 238,246   | 15.5                                 | -9.5                   | -7.8      | 39.8      | -30.2                  | 27.7      |
| 11        | Tobacco manufactures.....                                       | 132,132                       | 146,337   | 149,985   | 167,097   | 178,872   | -26.1                                | -15.9                  | -9.7      | -2.4      | -4.5                   | -12.2     |
| 12        | Machinery, not including transportation equipment.....          | 858,843                       | 907,707   | 662,277   | 968,484   | 618,737   | 38.8                                 | -14.0                  | -5.4      | 37.1      | -33.7                  | 61.4      |
| 13        | Musical instruments and phonographs.....                        | 48,980                        | 58,329    | 45,113    | 68,741    | 48,768    | -3.7                                 | -31.7                  | -19.5     | 29.3      | -34.4                  | 41.0      |
| 14        | Transportation equipment, air, land, and water.....             | 559,578                       | 606,328   | 405,773   | 898,582   | 312,562   | 73.0                                 | -34.8                  | -7.7      | 49.4      | -62.7                  | 174.7     |
| 15        | Railroad repair shops.....                                      | 457,755                       | 523,430   | 418,285   | 515,709   | 365,902   | 25.1                                 | -11.2                  | -12.5     | 25.1      | -18.9                  | 40.9      |
| 16        | Miscellaneous industries.....                                   | 262,079                       | 271,591   | 223,448   | 290,853   | 215,541   | 21.6                                 | -9.9                   | -8.5      | 21.5      | -23.2                  | 34.9      |

<sup>1</sup> Differences between figures given in this table and those given in other tables explained in prefatory note, p. 195.

TABLE 41.—AMOUNT OF PRIMARY HORSEPOWER INSTALLED IN INDUSTRIAL GROUPS, BY CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1914 TO 1925<sup>1</sup>

| Group No. | INDUSTRY  | PRIMARY HORSEPOWER <sup>2</sup> |              |              |              | PER CENT OF INCREASE OR DECREASE (-) |                        |           |           |
|-----------|---|---------------------------------|--------------|--------------|--------------|--------------------------------------|------------------------|-----------|-----------|
|           |   | 1925                            | 1923         | 1919         | 1914         | 1914-1925 <sup>1</sup>               | 1919-1925 <sup>1</sup> | 1923-1925 | 1914-1919 |
|           | All industries.....   | 35, 772, 628                    | 33, 056, 870 | 29, 297, 963 | 22, 264, 343 | 60. 7                                | 22. 1                  | 8. 2      | 31. 6     |
| 1         | Food and kindred products.....                                  | 3, 881, 952                     | 3, 685, 667  | 3, 173, 400  | 2, 477, 376  | 56. 7                                | 22. 3                  | 5. 3      | 28. 1     |
| 2         | Textiles and their products.....                                | 3, 989, 136                     | 3, 783, 504  | 3, 248, 456  | 2, 717, 369  | 46. 7                                | 22. 7                  | 3. 4      | 19. 5     |
| 3         | Iron and steel and their products, not including machinery..... | 7, 518, 999                     | 7, 202, 426  | 6, 430, 002  | 4, 587, 816  | 63. 9                                | 16. 9                  | 4. 4      | 40. 2     |
| 4         | Lumber and allied products.....                                 | 3, 472, 770                     | 3, 336, 133  | 3, 409, 654  | 3, 176, 145  | 9. 3                                 | 1. 9                   | 4. 1      | 7. 4      |
| 5         | Leather and its manufactures.....                               | 413, 759                        | 412, 998     | 382, 537     | 311, 194     | 33. 0                                | 8. 2                   | . 2       | 22. 9     |
| 6         | Rubber products.....  | 656, 857                        | 605, 634     | 429, 273     | 199, 242     | 229. 7                               | 53. 0                  | 8. 5      | 115. 5    |
| 7         | Paper, printing, and related industries.....                    | 3, 060, 794                     | 2, 743, 529  | 2, 346, 682  | 2, 039, 073  | 50. 1                                | 30. 4                  | 11. 6     | 15. 1     |
| 8         | Chemicals and allied products.....                              | 2, 984, 913                     | 2, 739, 519  | 2, 424, 938  | 1, 920, 277  | 55. 4                                | 23. 1                  | 9. 0      | 26. 3     |
| 9         | Stone, clay, and glass products.....                            | 2, 848, 157                     | 1, 936, 054  | 1, 584, 917  | 1, 493, 976  | 57. 2                                | 48. 2                  | 21. 2     | 6. 1      |
| 10        | Metals and metal products, other than iron and steel.....       | 1, 158, 486                     | 1, 168, 656  | 951, 770     | 549, 328     | 110. 9                               | 21. 7                  | - 9       | 73. 3     |
| 11        | Tobacco manufactures.....                                       | 42, 075                         | 43, 515      | 43, 390      | 34, 759      | 21. 1                                | - 3. 0                 | - 3. 3    | 24. 8     |
| 12        | Machinery, not including transportation equipment.....          | 2, 714, 377                     | 2, 300, 443  | 2, 080, 325  | 1, 256, 908  | 116. 0                               | 31. 7                  | 18. 0     | 63. 9     |
| 13        | Musical instruments and phonographs.....                        | 97, 318                         | 90, 229      | 91, 040      | 57, 528      | 99. 2                                | 6. 9                   | 7. 9      | 58. 3     |
| 14        | Transportation equipment, air, land, and water.....             | 1, 888, 961                     | 1, 624, 468  | 1, 453, 804  | 602, 459     | 213. 5                               | 29. 9                  | 16. 3     | 141. 3    |
| 15        | Railroad repair shops.....                                      | 942, 248                        | 806, 435     | 644, 876     | 478, 893     | 96. 8                                | 46. 1                  | 16. 8     | 34. 7     |
| 16        | Miscellaneous industries.....                                   | 604, 826                        | 577, 660     | 622, 900     | 362, 007     | 67. 1                                | - 2. 9                 | 4. 7      | 72. 1     |

<sup>1</sup> Differences between figures given in this table and those given in other tables explained in prefatory note, p. 185.

<sup>2</sup> No data for horsepower were given in 1921.

TABLE 42.—VALUE ADDED BY MANUFACTURE IN INDUSTRIAL GROUPS, BY CENSUS YEARS, AND PER CENT OF INCREASE, BY CENSUS PERIODS: 1914 TO 1925<sup>1</sup>

| Group No. | INDUSTRY   | VALUE ADDED BY MANUFACTURE<br>(EXPRESSED IN THOUSANDS OF DOLLARS) |              |              |              |             | PER CENT OF INCREASE OR DECREASE (-) |                        |           |           |                        |           |
|-----------|--|---|--------------|--------------|--------------|-------------|--------------------------------------|------------------------|-----------|-----------|------------------------|-----------|
|           |  | 1925  | 1923         | 1921         | 1919         | 1914        | 1914-1925 <sup>1</sup>               | 1919-1925 <sup>1</sup> | 1923-1925 | 1921-1923 | 1919-1921 <sup>1</sup> | 1914-1919 |
|           | All industries.....  | \$26,778,066  | \$25,777,615 | \$18,272,417 | \$24,843,803 | \$9,823,351 | 172.6                                | 7.8                    | 3.9       | 41.1      | -26.5                  | 152.0     |
| 1         | Food and kindred products.....                                     | 2,660,858   | 2,460,520    | 2,084,889    | 2,434,822    | 1,086,845   | 157.6                                | 9.7                    | 6.5       | 18.0      | -14.4                  | 134.9     |
| 2         | Textiles and their products.....                                   | 3,774,808   | 4,067,986    | 3,155,463    | 3,831,638    | 1,431,382   | 163.7                                | -1.5                   | -7.2      | 28.9      | -17.6                  | 167.7     |
| 3         | Iron and steel and their products, not including<br>machinery..... | 2,727,318   | 2,675,923    | 1,816,046    | 2,465,845    | 821,618     | 231.9                                | -10.6                  | 1.9       | 108.3     | -46.6                  | 200.0     |
| 4         | Lumber and allied products.....                                    | 1,963,669   | 1,966,846    | 1,269,143    | 1,745,031    | 860,207     | 131.0                                | 12.5                   | -2        | 56.2      | -27.8                  | 108.2     |
| 5         | Leather and its manufactures.....                                  | 752,458   | 796,740      | 609,788      | 896,425      | 351,460     | 114.1                                | -16.1                  | -5.6      | 30.7      | -32.0                  | 153.1     |
| 6         | Rubber products.....   | 536,574   | 457,355      | 327,024      | 543,873      | 157,959     | 282.9                                | -1.3                   | 17.3      | 89.9      | -38.9                  | 294.2     |
| 7         | Paper, printing, and related industries.....                       | 2,529,450   | 2,227,870    | 1,818,193    | 1,706,631    | 875,648     | 188.9                                | 48.2                   | 13.5      | 22.5      | 6.5                    | 94.9      |
| 8         | Chemicals and allied products.....                                 | 2,253,116   | 2,026,409    | 1,483,352    | 2,187,076    | 1,200,349   | 87.7                                 | 3.0                    | 11.2      | 36.6      | -32.2                  | 82.2      |
| 9         | Stone, clay, and glass products.....                               | 1,037,225   | 989,648      | 604,832      | 689,135      | 377,883     | 174.5                                | 30.5                   | 4.8       | 63.6      | -12.2                  | 82.4      |
| 10        | Metals and metal products, other than iron and<br>steel.....       | 886,998   | 866,959      | 521,033      | 780,398      | 364,138     | 143.6                                | 13.7                   | 2.8       | 64.4      | -33.2                  | 114.3     |
| 11        | Tobacco manufactures.....  | 665,232   | 528,327      | 439,801      | 529,366      | 283,031     | 135.0                                | 25.7                   | 25.9      | 20.1      | -16.9                  | 87.0      |
| 12        | Machinery, not including transportation equip-<br>ment.....        | 3,034,914   | 2,836,294    | 1,873,912    | 2,795,216    | 919,442     | 230.1                                | 8.6                    | 7.0       | 51.4      | -33.6                  | 204.0     |
| 13        | Musical instruments and phonographs.....                           | 132,926   | 158,931      | 118,001      | 183,445      | 70,365      | 88.9                                 | -27.5                  | -16.4     | 34.7      | -35.7                  | 160.7     |
| 14        | Transportation equipment, air, land, and water.....                | 2,062,652   | 1,938,975    | 1,215,144    | 2,426,662    | 497,630     | 314.5                                | -15.0                  | 6.4       | 59.6      | -49.9                  | 387.6     |
| 15        | Railroad repair shops.....   | 769,093   | 888,734      | 700,771      | 806,617      | 291,180     | 164.1                                | -4.7                   | -13.5     | 16.8      | -5.7                   | 177.0     |
| 16        | Miscellaneous industries.....                                      | 981,940   | 890,048      | 635,525      | 821,638      | 314,616     | 212.1                                | 19.5                   | 10.8      | 29.8      | -16.6                  | 161.2     |

<sup>1</sup> Differences between figures given in this table and those given in other tables explained in prefatory note, p. 195.

TABLE 43.—AVERAGE NUMBER OF WAGE EARNERS EMPLOYED, AMOUNT OF PRIMARY HORSEPOWER INSTALLED, AND VALUE ADDED BY MANUFACTURE, IN SELECTED INDUSTRIES IN 1925, AND PER CENT OF INCREASE FROM 1899, AND 1923 TO 1925

| INDUSTRY  | NUMBER OF WAGE EARNERS |   |           |           | PRIMARY HORSEPOWER     |   |           |           | VALUE ADDED BY MANUFACTURE |   |           |           |
|---|------------------------|---|-----------|-----------|------------------------|---|-----------|-----------|----------------------------|---|-----------|-----------|
|   | Average number, 1925   | Per cent of increase or decrease (-) <sup>1</sup> |           |           | Amount installed, 1925 | Per cent of increase or decrease (-) <sup>1</sup> |           |           | Value, 1925                | Per cent of increase or decrease (-) <sup>1</sup> |           |           |
|   |                        | 1899-1925   | 1919-1925 | 1923-1925 |                        | 1899-1925   | 1919-1925 | 1923-1925 |                            | 1899-1925   | 1919-1925 | 1923-1925 |
| All industries.....   | 8,384,261              | 79.9  | -8.8      | -4.4      | 85,772,628             | 256.5   | 22.0      | 8.2       | \$26,778,066,026           | 461.2   | -7.9      | 3.9       |
| Food and kindred products:  |                        |   |           |           |                        |   |           |           |                            |   |           |           |
| Slaughtering and meat packing.....  | 120,422                | 76.1  | -25.2     | -9.3      | 441,516                | 420.2   | 23.1      | 15.5      | 425,093,856                | 317.9   | -9.3      | 3.7       |
| Bread and other bakery products.....  | 160,411                | 168.6   | 14.2      | -1.4      | 227,286                | 913.2   | 37.2      | 17.7      | 600,178,007                | 653.2   | 37.9      | 9.4       |
| Confectionery, chewing gum, and ice cream.....                              | 88,823                 | 232.6   | -9.6      | .2        | 297,495                | 1,434.7   | 60.1      | 11.0      | 848,830,815                | 1,286.6   | 19.1      | 14.9      |
| Flour-mill and grain-mill products.....                                     | 31,988                 | -4  | -29.4     | -2.1      | 669,910                | 0.0   | -23.5     | -5.6      | 172,635,947                | 136.4   | -31.6     | 6.2       |
| Canning and preserving, fruits and vegetables.....                          | 70,009                 | 91.7  | 17.1      | 22.4      | 151,341                | 463.1   | 14.4      | 8.9       | 163,254,911                | 761.6   | 20.1      | 7.5       |
| Sugar, beet, and cane sugar and its refining.....                           | 25,440                 | 58.2  | -29.4     | -.8       | 308,879                | 84.9  | 9.6       | 7.0       | 103,886,078                | 398.6   | -28.1     | 5.9       |
| Butter and cheese.....  | 21,156                 | 65.9  | -1.9      | -15.9     | 147,702                | 68.1  | 23.7      | -6        | 95,305,527                 | 335.0   | 15.2      | -16.7     |
| Condensed milk.....   | 7,118                  | -   | -47.9     | -18.4     | 53,937                 | -   | 9.7       | 11.7      | 31,206,369                 | -   | -45.2     | -11.8     |
| Glucose and starch <sup>2</sup> .....                                       | 6,492                  | 53.1  | 16.7      | -7        | 72,617                 | 177.0   | 39.6      | 10.4      | 39,834,399                 | 326.0   | -28.8     | -5.3      |
| Canning and preserving, fish and oysters.....                               | 10,530                 | -15.9   | -14.8     | 15.2      | 19,527                 | 280.3   | -24.4     | 10.6      | 21,869,570                 | 22.4  | -16.5     | 11.9      |
| Pickles, preserves, and sauces.....   | 15,857                 | 120.3   | -4.2      | 3.3       | 36,149                 | 453.0   | 61.5      | -1.5      | 67,242,362                 | 602.6   | 27.9      | 4.3       |
| Breadstuff preparations, such as cereals and breakfast foods.....           | 6,168                  | -   | -19.2     | -3.8      | 52,626                 | -   | 12.0      | -14.2     | 57,501,586                 | -   | 38.9      | 19.1      |
| Chocolate and cocoa products.....   | 7,128                  | 442.6   | -21.6     | 3.7       | 58,266                 | 2,016.2   | 74.4      | 23.5      | 33,120,370                 | 1,087.4   | -11.7     | -4.5      |
| Textiles and their products:  |                        |   |           |           |                        |   |           |           |                            |   |           |           |
| Cotton goods and cotton lace.....   | 452,190                | 51.8  | 3.4       | -5.6      | 2,245,870              | 184.0   | 21.7      | 3.8       | 654,697,257                | 310.8   | -24.2     | -15.5     |
| Clothing, men's.....  | 174,332                | 44.8  | -1        | -10.5     | 44,749                 | 238.4   | 11.3      | -15.0     | 529,767,222                | 303.9   | -4.7      | -10.8     |
| Clothing, women's.....  | 128,466                | 51.5  | -23.4     | -5.1      | 24,316                 | 145.6   | -25.0     | -12.2     | 569,406,317                | 664.2   | 8.0       | -4.6      |
| Woolen and worsted goods.....   | 165,224                | 31.3  | -         | -15.1     | 570,295                | 144.1   | 22.3      | 5.9       | 337,388,395                | 272.2   | -15.6     | -23.3     |
| Silk goods, including throwsters.....                                       | 132,509                | 102.7   | 4.6       | 5.8       | 212,609                | 277.1   | 22.4      | 3.2       | 324,856,872                | 624.4   | 8.3       | 15.1      |
| Knit goods.....   | 186,668                | 123.1   | 8.2       | -3.9      | 176,630                | 212.5   | 18.2      | -3.8      | 366,034,433                | 698.4   | 24.6      | -2.2      |
| Dyeing and finishing textiles, exclusive of that done in textile mills..... | 70,749                 | 137.3   | 26.5      | 11.6      | 252,701                | 266.3   | 58.1      | 23.8      | 187,837,303                | 595.7   | 25.9      | 5.1       |
| Millinery and lace goods, not elsewhere specified.....                      | 53,603                 | 220.7   | 6.4       | -1.2      | 11,986                 | 551.1   | -3.4      | -23.5     | 156,470,752                | 1,041.3   | 28.4      | 6.0       |
| Carpets and rugs, other than rag.....                                       | 33,886                 | 19.3  | 47.8      | -3.8      | 63,008                 | 139.2   | 67.6      | 17.0      | 84,707,266                 | 304.1   | 50.9      | -17.0     |
| Cordage and twine.....  | 15,490                 | 17.5  | -12.6     | -6.0      | 77,593                 | 130.7   | 16.5      | 7.2       | 33,600,060                 | 199.7   | -23.0     | -3.0      |
| Hats, fur-felt.....   | 15,156                 | -19.7   | -18.1     | -9.4      | 17,948                 | 51.7  | -11.9     | -2.9      | 39,942,206                 | 179.7   | -6.1      | -2.1      |

|  |         |       |       |       |           |         |       |       |               |         |       |       |
|--|---------|-------|-------|-------|-----------|---------|-------|-------|---------------|---------|-------|-------|
| Bags, other than paper, not including bags made in textile mills   | 11,404  | 190.9 | 6.1   | -1.2  | 15,265    | 772.0   | 68.5  | 10.4  | 24,979,634    | 1,490.1 | 84.8  | 8.5   |
| Shirts   | 49,864  | 87.4  | 27.1  | -2.5  | 13,884    | 98.9    | -0.8  | -1.2  | 96,209,170    | 299.1   | 28.8  | -5.7  |
| Furnishing goods, men's, including cloth gloves and mittens, other than those made in textile mills  | 28,892  | 119.8 | 8.6   | 8.8   | 8,493     | 579.7   | -5.9  | -1.4  | 60,931,559    | 459.3   | -28.8 | -7.6  |
| Corsets  | 14,525  | 18.3  | -21.0 | -9.2  | 5,394     | 137.4   | 20.7  | 42.2  | 39,306,693    | 385.9   | 7.1   | -8.8  |
| Collars and cuffs, men's   | 7,187   | -68.0 | -35.2 | -31.2 | 4,497     | 98.6    | -14.8 | -11.0 | 15,795,226    | 62.0    | -42.8 | -30.0 |
| <b>Iron and steel and their products:</b>  |         |       |       |       |           |         |       |       |               |         |       |       |
| Crude iron and steel and rolled products, including products not made in rolling-mill establishments (though largely made therein) plus wire and wirework, not elsewhere specified | 871,608 | 102.1 | -2.7  | -6.1  | 6,858,568 | 307.1   | 14.2  | 8.4   | 1,834,851,954 | 427.5   | 1.6   | -1.6  |
| Foundry and machine-shop products  | 397,838 | 77.0  | -17.4 | -11.4 | 1,424,269 | 462.1   | 30.9  | 15.4  | 1,349,277,739 | 492.4   | .8    | -3.7  |
| Engines, steam, gas, and water   | 51,099  |       | -34.1 | 8.4   | 224,194   |         | 18.0  | 85.8  | 167,804,164   |         | 32.1  | 17.8  |
| Machine tools  | 36,825  |       | -30.6 | 10.3  | 147,418   |         | 47.0  | 36.0  | 121,068,126   |         | 21.0  | 25.8  |
| Tools, not elsewhere specified   | 25,840  | 234.2 | -23.5 | -12.9 | 78,686    | 572.9   | 16.2  | 4.6   | 82,239,720    | 1,213.1 | 16.2  | 2.9   |
| Hardware   | 52,849  | 98.0  | 23.8  | 4.9   | 98,278    | 336.9   | 46.5  | 25.0  | 147,849,805   | 598.5   | 53.9  | 13.7  |
| Stoves and hot-air furnaces  | 29,376  |       | -10.6 | -11.1 | 63,545    |         | 28.0  | -2.8  | 93,555,874    |         | 2.9   | -3.6  |
| Steam fittings and steam and hot-water heating apparatus   | 43,260  | 397.5 | 17.9  | -2.0  | 109,313   | 1,579.3 | 62.0  | 20.0  | 151,573,080   | 1,177.3 | 71.7  | 9.3   |
| Locomotives, not made by railroad companies  | 12,809  |       | -52.1 | -58.2 | 114,209   |         | 18.3  | 25.2  | 23,671,992    |         | -71.8 | -74.0 |
| Textile machinery and parts  | 27,869  |       | -12.3 | -21.0 | 61,738    |         | 47.9  | 9.7   | 82,616,455    |         | 8.2   | -9.2  |
| Cash registers and calculating machines  | 13,296  | 543.5 | -19.6 | -11.2 | 14,016    | 946.3   | -4.3  | -53.1 | 87,218,262    | 1,735.4 | 20.1  | 6.6   |
| Cutlery and edge tools   | 16,407  | 36.7  | -17.2 | -1.6  | 31,673    | 97.2    | 34.0  | 19.7  | 59,701,243    | 516.8   | 26.8  | 7.9   |
| Typewriters and supplies   | 14,969  | 242.3 | -4.3  | 0.0   | 15,968    | 686.1   | 19.3  | 30.0  | 47,922,610    | 768.8   | 31.0  | 24.4  |
| Plumbers' supplies, not elsewhere specified  | 83,280  | 315.0 | 145.0 | 22.3  | 84,634    | 1,018.6 | 184.7 | 41.0  | 104,268,161   | 1,294.5 | 223.4 | 28.4  |
| Stoves, gas and oil  | 17,138  | 594.4 | 62.4  | 2.1   | 30,681    | 1,675.7 | 170.9 | 87.1  | 74,874,299    | 3,508.7 | 139.3 | 18.3  |
| Pumps, steam and other power   | 17,985  |       | 11.7  | 23.2  | 56,470    |         | 74.1  | 47.6  | 69,819,722    |         | 41.6  | 19.4  |
| Sewing machines and attachments (including cases)  | 12,121  | -9.3  | -37.0 | -9.8  | 27,439    | 172.7   | -14.3 | 21.9  | 27,688,612    | 137.5   | -17.4 | -1.8  |
| Screws, machine  | 8,987   | 477.4 | -12.4 | -1.5  | 30,514    | 2,071.7 | 26.8  | 5.4   | 24,991,009    | 93.1    | -1.1  | 6.6   |
| <b>Lumber and its manufactures:</b>  |         |       |       |       |           |         |       |       |               |         |       |       |
| Lumber and timber products   | 473,968 | 17.6  | 1.0   | -4.4  | 2,049,500 | 49.2    | -13.0 | 6.1   | 841,687,154   | 174.9   | -6.3  | -8.7  |
| Furniture  | 180,895 | 104.9 | 29.3  | 7.6   | 402,619   | 245.3   | 61.9  | -17.1 | 433,638,265   | 579.2   | 54.3  | 11.4  |
| Lumber, planing-mill products, not including planing mills connected with sawmills   | 111,320 | 56.3  | 28.9  | 8.1   | 597,103   | 167.7   | 43.2  | 21.0  | 307,634,500   | 367.2   | 58.8  | 5.5   |
| Boxes, wooden packing, except cigar boxes  | 34,834  | 68.8  | -17.7 | -11.0 | 143,519   | 162.9   | 0.0   | -8.9  | 65,908,408    | 330.2   | -11.7 | -4.2  |
| Coffins, burial cases, and undertakers' goods  | 11,479  | 69.9  | -8.4  | -1.0  | 29,104    | 228.9   | 31.4  | 6.7   | 37,641,451    | 438.0   | 15.0  | 10.7  |
| Cooperage  | 11,483  | -47.4 | -12.1 | -4.5  | 30,768    | 0.0     | .2    | -8.2  | 28,558,976    | 46.9    | -20.0 | -1.5  |
| <b>Leather and its finished products:</b>  |         |       |       |       |           |         |       |       |               |         |       |       |
| Boots and shoes, not including rubber boots and shoes  | 206,992 | 46.0  | -1.9  | -8.1  | 139,569   | 193.8   | 20.4  | 8.6   | 443,751,453   | 391.2   | .9    | -6.1  |
| Leather, tanned, curried, and finished   | 53,043  | 1.8   | -26.8 | -11.2 | 222,678   | 151.2   | 2.3   | -3.3  | 155,379,595   | 216.9   | -44.9 | -7.0  |
| Saddlery and harness   | 4,870   | -66.9 | -54.4 | -30.9 | 5,021     | -16.5   | -38.8 | -35.3 | 11,307,664    | -15.6   | -62.4 | -35.9 |

See footnotes at end of table, p. 204.



TABLE 43.—AVERAGE NUMBER OF WAGE EARNERS EMPLOYED, AMOUNT OF PRIMARY HORSEPOWER INSTALLED, AND VALUE ADDED BY MANUFACTURE, IN SELECTED INDUSTRIES IN 1925, AND PER CENT OF INCREASE FROM 1899, 1919, AND 1923 TO 1925—Continued

| INDUSTRY   | NUMBER OF WAGE EARNERS |                                      |           |           | PRIMARY HORSEPOWER     |                                      |           |           | VALUE ADDED BY MANUFACTURE |                                      |           |           |
|--|------------------------|--------------------------------------|-----------|-----------|------------------------|--------------------------------------|-----------|-----------|----------------------------|--------------------------------------|-----------|-----------|
|  | Average number, 1925   | Per cent of increase or decrease (—) |           |           | Amount installed, 1925 | Per cent of increase or decrease (—) |           |           | Value, 1925                | Per cent of increase or decrease (—) |           |           |
|  |                        | 1899-1925                            | 1919-1925 | 1923-1925 |                        | 1899-1925                            | 1919-1925 | 1923-1925 |                            | 1899-1925                            | 1919-1925 | 1923-1925 |
| Leather and its finished products—Con.   |                        |                                      |           |           |                        |                                      |           |           |                            |                                      |           |           |
| Trunks and valises.....  | 10,348                 | 49.4                                 | -9.3      | -9.6      | 7,393                  | 138.4                                | 2.6       | 8.6       | \$29,842,016               | 363.5                                | -2.3      | -1.1      |
| Boot and shoe cut stock, exclusive of that produced in boot and shoe factories.....                    | 7,197                  | 17.1                                 | -25.8     | .9        | 7,859                  | 161.5                                | -7.0      | 12.9      | 18,574,394                 | 241.8                                | -31.9     | -10.4     |
| Paper and printing:  |                        |                                      |           |           |                        |                                      |           |           |                            |                                      |           |           |
| Printing and publishing, newspaper and periodical.....   | 117,001                | 29.2                                 | 1.6       | 1.2       | 237,662                | 239.7                                | 22.5      | 16.8      | 1,068,120,575              | 533.9                                | 75.6      | 18.0      |
| Printing and publishing, book and job.....   | 133,316                | 98.9                                 | 9.9       | 2.6       | 169,283                | 359.7                                | 23.3      | 11.1      | 578,197,553                | 897.8                                | 52.3      | 11.6      |
| Paper and wood pulp.....   | 123,842                | 149.5                                | 8.9       | 2.6       | 2,427,010              | 218.7                                | 31.2      | 11.4      | 366,022,034                | 644.5                                | 14.2      | 9.7       |
| Boxes, paper and other, not elsewhere specified.....   | 57,148                 | 107.1                                | 2.5       | .5        | 76,185                 | 724.4                                | 39.3      | 23.5      | 130,232,270                | 739.1                                | 23.5      | 8.4       |
| Lithographing.....   | 16,957                 | 30.5                                 | 3.6       | 3.9       | 28,623                 | 306.9                                | 54.3      | 6.5       | 66,550,116                 | 364.6                                | 46.8      | 9.7       |
| Bookbinding and blank-book making.....   | 20,836                 | 32.0                                 | 3.5       | .5        | 16,147                 | 247.0                                | 46.3      | 3.9       | 57,473,290                 | 344.6                                | 36.0      | 6.7       |
| Paper goods, not elsewhere specified.....  | 13,386                 | 143.1                                | -5.2      | -9.1      | 35,324                 | 351.9                                | -1        | -6.6      | 53,517,592                 | 668.7                                | 27.5      | 8.8       |
| Liquors and beverages:   |                        |                                      |           |           |                        |                                      |           |           |                            |                                      |           |           |
| Liquors, malt, including cereal beverages.....   | 8,749                  | -77.9                                | -74.5     | -22.0     | 106,839                | -45.6                                | -66.8     | -31.7     | 42,651,549                 | -76.9                                | -85.0     | -13.4     |
| Mineral and soda waters.....   | 18,635                 | 123.7                                | 12.7      | 3.2       | 62,026                 | 683.0                                | 50.7      | -4.3      | 96,643,138                 | 581.3                                | 50.1      | 20.9      |
| Chemicals and allied products:   |                        |                                      |           |           |                        |                                      |           |           |                            |                                      |           |           |
| Petroleum refining.....  | 65,324                 | 435.3                                | 10.9      | -2.1      | 393,753                | 989.9                                | 64.8      | .7        | 486,978,537                | 2,211.1                              | 26.6      | 32.1      |
| Chemicals and acids.....   | 57,890                 | 230.6                                | -24.0     | -25.1     | 679,987                | 652.1                                | 42.9      | 1.2       | 287,597,638                | 1,021.7                              | -7.1      | -12.0     |
| Druggists' preparations, patent medicines and compounds, perfume and cosmetics, and drug grinding..... | 33,823                 | 73.8                                 | -14.0     | -2.9      | 58,163                 | 236.5                                | 23.8      | 10.3      | 308,233,501                | 436.5                                | 40.0      | 18.1      |
| Gas, illuminating and heating.....   | 46,998                 | 109.6                                | 9.7       | 11.2      | 428,132                | 1,246.3                              | 79.5      | 19.4      | 277,036,908                | 402.9                                | 61.4      | 7.0       |
| Oils.....  | 22,700                 | 62.3                                 | -35.4     | 14.5      | 284,027                | 229.9                                | -16.3     | 7.1       | 104,213,882                | 328.6                                | -28.2     | 40.3      |
| Paint and varnish.....   | 25,490                 | 163.3                                | 18.7      | 11.7      | 143,111                | 372.2                                | 68.7      | 25.2      | 176,793,224                | 612.3                                | 43.5      | 13.9      |
| Fertilizers.....   | 19,044                 | 69.9                                 | -25.2     | 5.8       | 152,193                | 293.3                                | 20.8      | -5.9      | 68,964,719                 | 330.6                                | -28.2     | 25.1      |
| Coke, not including gas-house coke.....  | 23,191                 | 36.4                                 | -20.9     | -18.2     | 409,552                | 1,077.8                              | 82.1      | 23.2      | 100,852,852                | 534.0                                | 9.4       | -38.1     |
| S soap.....  | 15,406                 | 62.6                                 | -24.5     | -9.4      | 56,697                 | 223.8                                | 68.2      | -24.2     | 93,399,570                 | 365.3                                | 19.5      | -9.2      |
| Explosives.....  | 5,697                  | 26.5                                 | -38.4     | -10.8     | 37,808                 | 96.9                                 | -26.8     | 7.3       | 31,791,419                 | 368.4                                | -31.7     | -10.5     |
| Turpentine and rosin.....  | 29,413                 | -29.4                                | 5.4       | -14.3     | 3,138                  | 266.7                                | 37.9      | 62.4      | 30,477,018                 | 116.3                                | -21.7     | 16.4      |

|  |         |         |       |       |         |          |       |       |               |          |       |       |  |  |  |  |  |  |
|--|---------|---------|-------|-------|---------|----------|-------|-------|---------------|----------|-------|-------|--|--|--|--|--|--|
| Stone, clay, and glass products:   |         |         |       |       |         |          |       |       |               |          |       |       |  |  |  |  |  |  |
| Glass  | 69,371  | 81.4    | -10.5 | -5.4  | 271,699 | 418.8    | 31.0  | 12.9  | 182,806,988   | 357.7    | 6.5   | -7.1  |  |  |  |  |  |  |
| Brick, tile, pottery, and other clay products  | 140,114 | 33.4    | 33.8  | 0.0   | 873,741 | 127.5    | 30.8  | 8.4   | 313,291,264   | 833.2    | 60.4  | 3     |  |  |  |  |  |  |
| Cement   | 28,437  | 229.9   | 50.6  | 9.5   | 871,650 | 944.1    | 78.3  | 35.6  | 186,728,131   | 206.0    | 95.0  | 14.3  |  |  |  |  |  |  |
| Marble and stone work  | 36,676  | -11.0   | 13.2  | -8.7  | 240,297 | 190.7    | 42.0  | 12.7  | 126,070,651   | 206.0    | 61.3  | 1.1   |  |  |  |  |  |  |
| Minerals and earths, ground or otherwise treated   | 8,762   | 320.2   | -39.0 | .6    | 127,649 | 594.0    | .5    | 52.9  | 25,216,386    | 1,120.1  | -15.2 | 14.6  |  |  |  |  |  |  |
| Nonferrous metals and their products:  |         |         |       |       |         |          |       |       |               |          |       |       |  |  |  |  |  |  |
| Brass, bronze, and copper products   | 62,942  | 131.8   | -16.1 | -2.7  | 361,242 | 668.2    | 36.1  | 18.1  | 182,084,196   | 563.6    | 2.7   | 1.3   |  |  |  |  |  |  |
| Smelting and refining  | 35,936  | 41.0    | -14.0 | -11.7 | 474,336 | 388.2    | 2.1   | -14.8 | 167,936,201   | 107.4    | 28.4  | 13.3  |  |  |  |  |  |  |
| Jewelry  | 23,837  | 17.0    | -22.4 | -9.6  | 17,266  | 183.1    | 14.6  | 2.6   | 36,930,547    | 237.0    | -0.3  |       |  |  |  |  |  |  |
| Copper, tin, and sheet-iron work   | 24,996  | -9.5    | -7.3  | -12.4 | 35,273  | 188.6    | 46.2  | 3.0   | 90,963,299    | 227.4    | 17.7  | -4.7  |  |  |  |  |  |  |
| Stamped and enameled ware, not elsewhere specified   | 29,704  | 197.2   | -13.2 | -15.7 | 64,346  | 288.9    | 25.5  | -5.8  | 76,609,268    | 962.4    | -2.0  | -11.3 |  |  |  |  |  |  |
| Tinware, not elsewhere specified   | 29,901  |         | -13.0 | -2.0  | 48,728  |          | 61.2  | 18.1  | 84,581,308    |          | 23.0  | 5.7   |  |  |  |  |  |  |
| Watches  | 13,915  | 102.3   | -12.4 | 20.3  | 12,348  |          | 71.5  | 67.0  | 30,076,063    | 448.9    | 17.3  | 38.0  |  |  |  |  |  |  |
| Aluminum manufactures  | 14,833  |         | 25.9  | -11.9 | 62,366  |          | 106.0 | 7.0   | 42,845,833    |          | 64.8  | 6.4   |  |  |  |  |  |  |
| Tobacco manufactures:  |         |         |       |       |         |          |       |       |               |          |       |       |  |  |  |  |  |  |
| Tobacco, cigars and cigarettes   | 117,108 | 15.1    | -14.3 | -9.9  | 24,534  | 438.1    | .2    | -1.4  | 543,463,988   | 440.8    | 31.4  | 20.3  |  |  |  |  |  |  |
| Tobacco, chewing and smoking, and snuff  | 15,024  | -48.4   | -17.9 | -7.6  | 17,541  | -1.2     | -7.2  | -5.8  | 121,767,777   | 77.5     | 11.9  | 59.0  |  |  |  |  |  |  |
| Vehicles for land transportation, including railroad repair shops:                                 |         |         |       |       |         |          |       |       |               |          |       |       |  |  |  |  |  |  |
| Automobiles  | 197,728 | 3,722.7 | -6.1  | -18.1 | 809,756 | 16,300.3 | 30.6  | 17.0  | 1,089,930,821 | 36,926.6 | 34.7  | 7.3   |  |  |  |  |  |  |
| Steam-railroad repair shops  | 425,264 | 145.0   | -12.2 | -13.0 | 711,769 | 822.2    | 47.5  | 17.2  | 714,969,063   | 558.4    | -0.3  | -14.3 |  |  |  |  |  |  |
| Automobile bodies and parts  | 228,382 |         | 72.6  | 39.7  | 662,255 |          | 157.9 | 43.0  | 660,558,472   |          | 100.5 | 47.1  |  |  |  |  |  |  |
| Cars, steam and electric railroad, not including operations of railroad companies                  | 50,393  | 50.8    | -3.5  | -37.5 | 243,334 | 589.7    | 45.5  | -2.3  | 124,717,708   | 319.1    | -33.6 | -24.6 |  |  |  |  |  |  |
| Electric-railroad repair shops   | 32,621  | 364.8   | 4.4   | -6.9  | 70,479  | 994.5    | 31.0  |       | 54,074,072    | 977.5    | 25.6  | -7    |  |  |  |  |  |  |
| Carrriages and wagons, including repairs   | 4,833   | -91.4   | -72.5 | -37.6 | 20,449  | -53.8    | -49.3 | -18.4 | 12,075,021    | -78.9    | -70.8 | -30.2 |  |  |  |  |  |  |
| Motor cycles, bicycles, and parts  | 4,193   | -76.1   | -61.5 | -36.2 | 12,609  | -34.8    | -12.6 | -15.0 | 12,080,988    | -20.0    | -55.4 | -15.3 |  |  |  |  |  |  |
| Miscellaneous industries:  |         |         |       |       |         |          |       |       |               |          |       |       |  |  |  |  |  |  |
| Shipbuilding, steel  | 38,308  | 23.6    | -38.9 | -26.3 | 259,463 | 568.1    | -45.4 | -7.5  | 82,857,361    | 209.5    | -39.8 | -21.7 |  |  |  |  |  |  |
| Electrical machinery, apparatus, and supplies  | 239,921 | 471.2   | 13.0  | 2.1   | 589,398 | 1,251.5  | 34.5  | 22.7  | 903,309,965   | 2,002.1  | 57.7  | 21.4  |  |  |  |  |  |  |
| Rubber tires, tubes, and rubber goods, not elsewhere specified, including belting and hose, rubber | 116,122 | 423.6   | -7.6  | 7.1   | 597,444 | 1,196.8  | 57.3  | 8.7   | 461,205,119   | 3,071.5  | -3.4  | 24.4  |  |  |  |  |  |  |
| Agricultural implements  | 28,696  | -38.3   | -47.1 | -7.3  | 115,325 | 63.2     | -10.1 | -5.5  | 95,617,906    | 67.2     | -40.8 | 5.9   |  |  |  |  |  |  |
| Shipbuilding, wooden, including boat building  | 11,918  | -24.6   | -72.5 | 15.4  | 44,007  | 92.8     | -43.4 | 17.9  | 28,025,835    | 97.2     | -71.6 | 22.5  |  |  |  |  |  |  |
| Photographs and graphophones   | 11,267  | 733.6   | -60.8 | -45.0 | 45,782  | 4,132.1  | 14.0  | 11.2  | 36,210,063    | 2,450.3  | -63.4 | -41.7 |  |  |  |  |  |  |
| Ice, manufactured  | 24,915  | 293.2   | -16.7 | -7.2  | 923,134 | 824.4    | 62.0  | 9.2   | 142,243,764   | 1,263.4  | 52.2  | 20.5  |  |  |  |  |  |  |
| Fur goods  | 16,556  | 36.8    | 22.2  | 14.7  | 4,985   | 449.7    | -6.4  | 16.0  | 94,950,015    | 722.5    | 41.5  | 33.1  |  |  |  |  |  |  |
| Boots and shoes, rubber  | 24,909  | 73.6    | -24.0 | -15.1 | 52,413  | 137.6    | 20.3  | 5.7   | 75,358,469    | 359.4    | 13.2  | -12.3 |  |  |  |  |  |  |
| Photographic materials   | 14,727  | 328.2   | -13.8 | -9.7  | 62,338  | 1,434.3  | 31.9  | 4.1   | 113,252,413   | 2,462.9  | 58.0  | 4.5   |  |  |  |  |  |  |

See footnotes at end of table, p. 204.

TABLE 43.—AVERAGE NUMBER OF WAGE EARNERS EMPLOYED, AMOUNT OF PRIMARY HORSEPOWER INSTALLED, AND VALUE ADDED BY MANUFACTURE, IN SELECTED INDUSTRIES IN 1925, AND PER CENT OF INCREASE FROM 1899, 1919, AND 1923 TO 1925—Continued

| INDUSTRY  | NUMBER OF WAGE EARNERS |                                      |           |           | PRIMARY HORSEPOWER     |                                      |           |           | VALUE ADDED BY MANUFACTURE |                                      |           |           |
|---|------------------------|--------------------------------------|-----------|-----------|------------------------|--------------------------------------|-----------|-----------|----------------------------|--------------------------------------|-----------|-----------|
|   | Average number, 1925   | Per cent of increase or decrease (-) |           |           | Amount installed, 1925 | Per cent of increase or decrease (-) |           |           | Value, 1925                | Per cent of increase or decrease (-) |           |           |
|   |                        | 1899-1925                            | 1919-1925 | 1923-1925 |                        | 1899-1925                            | 1919-1925 | 1923-1925 |                            | 1899-1925                            | 1919-1925 | 1923-1925 |
| Miscellaneous industries—Continued.                     |                        |                                      |           |           |                        |                                      |           |           |                            |                                      |           |           |
| Musical instruments, pianos.....                        | 20,079                 | -5.7                                 | -12.5     | -9.6      | 26,912                 | 29.6                                 | -6.2      | 0.2       | \$51,885,134               | 119.3                                | -1.6      | -8.9      |
| Ammunition.....   | 7,777                  | 48.7                                 | -65.9     | -25.7     | 23,316                 | 1,743.5                              | 40.4      | 6.6       | 18,887,409                 | 237.6                                | -62.2     | -20.5     |
| Instruments, professional and scientific.               | 12,129                 | 338.0                                | -23.7     | -1.2      | 17,595                 | 613.9                                | 35.5      | 8.6       | 55,910,651                 | 1,506.6                              | 43.1      | 24.2      |
| Optical goods.....                                      | 8,642                  | 133.0                                | -41.2     | -28.2     | 11,017                 | 434.7                                | -29.6     | -17.8     | 23,657,002                 | 662.6                                | -34.0     | -33.1     |
| Mattresses and bedsprings, not elsewhere specified..... | 14,403                 | 89.6                                 | 14.8      | 2.1       | 32,840                 | 312.9                                | 40.4      | 8.3       | 48,227,610                 | 528.4                                | 39.8      | 4.7       |
| Roofing materials.....                                  | 8,310                  | 9.6                                  | -6.2      | 8.4       | 34,161                 | 87.8                                 | -13.0     | -13.7     | 44,994,184                 | 561.7                                | 35.2      | 56.1      |
| Fancy articles, not elsewhere specified..               | 14,552                 | 156.2                                | 4.9       | 7.6       | 9,071                  | 262.7                                | 4.8       | 12.0      | 40,614,464                 | 719.9                                | 29.9      | 17.1      |
| Paving materials.....                                   | 17,941                 | 652.2                                | 14.0      | -7.7      | 207,469                | 503.7                                | 8.4       | 5.2       | 57,195,396                 | 2,353.3                              | 94.7      | 22.7      |
| Stationery goods, not elsewhere specified.              | 11,399                 | 278.6                                | 1.4       | -14.4     | 10,970                 | 543.0                                | 31.5      | -4.9      | 36,700,891                 | 1,151.1                              | 21.7      | -14.6     |
| Signs and advertising novelties.....                    | 15,128                 |                                      | 46.6      | 16.5      | 12,550                 |                                      | 62.7      | 6.5       | 63,811,194                 |                                      | 138.0     | 43.1      |
| Toys and games.....                                     | 14,162                 | 330.4                                | .5        | -2.2      | 20,744                 | 558.6                                | 43.8      | 28.8      | 34,919,566                 | 1,399.4                              | 36.2      | 8.3       |
| Buttons.....  | 11,513                 | 33.8                                 | -25.4     | -2.9      | 15,840                 | 292.5                                | .9        | 3.0       | 20,085,789                 | 314.4                                | -19.2     | 2.7       |

<sup>1</sup> Figures for earlier years from which these percentages were computed are given in Tables 29, 30, and 31, Appendix B. Methods of computing the percentages are explained in prefatory note, p. 196. See also prefatory note, Appendix B, p. 124.

<sup>2</sup> Title changed to "Corn sirup, corn oil, and starch."

<sup>3</sup> Includes data for metal-working machinery.

<sup>4</sup> Includes "Window and door screens and weather strips for 1899 and 1919."

<sup>5</sup> Cereal beverages only.

<sup>6</sup> Includes "Sand-lime brick."

<sup>7</sup> Includes "Photographic apparatus," and "Motion pictures."

TABLE 44.—AVERAGE NUMBER OF WAGE EARNERS EMPLOYED,\* AND AMOUNT OF PRIMARY HORSEPOWER INSTALLED IN GEOGRAPHIC DIVISIONS AND STATES IN 1925, AND PER CENT OF INCREASE FROM 1899, 1919, AND 1923 TO 1925

| DIVISION AND STATE           | WAGE EARNERS<br>(AVERAGE NUMBER) |   |           |           | PRIMARY HORSEPOWER |   |           |           |
|------------------------------|----------------------------------|---|-----------|-----------|--------------------|---|-----------|-----------|
|                              | 1925                             | Per cent of increase or decrease (-) <sup>1</sup> |           |           | 1925               | Per cent of increase or decrease (-) <sup>1</sup> |           |           |
|                              |                                  | 1899-1925   | 1919-1925 | 1923-1925 |                    | 1899-1925   | 1919-1925 | 1923-1925 |
| UNITED STATES.....           | 8,384,261                        | 79.9  | -6.8      | -4.5      | 35,772,628         | 256.5   | 22.0      | 8.1       |
| <b>GEOGRAPHIC DIVISIONS:</b> |                                  |   |           |           |                    |   |           |           |
| New England.....             | 1,122,216                        | 32.0  | -16.8     | -10.5     | 4,349,191          | 144.0   | 15.2      | 4.8       |
| Middle Atlantic.....         | 2,491,039                        | 55.7  | -13.0     | -7.5      | 10,106,390         | 223.4   | 18.9      | 5.0       |
| East North Central.....      | 2,342,799                        | 119.1   | -1.9      | -1.9      | 10,047,780         | 321.0   | 30.7      | 10.9      |
| West North Central.....      | 452,520                          | 72.0  | -8.4      | -3.6      | 1,855,278          | 209.8   | 17.6      | 8.2       |
| South Atlantic.....          | 538,534                          | 84.9  | 3.7       | -.8       | 3,454,150          | 307.5   | 24.1      | 6.9       |
| East South Central.....      | 355,995                          | 103.6   | 9.6       | 2.5       | 1,615,183          | 215.7   | 14.5      | 10.5      |
| West South Central.....      | 265,160                          | 136.3   | -6.1      | -7.7      | 1,316,933          | 234.2   | 12.0      | 3.7       |
| Mountain.....                | 100,374                          | 128.5   | -6.9      | -5.4      | 757,974            | 522.8   | 11.6      | -2.5      |
| Pacific.....                 | 415,024                          | 238.7   | -4.1      | -1.3      | 2,269,749          | 734.8   | 30.4      | 20.3      |
| <b>NEW ENGLAND:</b>          |                                  |   |           |           |                    |   |           |           |
| Maine.....                   | 73,849                           | 6.4   | -16.1     | -11.4     | 600,787            | 132.7   | 10.3      | 5.3       |
| New Hampshire.....           | 66,658                           | -1.1  | -19.5     | -11.5     | 370,740            | 84.6  | 6.3       | 5.1       |
| Vermont.....                 | 27,563                           | -1.2  | -16.9     | -10.5     | 178,806            | 42.7  | -2.8      | .9        |
| Massachusetts.....           | 591,438                          | 35.2  | -17.0     | -11.4     | 2,013,017          | 154.9   | 17.3      | 4.2       |
| Rhode Island.....            | 120,346                          | 38.9  | -13.6     | -10.6     | 395,754            | 159.0   | 23.9      | 1.0       |
| Connecticut.....             | 242,362                          | 52.1  | -17.0     | -7.9      | 780,087            | 208.8   | 19.1      | 8.7       |
| <b>MIDDLE ATLANTIC:</b>      |                                  |   |           |           |                    |   |           |           |
| New York.....                | 1,066,202                        | 47.4  | -12.8     | -7.4      | 3,348,184          | 306.0   | 14.6      | 2.6       |
| New Jersey.....              | 425,377                          | 99.2  | -16.2     | -5.1      | 1,384,234          | 332.4   | 21.6      | 10.1      |
| Pennsylvania.....            | 999,480                          | 51.1  | -11.7     | -8.7      | 5,373,972          | 214.3   | 21.1      | 5.2       |
| <b>EAST NORTH CENTRAL:</b>   |                                  |   |           |           |                    |   |           |           |
| Ohio.....                    | 676,742                          | 120.4   | -7.1      | -3.2      | 3,482,618          | 347.0   | 20.9      | 5.3       |
| Indiana.....                 | 280,854                          | 103.1   | 1.7       | -3.5      | 1,420,989          | 337.2   | 30.0      | 3.6       |
| Illinois.....                | 622,368                          | 87.6  | -4.4      | -3.6      | 2,247,408          | 304.4   | 36.2      | 13.5      |
| Michigan.....                | 615,494                          | 231.5   | 9.6       | 2.4       | 1,887,790          | 416.4   | 68.3      | 28.3      |
| Wisconsin.....               | 247,341                          | 80.6  | -5.9      | -2.2      | 1,009,015          | 178.2   | 15.8      | 8.5       |
| <b>WEST NORTH CENTRAL:</b>   |                                  |   |           |           |                    |   |           |           |
| Minnesota.....               | 100,614                          | 57.2  | -12.2     | -3.2      | 508,021            | 183.9   | 7.9       | 10.4      |
| Iowa.....                    | 74,976                           | 70.8  | -5.8      | -3.7      | 308,016            | 193.0   | 28.6      | 9.1       |
| Missouri.....                | 194,959                          | 82.7  | .9        | -9.9      | 590,485            | 214.0   | 24.4      | 6.7       |
| North Dakota.....            | 3,261                            | 151.6   | -23.6     | -8.2      | 16,711             | 137.6   | -1.8      | -1.1      |
| South Dakota.....            | 5,151                            | 142.2   | -15.6     | .1        | 21,463             | 101.1   | 6.7       | 30.4      |
| Nebraska.....                | 27,200                           | 47.9  | -24.4     | -13.0     | 133,708            | 227.0   | 8.7       | 3.3       |
| Kansas.....                  | 46,659                           | 73.8  | -22.8     | -9.0      | 276,874            | 306.7   | 19.4      | 8.3       |
| <b>SOUTH ATLANTIC:</b>       |                                  |   |           |           |                    |   |           |           |
| Delaware.....                | 20,704                           | 1.1   | -28.4     | -10.4     | 107,391            | 167.8   | 26.2      | -4.5      |
| Maryland.....                | 125,787                          | 34.4  | -9.8      | -2.4      | 544,558            | 313.6   | 34.3      | 9.4       |
| District of Columbia.....    | 9,753                            | 59.1  | -6.6      | -7.7      | 37,508             | 267.8   | 14.0      | 17.8      |
| Virginia.....                | 112,135                          | 72.1  | -4.5      | .5        | 441,807            | 223.8   | 5.4       | 2.5       |
| West Virginia.....           | 80,700                           | 145.7   | -2.1      | -5.8      | 431,981            | 371.7   | 31.9      | 16.2      |
| North Carolina.....          | 182,234                          | 155.3   | 17.1      | 4.9       | 800,051            | 419.8   | 46.0      | 13.8      |
| South Carolina.....          | 100,144                          | 114.6   | 27.0      | 3.5       | 423,359            | 276.6   | 7.3       | 3.8       |
| Georgia.....                 | 141,173                          | 71.5  | 15.8      | 2.7       | 523,334            | 287.1   | 21.0      | 16.3      |
| Florida.....                 | 66,204                           | 88.0  | -10.4     | 1.8       | 144,161            | 298.3   | 4.1       | 4.3       |
| <b>EAST SOUTH CENTRAL:</b>   |                                  |   |           |           |                    |   |           |           |
| Kentucky.....                | 76,580                           | 50.5  | 12.3      | -2.2      | 257,965            | 80.6  | 5.2       | 2.5       |
| Tennessee.....               | 107,645                          | 137.5   | 14.7      | 1.1       | 447,529            | 244.5   | 32.5      | 14.3      |
| Alabama.....                 | 116,599                          | 123.6   | 10.0      | 6.4       | 697,998            | 303.8   | 11.3      | 8.9       |
| Mississippi.....             | 55,171                           | 109.0   | -2.7      | 1.5       | 211,691            | 222.9   | 5.7       | 19.1      |
| <b>WEST SOUTH CENTRAL:</b>   |                                  |   |           |           |                    |   |           |           |
| Arkansas.....                | 43,977                           | 42.2  | -10.3     | -1.3      | 177,011            | 125.1   | -16.4     | 7.2       |
| Louisiana.....               | 88,058                           | 116.6   | -9.9      | -7.0      | 410,298            | 117.0   | 6.2       | 1.8       |
| Oklahoma.....                | 26,333                           | 1,021.4   | -9.5      | 3.3       | 156,826            | 1,269.4   | 13.2      | 2.5       |
| Texas.....                   | 106,782                          | 179.3   | .3        | 4.3       | 572,798            | 397.6   | 30.4      | 4.5       |
| <b>MOUNTAIN:</b>             |                                  |   |           |           |                    |   |           |           |
| Montana.....                 | 14,777                           | 52.5  | -12.4     | -7.3      | 166,528            | 284.1   | 9.3       | -12.6     |
| Idaho.....                   | 15,794                           | 931.2   | 15.0      | -3.4      | 82,552             | 1,371.3   | 12.5      | 14.4      |
| Wyoming.....                 | 6,333                            | 212.3   | -3.0      | -15.7     | 28,721             | 689.2   | 68.7      | 19.9      |
| Colorado.....                | 31,967                           | 66.0  | -8.2      | 2.4       | 219,865            | 412.1   | 7.8       | 24.9      |
| New Mexico.....              | 4,629                            | 89.6  | -17.7     | -15.2     | 18,842             | 426.1   | 11.5      | 11.7      |
| Arizona.....                 | 9,127                            | 194.6   | 8.0       | 1.8       | 102,127            | 1,100.7   | -1.4      | -20.5     |
| Utah.....                    | 15,077                           | 182.0   | -19.1     | -5.2      | 124,735            | 802.8   | 35.3      | -12.0     |
| Nevada.....                  | 2,670                            | 432.8   | -13.9     | -42.8     | 14,604             | 840.9   | -26.1     | -47.8     |
| <b>PACIFIC:</b>              |                                  |   |           |           |                    |   |           |           |
| Washington.....              | 105,893                          | 237.4   | -20.0     | -5.2      | 748,110            | 762.4   | 9.9       | 26.1      |
| Oregon.....                  | 59,579                           | 314.7   | 2.4       | -4.9      | 387,749            | 549.7   | 28.1      | 20.3      |
| California.....              | 249,552                          | 225.1   | 3.0       | 1.4       | 1,133,890          | 803.9   | 49.8      | 16.7      |

<sup>1</sup> Figures for earlier years from which these percentages were computed are given in Tables 35 and 36, Appendix B. Methods of computing the percentages are explained in prefatory note, p. 196. See also prefatory note, Appendix B, p. 124.