MANUFACTURES.

MANUFACTURES.

The returns of manufactures for the censuses prior to 1850 were too defective to be considered as representing the true status of the industry, and no comparisons, therefore, are made for the early decades. The development of manufactures from 1850 to 1900, as measured by the increase in capital invested, average number of wage-earners, and value of products is represented by a series of diagrams on Plate 180.

Capital Invested.

The capital invested in manufactures in 1850, when reliable data were first obtained, was $533,245,351. Fifty years later, in 1900, the capital invested was reported as $9,846,628,564, an increase of $9,313,383,213, or nearly seventeen and one-half times the amount invested in 1850.

Diagram 1, Plate 180, represents, by the length of the bars, the capital invested in manufactures at each census from 1850 to 1900, and shows the tremendous growth from census to census, the greatest increase noted, 133.9 per cent, being from 1880 to 1890.

Diagram 1, Plate 181, represents the capital invested in each state and territory in 1900. New York is first, with $1,651,210,220; Pennsylvania second, with $1,551,548,712; Massachusetts and Illinois following with over $775,000,000 each. Nevada reported the smallest amount of capital invested in manufactures. The combined capital of the first six states shown on the diagram—New York, Pennsylvania, Massachusetts, Illinois, Ohio, and New Jersey—was $5,911,469,165, or 60.0 per cent of the total amount reported.

Diagram 2 on Plate 181 shows the capital invested by state groups in percentages of the total investment in 1900. The Middle states had the largest proportion, 40.2 per cent of the total amount invested; the Central states ranking second, with 28.0 per cent; the New England states third, with 16.2 per cent; the Southern states fourth, with 9.7 per cent; the Pacific and Western states following in order with about 3 per cent each.

The state groups or geographical divisions referred to in the discussion of manufactures, and represented in diagram 2, Plate 181, and diagram 2, Plate 182, are made up as follows:

New England states—Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut.

Middle states—New York, New Jersey, Pennsylvania, Delaware, Maryland, and District of Columbia.

Southern states—Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Indian Territory, Oklahoma, and Texas.

Central states—Ohio, Michigan, Indiana, Illinois, Wisconsin, Minnesota, Iowa, and Missouri.

Western states—Montana, Idaho, Wyoming, North Dakota, South Dakota, Nebraska, Nevada, Utah, Colorado, Kansas, Arizona, and New Mexico.

Pacific states—Washington, Oregon, and California.

Average Number of Wage-earners.

Diagram 2, Plate 180, represents the average number of wage-earners employed at each census from 1850 to 1900, and shows a large increase during each decade. They have not, however, increased as rapidly as either the capital invested or the value of products, due in part to the concentration of industries and to the increased use of improved machinery, which has enabled the manufacturer to increase the average output to each wage-earner.

Diagram 4, Plate 180, represents the proportion of the average number of wage-earners employed in manufactures to the aggregate population at each census from 1850 to 1900, and indicates that the proportion of wage-earners to population has increased during each decade, the greatest increases noted being from 1860 to 1870 and 1880 to 1890.

Diagram 1, Plate 182, represents the average number of wage-earners employed in manufactures in 1900, by states and territories. New York is first, with an average of 849,056; Pennsylvania second, with 733,834; Massachusetts third, with 497,448; and Illinois fourth, with 395,110; Nevada showing the smallest average number of wage-earners employed in manufactures, 601. The states in this diagram follow almost the same order as for capital invested, diagram 1, Plate 181.

Diagram 2, Plate 182, shows the average number of wage-earners employed in manufactures in 1900, by state groups, in percentages of the total number employed. The Middle states lead, with 37.3 per cent of the total number employed, followed by the Central states, with 27.7 per cent; the New England states,

with 17.8 per cent; the Southern states, with 12.3 per cent; the Pacific states, with 2.7 per cent; and the Western states, with 2.2 per cent.

Plate 183 represents the proportion of average number of wage-earners employed in manufactures to total population in 1900, by states, and is of interest in showing the proportion of the population in each state employed in this branch of industry. Rhode Island, with 23.1 per cent, or over one-fifth of its total population engaged in manufactures, is first; Connecticut, with 19.5 per cent, second; Massachusetts, with 17.7 per cent, third; New Hampshire, with 17.1 per cent, fourth; and New Jersey, with 12.8 per cent, fifth. Delaware, New York, Pennsylvania, and Maine follow in order, each with over 10 per cent. The remaining states shown on the diagram reported less than 10 per cent of their population employed in manufactures, North Dakota, with less than 1 per cent, having the lowest percentage.

Value of Products.

Diagram 3, Plate 180, shows, by the length of the bars, the value of products at each census from 1850 to 1900, the black portion of the bar representing the cost of materials. The value of products has advanced from $1,019,106,616 in 1850 to $13,039,279,566 in 1900, a proportional increase much less than that shown for capital invested. The greatest increase reported for a single decade was $4,002,858,092, or 74.5 per cent, from 1880 to 1890, the increase from 1890 to 1900 being $3,666,842,283, or 39.1 per cent.

Plate 184 represents the value of products of manufactures, by states and territories, from 1850 to 1900, at each census for which these values could be obtained, arranged in the order of the value of products of the specified states in 1900. New York is first, with $2,175,726,900, over $340,000,000 more than Pennsylvania, the second state in order. The diagram shows very effectively the great increase in nearly every state, from census to census, and the enormous value of the products of New York and Pennsylvania as compared with Utah, South Dakota, North Dakota, and other states.

Plate 185 is a map showing the value of products of manufactures per square mile at the Twelfth Census, prepared by dividing the value of the gross product in each county by its land area. The counties were then grouped according to the value of their products in six divisions. Those counties having products valued at less than $1,000 per square mile were left uncolored, and the counties in the five higher divisions were shaded to agree with the legend. The heaviest shade (v), indicating those counties in which the products of manufactures were $100,000 and over per square mile, is found principally in Massachusetts, Connecticut, Rhode Island, southern New York, New Jersey, and Pennsylvania, and marks the regions where manufactures was the most important industry. Shades III and IV, indicating values of products from $10,000 to $25,000 and from $25,000 to $100,000 per square mile, are found principally in West Virginia, Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, and Iowa. The location of an important city in nearly every portion of the country is marked by the dark patch of color representing its manufactures and covering the county in which it is located. As similar maps have not been prepared for previous censuses, it is impossible to compare what might be termed the advance of the frontier line of manufactures, but, as estimated by the movement of the center of manufactures, this line has evidently progressed south and west, since 1850, from its early home in the New England and Middle states. A comparison of this map with Plate 13, representing the density of population per square mile in 1900, brings out the fact that the most densely populated areas show the greatest value of products of manufactures per square mile.

Plate 186 represents the value of products in seventeen states leading in manufactures, from 1870 to 1900, their position, and the changes in rank which have taken place during the different decades. New York has been first since 1870, and Pennsylvania second. Massachusetts, fourth in 1900, was third in 1870 and 1880, but in 1890 was displaced by Illinois, which in 1870 was sixth, advancing to fourth place in 1880 and third in 1890. Ohio, fourth in 1870, was fifth in 1880, which position it retained in 1900. Missouri, fifth in 1870, fell to eighth place in 1880, but advanced to seventh in 1890, which position it still held in 1900. New Jersey, seventh in 1870, advanced to sixth in 1880, and retained this position in 1900. Connecticut, eighth in 1870, advanced to seventh place in 1880, dropped to tenth in 1890, and to eleventh in 1900. The remaining states also show great changes in rank from census to census.

Plate 187 represents, by the black and the white bars, the value of products of manufactures and agriculture per capita of the population in 1900, arranged in the order of the per capita value of products of manufactures, and brings out clearly the relative value of products of these two industries, by states and territories. Rhode Island is first, with the greatest per capita value of manufactures, Connecticut, Massachusetts, New Jersey, and New York following in order. It will be noted that generally the state with a large per capita value of manufactures had a small per capita value of agriculture. Only fifteen states and territories show greater per capita values of agriculture than of manufactures.

Plate 188 represents the per capita value of products of manufactures and agriculture for 1890. A comparison of the two diagrams, Plates 187 and 188, shows that each state and territory represented, except two, Massachusetts and Oregon, has increased its per capita value of products of manufactures, and that each state

and territory shown has increased its value per capita of agricultural products.

Plate 191 represents the value of all manufactured products and the proportional value of fourteen specified groups from 1880 to 1900. This diagram is based on the values given in the comparative summary of groups of industries (Twelfth Census, Volume VII, table LVIII, page cxlv). The value of the total products of the fourteen groups is represented by the entire area of the circles, and the proportion in each group by the size of the sectors. The increases for the groups iron and steel and their products, chemicals and allied products, and metals and metal products other than iron and steel, from census to census, are especially noticeable.

Diagram 1, Plate 192, represents, by the black and the white bars, the value of products of manufactures in 1900 and 1890, for fifteen groups of industries, thus comparing graphically the value of products and the increase in each group. Food and kindred products, iron and steel and their products, textiles, and metals and metal products other than iron and steel, especially, show large increases. In total value of products, food and kindred products is first, with $2,277,702,010; iron and steel and their products second, with $1,793,490,908; and textiles third, with $1,637,484,484.

Plate 189 represents the proportion of urban to total products of manufactures, by states and territories, in 1900, and shows that urban manufactures comprised over 90 per cent of the total value of products in Rhode Island, Massachusetts, Illinois, Connecticut, and New York, and over 80 per cent in Nebraska, Ohio, Missouri, Indiana, Kansas, and Colorado. In only fourteen of the states and territories represented was the value of urban products less than 50 per cent of the total.

Diagram 1, Plate 190, represents the value of products of manufactures in the leading manufacturing cities in 1900. The enormous production of New York, Chicago, and Philadelphia, as compared with that of the other cities of the United States, is clearly shown, as well as the relative importance of these cities in the value of their manufactured products.

Near large manufacturing cities, but outside of their corporate limits, are located many manufacturing establishments which are practically a continuation of the manufacturing industries of the cities, and in order to give some idea of the amount of manufactures in one hundred counties in which such cities are located, these counties were grouped, and the capital, wages, and value of products from 1860 to 1900 represented by diagram 2, Plate 190. The tremendous increase in capital invested, from $1,715,376,089 in 1880 to $4,214,105,971 in 1890, and to $6,057,636,400 in 1900; and the increase in value of products from $3,578,959,287 in 1880 to $6,399,356,466 in 1890, and to $8,196,331,427 in 1900, are well brought out.

Diagram 3, Plate 190, represents the value of products of urban and rural manufactures, by state groups, for 1900, and shows, first, the great value of products in the Middle and Central states, and second, the large proportion which the urban formed of the total in these states.

Diagram 2, Plate 192, represents the capital, wages, and value of products for urban and rural districts in 1900, and shows graphically the relative importance of urban and rural manufactures, the urban capital being 79.2 per cent of the total, the wages 83.1 per cent, and the value of products 81.1 per cent. Taken collectively, capital, wages, and value of products of urban manufactures were more than four times the rural.

Center of Manufactures.

In order to ascertain the position of the center of manufactures at each census from 1850 to 1900, as shown on Plate 179, the gross value of products was distributed by square degrees, and the remainder of the computations made as in computing the center of population. (For full description of the method of computing the center see page 37.) The center of manufactures, therefore, is really the center of the value of its gross products, and as the value of products is representative of the industry, so the movement of the center of manufactures, during each decade, can be considered as the movement of the entire industry.

Plate 179 is a sketch map on which is indicated, by symbols, the location of the center of manufactures at each census from 1850 to 1900, and the center of population from 1790 to 1900, bringing out clearly the steady westward movement of both manufactures and population.

The center of manufactures in 1850 was in Pennsylvania, 41 miles northwest of Harrisburg, and the center of population at the same census was located 23 miles southeast of Parkersburg, in the present state of West Virginia, 240 miles southwest of the center of manufactures. In 1860 the center of population had advanced 81 miles nearly due west, while the center of manufactures had moved in a westerly direction 100 miles. From 1860 to 1870 the center of population moved nearly 42 miles north of west, while the center of manufactures moved slightly west of north 18 miles. From 1870 to 1880 the center of population moved south and west 58 miles, while the center of manufactures moved north and west 30 miles. From 1880 to 1890 the center of population moved slightly north of west 48 miles, while the center of manufactures moved south of west about twice that distance. From 1890 to 1900 the center of population moved almost directly west 14 miles, while the center of manufactures moved in a parallel line nearly 40 miles, or over twice the westward movement of the center of population. In general, the center of manufactures has followed the center of population in its westward movement, but not always along parallel lines, the greatest variations

noted being from 1860 to 1870 and 1870 to 1880. From 1850 to 1860, 1880 to 1890, and 1890 to 1900 the center of manufactures made a greater western advance than the center of population. The total westward movement of the center of manufactures from 1850 to 1900 was 255 miles, and the westward movement of the center of population during the same period 243 miles, indicating that the movements of manufactures and population are closely related.

Selected Industries.

Plate 193 represents the value of products of certain manufacturing industries at each census, from 1850 to 1900, for which returns were available, arranged in the order of their values in 1900, and shows graphically the increase in each industry during the different decades, displaying a most remarkable growth in every industry represented. The value of iron and steel products advanced from $207,208,696 in 1870 to $804,034,918 in 1900, while slaughtering and meat packing increased $773,580,791 since 1850, when the value of its products was $11,981,642. Lumber and timber products also show a great increase, reporting $60,413,187 in 1850 and $566,832,984 in 1900.

The series of diagrams presented on Plates 198 to 203, inclusive, represent, by the length of the bars, the value of products of the leading manufacturing industries in each state and territory reporting products of considerable value in 1900. These diagrams are supplemented by a series of small maps, or cartograms, Plates 204 to 207, inclusive, showing, by shades of color, in four groups described at the bottom of the plate, the value of products of the most important manufacturing industries per square mile of land area, as reported at the Twelfth Census, thus comparing value of products with area. This method, while not presenting exactly the importance of each industry in each state and territory, is the only practicable means of representing the density of manufactures and the geographical location of the great centers of production.

LUMBER AND TIMBER PRODUCTS.

Plate 194 represents the value of lumber and timber products at each census, from 1850 to 1900, for those states in which the industry was of importance, the states being arranged in the order of the value of products in 1900. The diagram indicates the growth of the industry in each state from census to census, and the great value of production in the states of Wisconsin, Michigan, and Minnesota, as compared with the other states. It also shows the increase of this industry from 1880 to 1890 in Wisconsin, Minnesota, and Washington, and in Michigan from 1860 to 1890. Michigan's decrease of $28,831,449 in value of products, from 1890 to 1900, almost equaled the gain of $30,672,041 from 1880 to 1890.

Plate 195 shows, by the length of the bars, the value of products in the three branches of the lumber industry—logging camps, sawmills, and planing mills—by states and territories, for 1900. Michigan leads with $20,462,235 in the value of products of logging camps, and with $42,517,495 in sawmills, while New York, with $33,149,801, leads in the value of planing-mill products. Diagram 2 represents for logging camps, sawmills, and planing mills the proportion which the cost of materials bears to the gross product, and the relative value of the gross product of each class.

Plate 196 is a map showing, in shades of color, in four groups, the value of lumber and timber products per square mile of land area in each county, at the Twelfth Census, and may be termed a "deforesting" map of the United States, showing, as it does, where forests have been leveled to produce the 35,000,000 feet of lumber reported in 1900. Wisconsin, Michigan, Minnesota, Pennsylvania, and Washington, the leading lumber states, have the largest areas of the heaviest shade. The map also shows that, with the exception of the Pacific states, the principal regions of production were east of the ninety-fifth meridian.

Diagram 1, Plate 202, represents the value of lumber and timber products, by states and territories. Wisconsin is first, with a valuation of $57,634,816; Michigan second, with $54,290,520; Minnesota, Pennsylvania, and Washington following in order, with over $30,000,000 each. The Central states reported lumber and timber products with a value of $224,421,780, or 39.6 per cent of the total.

Cartogram 3, Plate 207, shows, in four shades of color, the value of lumber and timber products per square mile in each state and territory, the state being taken as the unit. The heaviest, or fourth shade, indicating a value of products of $1,000 or more per square mile, is found only in Wisconsin and New Hampshire. The entire eastern half of the United States is covered by the third and fourth shades, showing that the principal regions of production, with the exception of Washington and Oregon, were in the East, the production in the arid and semiarid states being very small.

TEXTILES.

Diagram 4, Plate 198, represents the value of products of the textile industry for each state in which it was of importance. Massachusetts, with products valued at $213,612,791, is first; Pennsylvania, with $157,333,201, is second; New York, Rhode Island, New Jersey, Connecticut, New Hampshire, South Carolina, North Carolina, Maine, and Georgia following in order, each of these states reporting products with a valuation of over $20,000,000. The value of products for each of the remaining states appearing in the diagram was less than $10,000,000. The great importance of the textile industry in the New England and Middle states is shown by the immense value of products reported in

1900 for those divisions. The returns also indicate that this industry has become one of the most prominent in the Southern states.

Cartogram 1, Plate 205, indicates, by shades of color, the value per square mile of textile products in each state and territory. The map shows that the New England states (except Maine and Vermont), Pennsylvania, New York, New Jersey, Delaware, and South Carolina had the greatest value of products and that the textile industry was practically confined to the region east of the Mississippi river.

COTTON.

Plate 197—cotton production, exports, and consumption from 1850 to 1900—represents, by the total area of the circles, the amount produced at each census, and by the size of the sectors, the proportion exported and the proportion used for northern and southern consumption. The increase in production during each decade, except from 1860 to 1870, and the rapid increase in the amount consumed at home, due principally to the increase in southern consumption, is especially noticeable. Southern consumption increased 168.7 per cent from 1890 to 1900, while northern consumption, during the same period, increased only 9.3 per cent. The falling off in production and consumption of cotton from 1860 to 1870, due to the Civil War, is clearly indicated.

COTTON GOODS.

Diagram 5, Plate 198, represents the value of cotton goods in those states leading in their manufacture. Massachusetts leads with a value of products nearly four times as great as that of South Carolina, the second state in rank. North Carolina, Rhode Island, Pennsylvania, and New Hampshire follow in the order given, each reporting products of cotton manufactures valued at more than $20,000,000.

Cartogram 2, Plate 205, shows, in four shades of color, the value of products of manufactures of cotton goods per square mile in each state and territory. The heaviest shade, indicating the greatest valuation per square mile, covers New Hampshire, Massachusetts, Connecticut, and Rhode Island only. The next shade, representing a valuation from $100 to $1,000 per square mile, indicates that this industry was also of great importance in the Middle and Southern states.

WOOLEN GOODS, WORSTED GOODS, WOOL HATS, AND SHODDY.

Diagram 1, Plate 199, represents the value of products of the manufacture of woolen goods, worsted goods, wool hats, and shoddy in the states leading in their manufacture, and brings out clearly the great value of wool manufactures of Massachusetts ($73,536,659), Pennsylvania ($50,053,698), and Rhode Island ($39,187,522), as compared with the remaining states. New York, Maine, Connecticut, and New Jersey, in the order named, were the only additional states reporting products valued at more than $12,000,000.

Cartogram 3, Plate 205, presents, in four shades of color, the value per square mile of the products of wool manufactures represented in diagram 1, Plate 199, and shows that the greatest value of products, as compared with area, was in Massachusetts, Rhode Island, Connecticut, New Jersey, and Pennsylvania, the remaining New England and Middle states showing smaller values per square mile.

HOSIERY AND KNIT GOODS.

Diagram 2, Plate 199, represents the value of products of hosiery and knit goods in the principal producing states, New York being first with $35,886,048, and Pennsylvania second with $21,896,063. No other state approached these two in value of products.

Cartogram 5, Plate 205, shows, in shades of color, the value of hosiery and knit goods products per square mile, the entire area of heavy production being confined to the New England and Middle states.

SILK AND SILK GOODS.

Diagram 3, Plate 199, represents the value of products of manufactures of silk and silk goods in the states reporting products valued at more than $400,000. New Jersey is first, with a value of $39,966,662; and Pennsylvania second, with $31,072,926, each of these states having a valuation more than double that of New York ($12,706,246), the next state in rank. The value of products in the four states—New Jersey, Pennsylvania, New York, and Connecticut—formed 89.6 per cent of the total value of silk and silk goods reported in 1900.

Cartogram 4, Plate 205, shows, in shades of color, the value of products of silk and silk goods per square mile, and indicates that the greatest values were in Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania, the value per square mile in the remaining states being very small.

MEN'S AND WOMEN'S CLOTHING (FACTORY PRODUCT).

Diagram 4, Plate 199, represents the value of men's and women's clothing (factory product) in the states leading in clothing manufacture. The immense value of the product of New York, $233,370,447, as compared with that of other states, is very effectively shown. Illinois with $47,153,491, Pennsylvania with $35,083,623, Ohio with $24,366,595, Maryland with $20,013,401, Massachusetts with $15,032,604, and Missouri with $12,049,989, follow New York in the order named, and were the only states reporting a value of products of more than $10,000,000.

Diagram 5, Plate 199, compares graphically the values of men's and of women's clothing (factory product)

in twenty-two cities, the uncolored bar representing the value of men's clothing and the black bar that of women's, and shows the relative importance of each branch of this industry for the cities specified. The tremendous value of the production of New York, as compared with that of the other cities, is well brought out. The value of women's clothing exceeded that of men's in only two of the cities represented, Cleveland and Newark. In New York they were nearly equal, but in the remaining cities the value of men's clothing largely exceeded that of women's, Rochester, Milwaukee, Utica, Louisville, St. Joseph, St. Paul, and Kansas City, Missouri, reporting little or no manufacture of women's clothing.

Diagram 6, Plate 199, presents, in the same manner as diagram 5, the relative importance of men's and women's clothing (factory product) in the thirteen states leading in their manufacture. The value of manufactures of men's clothing exceeded that of women's in every state represented. A comparison of the two diagrams shows that the principal city in each of these states manufactured nearly the entire product.

Cartogram 6, Plate 205, shows, in shades of color, the value of products per square mile of the manufactures of men's and women's clothing (factory product), and gives a general idea of the geographical location of the centers of production of the clothing industry. Massachusetts, New York, and Maryland show the heaviest production as compared with area; Pennsylvania, Ohio, and Illinois, with a larger value of products than Massachusetts or Maryland, falling in the next group, owing to their large areas.

FLOURING AND GRIST MILL PRODUCTS.

Diagram 1, Plate 200, represents the value of flouring and grist mill products for those states and territories leading in this industry. Minnesota is first, with a valuation of $83,877,709, which is almost double that of the second state, New York ($42,796,340). Ohio, Pennsylvania, Illinois, Indiana, Missouri, and Wisconsin follow closely, each reporting products valued at more than $25,000,000.

Cartogram 1, Plate 204, shows, in shades of color, the value of flouring and grist mill products per square mile. The wide distribution of the heavy shades indicates that this industry was of importance in nearly every state and territory, only eight falling in the lowest group. The greatest values per square mile were found in the New England, Middle, and Central states.

SLAUGHTERING AND MEAT PACKING.

Diagrams 2 and 3, Plate 200, represent the value of products of slaughtering and meat packing in twenty-seven states and thirteen cities, and compare effectively the value of products of each of the thirteen cities with that of the state in which it is located, showing, also, the relative importance of this industry in each city. The value of products reported for Chicago and East St. Louis was 98.7 per cent of the total for the state of Illinois; that of Kansas City, Kansas, was 95.3 per cent of the total for the state of Kansas; and that of South Omaha was 95.2 per cent of the total for the state of Nebraska. The great value of products of Illinois and Chicago, as compared with other states and cities, is clearly presented.

Cartogram 3, Plate 204, shows, in shades of color, the value of slaughtering and meat-packing products per square mile. The darkest shade, indicating the greatest value of products as compared with area, covers the states of Massachusetts, Rhode Island, New York, New Jersey, Indiana, and Illinois, while Kansas, Nebraska, and Missouri were thrown into the next lower group by their large areas.

CHEESE, BUTTER, AND CONDENSED MILK.

Diagram 1, Plate 198, represents the value of products of cheese, butter, and condensed milk in the states leading in this industry. New York is first, with $26,557,888 and Wisconsin second, with $20,120,147. Iowa with $15,846,077, Illinois with $12,879,299, and Pennsylvania with $10,290,006, were the only additional states reporting products valued at more than $10,000,000.

Cartogram 2, Plate 204, shows, by shades of color, the value of products of cheese, butter, and condensed milk per square mile in each state and territory. The heavy shade covering the New England states (except Maine and Rhode Island), New York, Pennsylvania, Delaware, Illinois, Wisconsin, Minnesota, and Iowa indicates that this industry was of importance in these states.

MANUFACTURED ICE.

Diagram 3, Plate 198, represents the value of manufactured ice in the ten states leading in its manufacture. This industry naturally had its inception in the South, but has extended to the North, Pennsylvania reporting in 1900 the greatest value of products, $2,038,504. Texas is second, with $1,184,332; New York third, with $1,051,372; and Illinois fourth, with $990,827. Of the ten leading states only four are in the South.

ALCOHOLIC LIQUORS.

Diagram 2, Plate 198, represents the value of alcoholic liquors (distilled, malt, and vinous) in the states leading in their manufacture. New York is first, with products valued at $58,282,253; Illinois second, with $57,955,162, the difference between them being slight. Pennsylvania, with $34,574,158, is third, and far below New York and Illinois in the value of its liquor products. Ohio, Indiana, and Wisconsin follow in the order named, each reporting liquors valued at more than $22,000,000.

Cartogram 4, Plate 204, shows, by shades of color,

the value per square mile of alcoholic liquor products. The heavy shade, indicating the areas in which the value of products was greatest and the industry most important, covers Massachusetts, Rhode Island, New York, New Jersey, and Illinois. New Hampshire, Connecticut, Pennsylvania, Delaware, Maryland, Ohio, Indiana, Wisconsin, Missouri, and Kentucky fall in the group with products valued at from $100 to $1,000 per square mile.

IRON AND STEEL.

Diagram 1, Plate 201, represents the value of iron and steel products (blast furnaces, rolling mills, and forges and bloomeries) in the nineteen states leading in this industry. Pennsylvania is first, with products valued at $434,445,200, or 54.0 per cent of the total valuation; Ohio is second, with $138,935,256; and Illinois third, with $60,303,144; the value of products of these three states forming 78.8 per cent of the total. The diagram brings out the great value of products in Pennsylvania as compared with other states.

Cartogram 1, Plate 207, shows, in shades of color, the value of iron and steel products (blast furnaces, rolling mills, and forges and bloomeries) per square mile, and indicates the regions in which this industry was of the greatest importance. The states showing the greatest value of products per square mile are Massachusetts, New Jersey, Pennsylvania, Delaware, Ohio, and Illinois. The remaining states in which this industry was important, with products valued at $100 to $1,000 per square mile, are Connecticut, New York, Indiana, Michigan, Wisconsin, Maryland, Virginia, West Virginia, Kentucky, Tennessee, and Alabama.

COKE.

Diagram 2, Plate 201, represents the value of products of coke in the eight states leading in its manufacture. The total output of coke at the Twelfth Census was valued at $35,585,445. Pennsylvania, the state leading in its manufacture, reported products valued at $22,282,358, or 62.6 per cent of the total. Alabama, West Virginia, Colorado, Virginia, and Tennessee follow in the order of the value of their products, these states, with Pennsylvania, reporting over 91.6 per cent of the total for the United States.

Cartogram 2, Plate 207, shows, in shades of color, the geographical distribution of this industry. The areas of the darkest shade, indicating the greatest value of products per square mile, $100 to $1,000, are confined to the states of Pennsylvania and West Virginia. Virginia, Tennessee, Alabama, and Colorado are the only remaining states showing coke products valued at more than $10 per square mile.

CLAY PRODUCTS.

Diagram 3, Plate 201, represents the value of clay products (brick, tile, pottery, terra cotta, and fire-clay products), by states and territories. The statistics of the Twelfth Census cover all the wares known as clay products—that is, those in which the essential raw material is clay. This industry is an extensive one, products having been reported from nearly every state and territory. Ohio, with products valued at $16,480,812; Pennsylvania, with $14,081,844; New Jersey, with $10,786,673; New York, with $8,073,769; and Illinois, with $7,224,915, were the only states reporting products valued at more than $7,000,000.

Cartogram 5, Plate 204, shows, in shades of color, the geographical distribution of the centers of the manufacture of clay products, the greatest values per square mile being shown in Massachusetts, Connecticut, New York, New Jersey, Pennsylvania, Maryland, Ohio, Indiana, and Illinois. The wide distribution of the darker shades indicates the extensive character of this industry.

GLASS.

Diagram 4, Plate 201, represents the value of products of glass manufacture, including glass cutting, staining, and ornamenting. The states most prominent in this industry were Pennsylvania, with products valued at $23,274,113; Indiana, with $14,757,883; New York, with $6,316,214; New Jersey, with $5,345,425; Ohio, with $4,789,952; and Illinois, with $3,992,736, these six states reporting more than nine-tenths of the total production.

Cartogram 6, Plate 204, shows, in shades of color, the geographical distribution of the value of products of glass manufacture, the shade indicating the greatest value of products being confined to the states of New York, New Jersey, Pennsylvania, Ohio, and Indiana.

LEATHER.

Diagram 5, Plate 201, represents the value of products of leather (tanned, curried, and finished) in the states leading in its manufacture. Pennsylvania is first, with a value of products of $55,615,009. Massachusetts, with $26,067,714; New York, with $23,205,991; Wisconsin, with $20,074,373; and New Jersey, with $13,747,155, were the only additional states reporting products valued at more than $12,000,000.

Cartogram 5, Plate 206, shows, in shades of color, the value of leather products per square mile. The darkest shade, indicating the greatest value of products as compared with area, covers Massachusetts, Pennsylvania, New Jersey, and Delaware. This industry was widely extended and was of importance in a number of states of the New England, Middle, and Central divisions, as indicated by the area covered by the heavier shades.

BOOTS AND SHOES.

Diagram 6, Plate 201, represents the value of manufactures of boots and shoes (factory product) in certain

states. Massachusetts leads, with products valued at $117,115,243; New York is second, with $25,585,631; New Hampshire third, with $23,405,558; and Ohio fourth, with $17,920,854; Pennsylvania, Maine, Illinois, and Missouri following in the order named, each reporting products valued at more than $10,000,000. The immense value of boots and shoes manufactured in Massachusetts, as compared with other states, is effectively shown.

Cartogram 6, Plate 206, shows, in shades of color, the value of boots and shoes (factory product) per square mile. The darkest shade, indicating the greatest value of products per square mile, covers Massachusetts and New Hampshire only. Maine, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, Delaware, Maryland, Ohio, Illinois, and Missouri are in the group having products valued at from $100 to $1,000 per square mile. The value of products, as compared with area, in the South and West was very small.

AGRICULTURAL IMPLEMENTS.

Diagram 2, Plate 202, represents the value of products of agricultural implements in the states leading in their manufacture. Illinois is first, with products valued at $42,033,796, more than treble those of Ohio ($13,975,268), the second state in point of production. New York, Wisconsin, Indiana, and Michigan follow in order, each reporting products valued at more than $6,000,000. These six states reported in 1900, 86.1 per cent of the total value of products.

Cartogram 4, Plate 207, shows, by shades of color, the value of manufactures of agricultural implements per square mile and marks the regions in which the value of production, as compared with area, was greatest. The industry was most important in New York, Ohio, Indiana, Michigan, Wisconsin, and Illinois, these being the only states which reported in 1900 products valued at more than $100 per square mile.

CARS (CONSTRUCTION AND REPAIRS).

Diagram 3, Plate 202, represents the value, by states and territories, of steam and street railroad cars (construction and repairs). Pennsylvania is first, with a product of $63,570,599; Illinois second, with $42,541,876; New York third, with $24,937,964; Indiana fourth, with $19,248,999; and Ohio fifth, with $17,704,588, the value of products for these five states being 51.6 per cent of the total for the United States.

Cartogram 6, Plate 207, shows, in shades of color, the value of products of manufactures of cars per square mile. The darkest shade, indicating the greatest value of products as compared with area, is found only in Pennsylvania and Delaware. The wide distribution of the heavier shades indicates the extent of the industry, only a few Western states and territories showing a production of less than $10 per square mile.

CARRIAGES AND WAGONS.

Diagram 4, Plate 202, represents the value of products of the manufactures of carriages and wagons in the states in which this industry was of importance. Ohio leads with products valued at $15,919,173, closely followed by New York, with $13,068,385; Indiana, with $12,742,243; and Michigan, with $11,205,602, the only states reporting products valued at more than $10,000,000.

Cartogram 5, Plate 207, shows, in shades of color, the value of manufactures of carriages and wagons per square mile. The dark shade, indicating the states in which this industry was most prominent, covers the southern New England states, and New Jersey, Delaware, Maryland, and the Lake states.

CHEMICALS AND ALLIED PRODUCTS.

Diagram 1, Plate 203, represents the value of chemicals and allied products in those states reporting products valued at over $200,000. New York leads with $40,998,911; followed by Pennsylvania with $32,154,223; New Jersey with $26,763,856; Ohio with $13,307,431; and Illinois with $12,422,227. These were the only states reporting products valued at over $10,000,000.

Cartogram 2, Plate 206, shows, by shades of color, the value per square mile of chemicals and allied products, and marks, by the darkest shade, the states in which their manufacture was of greatest value as compared with area. Massachusetts, Rhode Island, and New Jersey were the only states showing products valued at $1,000 or more per square mile.

PETROLEUM REFINING.

Diagram 2, Plate 203, represents the value of products of petroleum refining in the five states for which the production was shown separately. Pennsylvania leads with $34,977,706, New Jersey, New York, Ohio, and California following in order. The value of products in these five states was $100,906,544, or 81.4 per cent of the total amount reported.

Cartogram 1, Plate 206, shows, in shades of color, the value of products of petroleum refining per square mile. The heavy tints, indicating the regions in which the industry was of greatest importance, cover only four states—New Jersey, New York, Pennsylvania, and Ohio—showing that the principal production was concentrated in a comparatively small area.

PAPER AND WOOD PULP.

Diagram 3, Plate 203, represents the value of products of paper and wood pulp manufactures in the states leading in this industry. The five states reporting products valued at more than $10,000,000 each, were New York, with $26,715,628; Massachusetts, with $22,141,461; Maine, with $13,223,275; Pennsylvania, with $12,267,900; and Wisconsin, with $10,895,576.

Cartogram 3, Plate 206, shows, by shades of color, the value per square mile of paper and wood pulp manufactures, the heavy shades, found principally in the New England, Middle, and Lake states, marking the area in which this industry was of greatest importance.

PRINTING AND PUBLISHING.

Diagram 4, Plate 203, represents the value of the combined products of the three classes of printing and publishing—newspapers and periodicals, book and job, and music—for those states and territories reporting products valued at more than $450,000. The five states reporting products valued at more than $20,000,000 were New York ($95,232,051), Illinois ($39,449,032), Pennsylvania ($36,455,629), Massachusetts ($29,372,314), and Ohio ($20,391,868), their combined values forming 63.5 per cent of the amount reported for the United States.

Cartogram 4, Plate 206, shows, by shades of color, the value of products of printing and publishing per square mile, the heaviest shade indicating those states in which the value of products was greatest as compared with area. Massachusetts, Rhode Island, and New York were the only states reporting products valued at $1,000 or more per square mile. The wide distribution of the heavier shades indicates the extent of the industry and shows that it was of great importance in nearly every state and territory, only nine states and territories reporting products valued at less than $10 per square mile.