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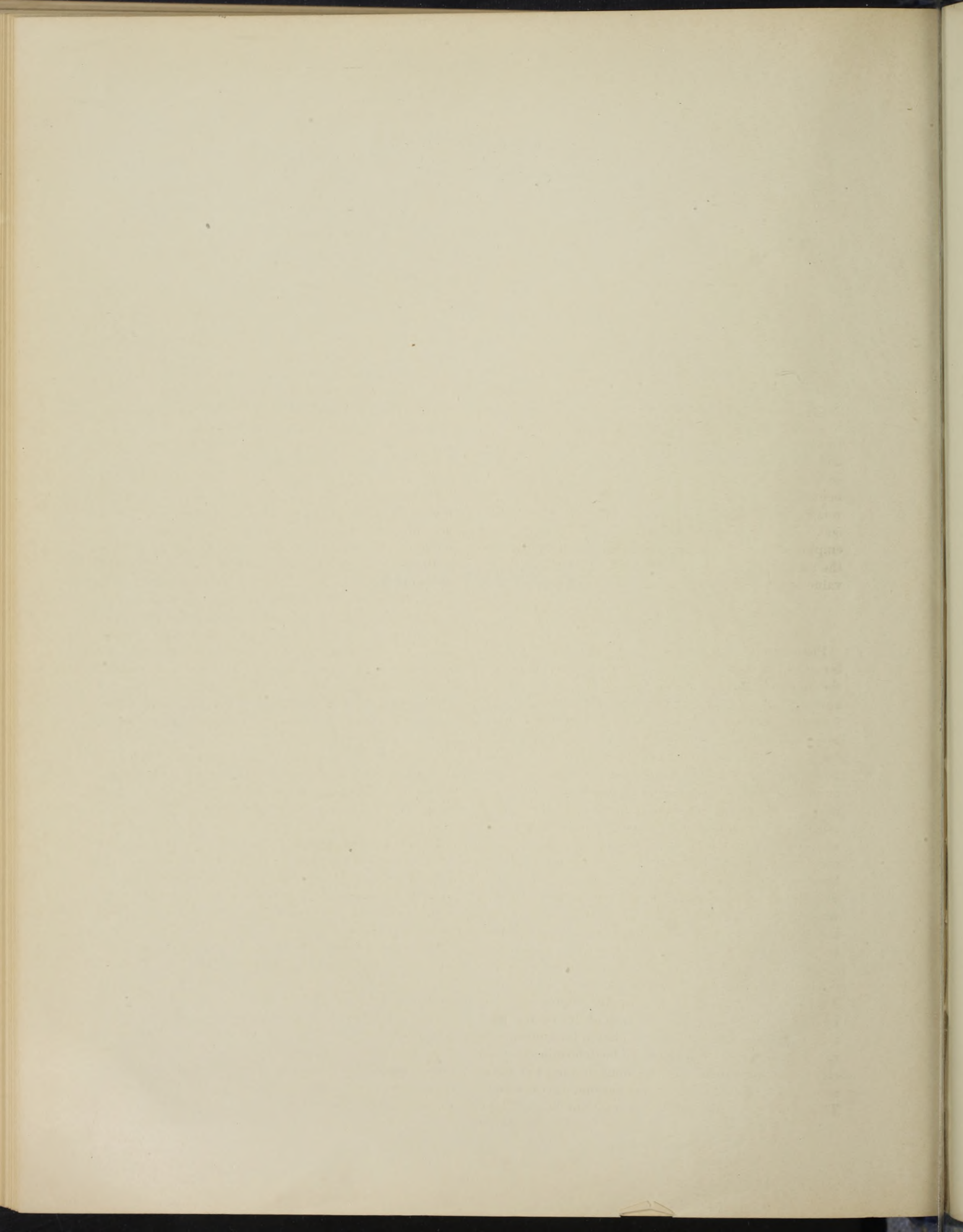
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AGRICULTURE.

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## AGRICULTURE.

The number of persons 10 years of age and over in the United States engaged in gainful occupations, as shown by the Twelfth Census, was 29,287,070, and of this number 10,438,219, or 35.6 per cent, were following agricultural pursuits; 24.3 per cent were employed in manufacturing and mechanical pursuits; 19.5 per cent in domestic and personal service; 16.3 per cent in trade and transportation; and 4.3 per cent in professional service. The capital invested in agriculture for continental United States, as reported at the Twelfth Census, was \$20,439,901,164, and in manufactures, \$9,831,486,500. Judged, therefore, by the number of persons employed and the capital invested, agriculture was still the most important branch of industry, although in the value of products it was second to manufactures.

### CENTERS OF AGRICULTURE.

Plate 126 is a map showing the location of the center of population from 1790 to 1900, and the centers of the number of farms, farm values, total area in farms, agricultural products, and manufactures, from 1850 to 1900, and may be designated as the chart of the progress of the nation, representing, as it does, the westward movement of population, agriculture, and manufactures. The method of computing the center of the number of farms was practically the same as that used in determining the center of population, described on page 37. The number of farms in a given census year was first distributed by "square degrees," as the areas included between consecutive meridians and parallels have been designated. The farms in each square degree were assumed to be located at its center, except in cases where this assumption was manifestly untrue, as, for instance, where a part of a square degree was occupied by a large body of water, a desert, or a mountain range. In these cases the position of the center of the number of farms was estimated as nearly as possible. The number of farms in each square degree was then multiplied by the shortest distance of its center from the assumed parallel of latitude, chosen for convenience near the latitude of the center to be determined (in this calculation 40° north), and the sums of the products or moments north and south of that parallel were obtained. Their difference, divided by the total number of farms

in the country, gave, as a distance from the assumed parallel, the latitude of the center of the number of farms. In a similar manner the east and west moments were obtained by the use of an assumed meridian (90° west of Greenwich in this computation), and from them the longitude of the center was calculated. The locations of the other centers shown on this map were obtained by a similar process.

The center of the number of farms in 1850 was located on the Ohio river, between Ohio and the present state of West Virginia, at identically the same point as the center of corn production. From this position the center of the number of farms moved 110 miles in a northwesterly direction, and in 1860 reached a point 15 miles southeast of Xenia, Ohio. From 1860 to 1870 the center advanced 30 miles almost directly south to a position in Brown county, 31 miles northeast of Cincinnati, Ohio. From 1870 to 1880 the distance covered was 35 miles in a southwesterly direction across the Ohio river into Kentucky to a point south of Newport. From 1880 to 1890 its progress of 100 miles was nearly due west into Indiana. From 1890 to 1900 it moved in a southwesterly direction 120 miles to a point near Fairfield, Wayne county, Illinois.

The center of the value of farm property, which in 1850 was located north of Clarksburg, in the present state of West Virginia, in 1860 had advanced south and west to a point northwest of Portsmouth, Ohio. From 1860 to 1870 its movement was northwest to a position a few miles northwest of Urbana, Ohio. From 1870 to 1900 it moved west in a straight line across Indiana and Illinois to a point about 10 miles north of Jacksonville, Illinois. Its greatest westward movement, and the greatest advance made for any decade, approximately 180 miles, was from 1880 to 1890.

The center of the number of acres of farm land, or total area in farms, in 1850 was located in Breathitt county, Kentucky, the farthest south of any center shown on the map. From 1850 to 1870 it moved to a point about 50 miles west of Louisville. From 1870 to 1880 it advanced in a westerly direction to a position 20 miles northwest of Evansville, Indiana. From 1880 to 1890 it moved northwest to a point near Alton, Illinois, its next movement being southwest to a location about 48 miles southwest of Jefferson City, Missouri.



The other agricultural centers have moved in various erratic courses, but always in a general westerly direction, except the center of oats production, which from 1850 to 1860 moved north and east. From 1860 to 1890 the center of oats production moved almost due west along the forty-first parallel of latitude. From 1890 to 1900 its course was northwest to a point near Muscatine, Iowa. Its greatest movement was from 1860 to 1870, approximately 245 miles.

The center of corn production has moved in a westerly direction, but more rapidly than the center of population, as from 1850 to 1860 it moved south of west nearly 275 miles, the distance traversed being greater than the entire western movement of the center of population from 1850 to 1900. Its movement from 1860 to 1870 and from 1870 to 1880 was almost directly northwest. From 1880 to 1890 it advanced south of west to a point about 30 miles directly south of Jacksonville, Illinois. The movement from 1890 to 1900 was so slight that it could hardly be indicated on the map, being only 17" west and 2' 36" north.

The center of wheat production has made a greater western and northern movement than any other center, as will be noted from its location in 1900. Its greatest southern advance was made from 1880 to 1890, and its greatest northern movement from 1890 to 1900.

The movements of the centers of the number of farms, value of farm property, area in farms, and of oats, corn, and wheat production, as indicated on the map, are widely divergent.

#### AREA.

The land area of the United States in 1900, exclusive of Alaska and the insular possessions, was 1,900,947,200 acres, and the total area in farms 838,591,774 acres, or 44.1 per cent. Farm land is divided into two classes—improved, or cultivated, and unimproved. The improved land comprised, in 1900, 21.8 per cent of the total land area.

Plate 127 shows, by the area of the circles and the size of their sectors, the proportion of land in farms to the total land area, exclusive of Alaska and the insular possessions, at each census from 1850 to 1900, also the proportion of farm area that was improved. The steady growth of the total farm area, which has increased 185.6 per cent since 1850, is readily measured, as well as the proportional increase of the cultivated area. It will be noted that in 1900 the farm area was less than one-half of the total land area.

Diagram 1, Plate 128, also shows the total land area at each census from 1850 to 1900, by the length of the bars, the shaded portion representing the area cultivated.

Diagram 1, Plate 131, shows the total number of improved and unimproved acres in farms, by states and territories, in 1900, the total length of the bars representing the total number of acres in farms, the shaded

and unshaded portions indicating respectively the improved and unimproved acres. Texas had the largest number of unimproved acres in farms, and Iowa the greatest number of improved acres.

The map, Plate 132, shows, in six shades of color, the proportion of improved land to total land area in 1900, prepared by computing the percentage of improved land to total land area for each county, and dividing the counties into six groups, as described on the left side of the map. Each county was then shaded according to the group in which it fell. This map is of great interest, as it indicates the proportion of land under cultivation in each county, the heaviest shade marking those counties where 75 per cent or more of the total land area was improved and where agriculture was, therefore, the most important occupation. Nearly the entire state of Iowa is covered by the heaviest shade, showing the prominence of agricultural pursuits and the great fertility of its soil. Illinois, Indiana, and Ohio are also well covered by the heaviest shade, indicating that a large proportion of their area was under cultivation, while eastern Nebraska and Kansas have a number of counties in which three-fourths of the land was improved.

Cartogram 6, Plate 138, also shows the proportion of improved land to total land area in 1900, compiled by using the state as the unit.

Diagram 3, Plate 130, represents the total number of farms at each census from 1850 to 1900. In 1850 there were 1,449,073 farms, and in 1900, including Alaska and Hawaii, 5,739,657, an increase of 296.1 per cent in fifty years. Diagram 2, Plate 130, represents graphically, by the length of the bars, the average size of farms at each census from 1850 to 1900, and shows a decrease from 1850 to 1880, and a slight increase at the last two censuses. Diagram 1 on the same plate shows the average size of farms in each state and territory in 1900, the tremendous size of the farms in Wyoming, Nevada, Hawaii, and Montana, as compared with the North Atlantic states, being effectively presented. Wyoming leads with an average of 1,333 acres per farm, Nevada and Hawaii following with 1,175 and 1,148 acres respectively. Montana is fourth, with an average of 886 acres per farm. The largest farms are generally found where the grazing of stock is the principal occupation of the farmers, except in eastern North Dakota, where a number of large wheat farms still exist, and increase the average size of farms in that state.

The average size of farms at the Twelfth Census is shown in greater detail by the map, Plate 129, which was made by computing the average size of farms for each county, and dividing the counties into five groups, giving to each group a different shade, the lightest shade indicating the regions in which the farms were smallest in area, the land richest and most valuable, and farming most intensified. A few counties where



the average size of farms was small will be noted in a few of the Western states, where irrigation was entirely depended upon for raising crops.

Cartogram 4, on Plate 138, shows, in four shades of color, the average size of farms in 1900, the state being taken as the unit. The largest farms are found in the West and the smallest in the East.

Plate 141 is made up of a series of diagrams showing the proportion of the number of farms of specified areas in 1900, classified by tenure, race of occupants, principal crops, and amount of income.

#### VALUES.

The value of farm land and improvements, including buildings, which in 1850 was \$3,271,575,426, had increased in 1900 to \$16,674,690,247. During this period the value of implements and machinery had increased from \$151,587,638 to \$761,261,550, and the value of live stock on farms from \$544,180,516 to \$3,078,050,041.

Diagrams 2, 3, and 4, Plate 128, show graphically, by the length of the bars, the value and the increase in value of these three classes of farm property from 1850 to 1900. Diagram 5 represents the average value per farm of all farm property at each census from 1850 to 1900, and diagram 6 the average value per farm of farm land with improvements, including buildings. These two diagrams show a great increase in average farm values from 1850 to 1860, a decrease from 1860 to 1880, followed by an increase from 1880 to 1900. It will be noted that the greatest average value per farm was reported for 1860.

The five small maps, or cartograms, on Plate 133 show the percentage of increase and the decrease in the value of farm land with improvements, for each census from 1850 to 1900. In preparing these cartograms the percentage of increase was computed for the entire state. The states showing increases were grouped according to the legend, each group being given a different shade of green, and the states showing decreases were colored blue, the absence of color indicating no report. From 1850 to 1860 increases in farm values are indicated in every state for which reports were made, being greatest in the South and West. From 1860 to 1870 the Western, North Central, and Pacific states reported large increases, while New Hampshire, Massachusetts, Rhode Island, the South Atlantic and South Central states, and New Mexico show decreases. From 1870 to 1880 increases were indicated for all of the states except Vermont, New Jersey, and Delaware, although the increase in several of the Southern states was small. From 1880 to 1890 the North Atlantic states and Ohio decreased, while in the Southern and Western states the value of farm land with improvements increased, those states west of the Mississippi river showing increases of 50 per cent or over. From 1890 to 1900, Maine, New York, Pennsylvania, Delaware, Ohio, and Florida

show decreases, while in all of the other states the value of farm land with improvements increased, North Dakota, South Dakota, Montana, Idaho, Oklahoma, and New Mexico showing increases of over 100 per cent.

Diagram 2, Plate 136, represents the total value of farm land with improvements, live stock, and farm implements in 1900, by states and territories, the bars being shaded to show separately the values of each of these three classes of property. Illinois leads with a total valuation of \$2,004,316,897, Iowa being second with a valuation of \$1,834,345,546, the other states and territories following in order. Rhode Island, with a total valuation of \$26,989,189, is the last state shown on the diagram.

Cartogram 2, Plate 138, shows the value per acre of farm land with improvements in 1900, and indicates that the most valuable farm lands were in the New England and North Central states, while the farms with the lowest valuation per acre were found principally in the South and West.

Cartogram 3, Plate 138, shows, in four shades of color, the proportion of gross farm income to total value of farm property in 1900. The heaviest shade, indicating the greatest proportion, more than 30 per cent, is found in Maine, Vermont, and in the states south of the thirty-seventh parallel and east of Oklahoma and Texas.

Plate 134 shows, by counties, the value of farm products per acre of improved land at the Twelfth Census, the highest valuations being found in those counties in which farming was most intensified and the crops raised the most valuable, as in the areas devoted to market gardening, contiguous to large cities, and in Florida, California, Arizona, and New Mexico, where fruit growing was an important industry. The low values are found in the grain-producing states, where the farms were large and the value of the crop per acre small.

Cartogram 1, Plate 138, represents at the Twelfth Census the value per acre of farm products not fed to live stock, the state being taken as the unit, and shows that in those states in which farming was most intensified crops were of the greatest value per acre.

The map, Plate 135, represents, in six groups, by shades of color, the value of farm products not fed to live stock, per square mile of land area at the Twelfth Census. Instead of ascertaining the value of products in relation to improved land, as in Plate 134, computations were made to show the value of farm products not fed to live stock for each square mile of land area in every county. The total value per square mile was very large for the counties in which practically all of the land was brought under cultivation, as in many counties of Ohio, Indiana, Illinois, Wisconsin, and Iowa, also for counties containing large cities in which the land was principally used for market gardening. Low values are shown principally in the West and South-



west, where but a small proportion of the total area was under cultivation.

Diagram 1, Plate 137, shows, by the length of the bars, the average value of total farm products per farm in 1899 for each state and territory, except Hawaii. The District of Columbia leads, as practically the entire area outside of the city was given over to market gardening, and the values were consequently very high. In Nevada, which stands second, the high average was due to the great value of products of the irrigated land and the large size of the farms. In Montana, Wyoming, and California, which follow closely after Nevada, the high averages were due, in a measure, to the same causes. Iowa, the next state in order, had the highest average of the humid states.

Diagram 2, Plate 137, represents, at the Twelfth Census, by the length of the bars, the average value per acre of net farm products not fed to live stock. New Jersey leads, with Rhode Island, Massachusetts, and Connecticut following in order, the high averages in these states being due to the large urban population and to the fact that market gardening near the large cities returns high values per acre for the crops raised.

The length of the bars in diagram 1, Plate 136, shows the total value of all farm products in 1899, by states and territories. Iowa leads, with Illinois second, and Ohio third, Rhode Island, the smallest state, having the lowest value of farm products shown for any state.

#### FARMS OF WHITE AND COLORED FARMERS.

Diagram 2, Plate 131, represents, by the length of the bars, the number of acres in farms, by states and territories, in 1900. The black portion of the bar indicates the holdings of colored farmers, the unshaded portion representing those of white farmers. The small acreage held by colored farmers as compared with the white, even in the Southern states, is very effectively shown. Mississippi, Georgia, Alabama, Texas, South Carolina, and North Carolina were the only states in which a fair proportion of the farm acreage was in the possession of colored farmers.

The average value of all farm property per farm for white and colored farmers in 1900 is represented by the length of the black and the white bars in diagram 1, Plate 139. The most striking feature of this diagram is the length of the black bar for Vermont, the average value of farm property per farm of colored farmers in that state being more than double that of white farmers, due to the small number of colored farmers, there being but eight, and to the relatively great value of their holdings. In every other state and territory the average value of farm property per farm for white farmers exceeded that for the colored. The diagram also brings out the high average value of all farm property per farm of white farmers in Nevada, Wyoming, California, and Montana, due to the large farms and ranches in these states.

Diagram 2, Plate 139, represents the average value of all farm property per acre in farms, for white and colored farmers in 1900. It will be noted that in twenty-one of the states and territories shown in the diagram, the average value of farm property per acre of colored farmers exceeded that of white, the difference being especially noticeable in Pennsylvania, California, Vermont, Arizona, and Montana. The holdings of colored farmers in these states, though very small both in number and in area, included but a small proportion of unimproved land, and were, therefore, much above the average in value.

#### TENURE.

The farm holdings of the United States are generally divided into three classes: First, owned by the occupant; second, rented for a fixed money rental; and third, rented for a share of the crop. In the classification of farms by tenure at the Twelfth Census they were divided into six groups—owners, part owners, owners and tenants, managers, cash tenants, and share tenants.

Plate 140 shows, by states and territories, for 1890 and 1900, the proportion of farms in each of the three classes of tenure to all farms. The first two cartograms represent, in four shades of color, the proportion of farms owned to all farms. The heaviest shade, showing the greatest proportion of farms owned—90 per cent and over—is found principally in the Western division. The lightest shade, showing the smallest proportion—less than 50 per cent—will be noted in the South. A comparison of the two cartograms shows but slight changes from 1890 to 1900. The proportion of farms rented for cash to all farms, for 1890 and 1900, is represented by the second pair of cartograms. The southern South Atlantic states also Mississippi and Alabama show the largest proportion of farms rented for cash in 1890 and 1900. An increase will be noted in Georgia and the Pacific states. The third pair of cartograms shows the proportion of farms rented on shares to all farms for 1890 and 1900. The largest percentage of farms rented on shares will be found in the southern South Atlantic and South Central divisions; an increase from 1890 to 1900 in the proportion of farms rented on shares will be noted in a few states of these and the Western division.

Plate 142 represents, by states and territories, at the Twelfth Census, the classification of the number of farms by three classes of tenure—owners, cash tenants, and share tenants. The states are arranged in the order of the proportion of the number of farms owned to all farms, Maine leading with 95.3 per cent, New Hampshire, Wyoming, Arizona, North Dakota, Utah, Idaho, New Mexico, Massachusetts, and Montana following, with over 90 per cent each. Indian Territory, with the lowest percentage of owners (25.1), had the highest percentage of share tenants. The District of Columbia



appears with the lowest percentage of share tenants, and the highest percentage of cash tenants. Alabama and South Carolina also show a high percentage of cash tenants, while North Dakota reported the lowest percentage, less than 2 per cent.

The classification of farm area in 1900 by three classes of tenure is represented in a similar manner on Plate 143. Arizona shows the largest percentage of farm area owned and the smallest rented, while Delaware has the largest percentage rented and the smallest owned. The District of Columbia, practically a city, shows, therefore, the largest proportion of farm area rented by cash tenants. Indian Territory and Delaware alone reported less than 50 per cent of their farm area as owned.

Plate 144 represents the percentages of the number of farms of specified tenures in 1900, classified by area, source of income, amount of income, and race of farmer. The first diagram, classification by area, shows that the largest proportion of farms less than 3 acres, 68.9 per cent, was owned. Of the farms containing from 10 to 20 acres 55.9 per cent were rented, and of those containing from 20 to 50 acres 50.9 per cent were rented, the proportion of share tenants in these two classes being very large. The largest percentages of part owners and managers were reported for farms of 1,000 acres and over. The second diagram, classification by source of income, in twelve groups, shows that a large proportion of farms on which cotton was raised was rented, while the greater proportion of farms raising flowers and plants, nursery products, and fruit was owned, a very small proportion being in the hands of tenants. In each of the remaining groups more than 50 per cent of the farms were owned, tobacco and rice showing the largest proportion of tenants, over 45 per cent. The third diagram, classification by amount of income, shows that the proportion of tenants was largest where the income was small, and the proportion of managers and owners largest where the income was great. In the fourth diagram, classification by race of farmer, it will be noted that less than 10 per cent of Japanese farmers owned their farms, and that 85.1 per cent of the renters were cash tenants. Less than 10 per cent of the Chinese, also, were owners, 78.3 per cent of the remainder being cash tenants. Only 25.0 per cent of negro farmers were owners, and of the 75 per cent remaining nearly one-half were cash tenants. The Indians show by far the highest percentage of owners, 93.1 per cent.

Plate 145 shows the percentages of the number of farms of specified incomes, classified by principal sources of income in fourteen groups, by race of farmer in six groups, by tenure in six groups, and by area in ten groups, and represents, by the different colors, the proportion of farms in each group for each of the eight classes of income, in 1900, as described in the legend at the bottom of the diagram.

## LIVE STOCK.

## SWINE.

The number of swine on farms and ranges reported at the Twelfth Census was 62,876,108. Plate 146 represents, in five shades of color, the number of head per square mile of land area in each county, the heaviest shade indicating those counties in which the largest number of swine were reported. By comparison with the map, Plate 154, which shows the production of corn per square mile of total land area, it will be noted that the greatest number of swine were reported in the "corn states"—Iowa, Illinois, Missouri, Nebraska, Indiana, Kansas, and Ohio.

Diagram 1, Plate 150, represents, by the length of the bars, the number of swine reported in specified states and territories, and illustrates the fact that Iowa in 1900 reported 64.4 per cent more than any other state or territory, and that in the New England and certain of the Western states there were comparatively few of these animals.

## NEAT CATTLE.

The total number of neat cattle reported on farms and ranges in 1900 was 67,822,336, and the map, Plate 147, shows, in five shades of color, the number of neat cattle to a square mile of land area in each county, the heavy shades indicating those counties where the greatest number of these animals were reported.

Diagram 2, Plate 150, represents, by the length of the bars, the total number of neat cattle reported in specified states and territories in 1900, and brings out the fact that Texas reported almost twice as many as any other state or territory, Iowa, Kansas, and Nebraska following in order. It also indicates the small number reported in the New England states.

## SHEEP.

In 1900, 61,605,811 sheep were reported on farms and ranges, and the map, Plate 148, shows, in five shades of color, the number of sheep per square mile of land area in each county. The heaviest shade, marking the areas on which the greatest number of these animals were reported, will be noted in Montana, Wyoming, New Mexico, Ohio, Utah, Michigan, and New York. More than one-half of the sheep reported for 1900 were in the Western division, the North Central division following with 26.3 per cent of the total, the number in the other portions of the country being relatively very small.

Diagram 3, Plate 150, shows the number of sheep reported in specified states and territories in 1900. In this branch of agricultural industry Montana leads, with 6,170,483 sheep; Wyoming, with 5,099,613; New Mexico, with 4,899,487; and Ohio, with 4,020,628, following in order.



## HORSES, MULES, AND ASSES.

The number of horses, mules, and asses reported on farms and ranges in 1900 was 21,646,731. Plate 149 shows, in four shades of color, the number of these animals per square mile of land area in each county, and gives a general idea of the regions in which the greatest number were found. The heaviest shade is found principally in the North Central division, which reported nearly one-half of the total number. The general distribution of the heavier shades shows that these animals were reported from all portions of the United States.

Diagram 4, Plate 150, represents the number of horses on farms and ranges in 1900. Iowa is first, with 1,392,573 horses; Illinois second, with 1,350,219; and Texas third, with 1,269,432.

Comparing the four diagrams on Plate 150, it will be noted that Iowa is first in the number of swine and the number of horses reported, and second in the number of neat cattle; Texas is first in the number of neat cattle; Montana is first in the number of sheep; while Illinois is second in the number of swine and in the number of horses reported.

## CENTERS OF AGRICULTURAL PRODUCTS.

Plate 151 is a map of a portion of the United States, showing the location in 1900 of the centers of the number of farms, total area in farms, improved acreage, farm values, production of cotton, corn, wheat, oats, and combined cereals, gross farm income, population, and manufactures, their approximate locations being given in the following table:

CENTER.	Approximate location.
Number of farms .....	In Illinois, 40 miles northwest of Evansville, Indiana.
Total area in farms .....	In Missouri, 48 miles southwest of Jefferson City.
Improved acreage .....	In Illinois, 20 miles southwest of Jacksonville.
Farm values .....	In Illinois, 10 miles north of Jacksonville.
Cotton production .....	In Mississippi, 20 miles northeast of Canton.
Corn production .....	In Illinois, 25 miles south of Jacksonville.
Wheat production .....	In Iowa, 70 miles west of Des Moines.
Oats production .....	In Iowa, 17 miles east of Iowa City.
Six cereals .....	In Illinois, 15 miles south of Keokuk, Iowa.
Gross farm income .....	In Illinois, 25 miles south of Jacksonville.
Population .....	In Indiana, 35 miles southeast of Indianapolis.
Manufactures .....	In Ohio, 17 miles southeast of Mansfield.

Six of the agricultural centers were located in the state of Illinois, two in Iowa, and one each in Missouri and Mississippi.

## PRODUCTS.

The map, Plate 153, showing, in five shades of color, the production of all grains in each county, per square mile of total land area at the Twelfth Census, outlines the great grain-producing regions. The map was prepared by adding the yield of all grains for each county and dividing the sum by the number of square miles of land area in that county. The counties were then arranged in five groups, according to the number of

bushels produced per square mile, and each group given a different shade. The heaviest shade, representing the area of greatest production per square mile, indicates that Illinois, Iowa, Kansas, Nebraska, Missouri, and Indiana were the greatest grain-producing states, these six states reporting in 1900, 51.7 per cent of the total production.

## CORN.

The total production of corn, in bushels, at each census from 1850 to 1900 is represented in diagram 1, Plate 152, which shows a great increase at each census except 1870, the decrease at that date being caused by the falling off in the production of the Southern states, due principally to the Civil War. The increase from 1870 to 1880 of 993,647,127 bushels, or 130.6 per cent, is especially marked. The number of bushels of corn reported in 1850 was 592,071,104, and in 1900, 2,666,440,279, an increase of 350.4 per cent in fifty years.

Plate 154 shows, at the Twelfth Census, the production of corn per square mile of total land area by counties, and indicates, by the heaviest shade of color, those counties producing the greatest number of bushels to each square mile. The lightest shade marks the regions where the production of corn was very small, being less than 64 bushels to a square mile, or one-tenth of a bushel per acre of total land area. The heaviest shade covers the areas where the production was over 3,200 bushels per square mile, or 5 bushels to each acre of land in the county, thus representing the regions where the crop was of great importance.

Diagram 2, Plate 163, shows the production of corn in 1899 in those states and territories in which it was a crop of importance. Illinois is first, with 398,149,140 bushels, and Iowa second, with 383,453,190 bushels, each reporting a production exceeding that of Kansas, the third state, by more than 153,500,000 bushels.

Cartogram 1, Plate 172, shows, in shades of color, the production of corn per capita of the population, at the Twelfth Census. The heaviest shade, indicating the greatest production as compared with population, covers the great corn-producing states of the Mississippi valley. The lightest shade, indicating the smallest production per capita, is found in the New England and far West-ern states.

Plate 155 shows for each county the average yield of corn per acre cultivated to that crop at the Twelfth Census, and outlines the great corn-producing regions by the area of heaviest shade, running through the states of Ohio, Indiana, Illinois, and Iowa. New Hampshire, Massachusetts, and Connecticut also show high average yields, although the quantity produced was small.

Diagram 1, Plate 169, shows the average yield per acre of corn, by states and territories, in 1899. New Hampshire is first, with a yield of 42.1 bushels per



acre, Connecticut second, and Indiana third, while Iowa and Illinois, the states which produced the greatest amount of corn, rank sixth and seventh in the average yield per acre.

## WHEAT.

The total production of wheat from 1850 to 1900 is represented by diagram 2, Plate 152, which shows a great increase during each decade, except from 1880 to 1890. The slight increase noted for this decade was due principally to the falling off in the amount reported in the North Central, North Atlantic, and South Atlantic divisions, the only divisions showing increases being the South Central and Western. The production of wheat at the census of 1850 was 100,485,943 bushels, and at the census of 1900, 658,534,252 bushels, an increase during fifty years of 555.4 per cent.

Plate 156 shows, in five shades of color, the production of wheat per square mile of total land area in each county at the Twelfth Census, and indicates the regions in which wheat was an important crop. The states of the North Central division and California constitute the principal wheat regions of the United States, producing in 1899, 72.5 per cent of the entire crop. The heaviest shade, indicating a production of 3,200 bushels or more per square mile, is found only in Minnesota and North Dakota, states in which wheat was the most important agricultural product. This crop was of comparatively slight importance in the North Atlantic and South Atlantic divisions.

Diagram 1, Plate 163, represents, by the length of the bars, the production of wheat in 1899 for those states and territories producing over 450,000 bushels. Minnesota, with 95,278,660 bushels, is first; North Dakota, with 59,888,810 bushels, second; Ohio, South Dakota, Kansas, California, and Indiana following in the order named, each having produced over 34,000,000 bushels.

Cartogram 2, Plate 172, shows, in five shades of color, the production of wheat per capita of the population at the Twelfth Census. The heaviest shade, representing the greatest per capita production, covers Minnesota, North Dakota, and South Dakota, states in which wheat was the leading agricultural product. The production per capita in the North and South Atlantic states was very small.

The map, Plate 157, shows, in four shades of color, the yield of wheat per acre in each county at the Twelfth Census. The counties producing the greatest number of bushels per acre planted to this crop were most numerous in the arid states, where, through irrigation, a large yield per acre was secured, the states of Minnesota, North Dakota, and South Dakota showing only a medium yield per acre.

The average yield per acre of wheat in 1899 is represented by states and territories in diagram 1, Plate 170. Nevada is first with a yield of 24.3 bushels per

acre, the District of Columbia second, Connecticut third, and Rhode Island fourth, the states which produced the greatest quantity of wheat showing comparatively small average yields per acre. Minnesota, the leading state in total production, had an average yield of only 14.5 bushels per acre, which was exceeded by twenty-two states and territories.

## OATS.

The production of oats from 1850 to 1900 is represented by diagram 3, Plate 152, which shows an increase during each decade, and an especially large increase from 1880 to 1890, when the production was nearly doubled. The number of bushels reported in 1850 was 146,584,179, and in 1900, 943,389,375, an increase in fifty years of 543.5 per cent.

Plate 158 shows, in five shades of color, the production of oats per square mile of land area in each county in 1899, the heavy shades indicating the regions in which this crop was of great importance. Illinois, Wisconsin, Minnesota, and Iowa show the heaviest yield, reporting 53.6 per cent of the total production. Oats may be termed a northern crop, as nearly 91 per cent of the amount produced was grown in the North Central and North Atlantic divisions, and more than 95 per cent north of the thirty-sixth parallel.

Diagram 1, Plate 164, represents the production of oats, by states and territories in 1899. Illinois is first with a crop of 180,305,630 bushels, and Iowa second, with 168,364,170 bushels, each of these states producing over twice as much as Wisconsin, the third state in production. The diagram also shows that the principal oats-producing states were in the North.

Cartogram 3, Plate 172, represents the production of oats per capita of the population at the Twelfth Census, and shows that the number of bushels produced to each inhabitant was greatest in the upper Mississippi valley and in those states bordering on the Great Lakes. The production per capita was very small in the South and Southwest.

The map, Plate 159, shows, in five shades of color, the yield of oats per acre of land cultivated to that crop in 1899, in each county, and by comparison with Plate 158 it will be noted that the states producing the greatest quantity also show high yields. A number of the states in which the total production was very small also show a high average yield per acre, as, for instance, the New England states, and a number of the arid states, in which, through irrigation, large yields per acre were obtained.

Diagram 2, Plate 169, shows the average yield per acre of oats in 1899, by states and territories, Washington leading with a production of 42.1 bushels, Illinois, the state of greatest production, ranking second with a yield of 39.5 bushels per acre. The average yield per acre was highest in the Northern and lowest in the Southern states.



## BARLEY.

Plate 161 shows, in four shades of color, the production of barley per square mile of land area in each county in 1899, and indicates the limited region in which this crop was of importance. California, Minnesota, Wisconsin, Iowa, and the Dakotas produced five-sixths of the entire crop reported at the Twelfth Census, the amount raised in the other states and territories being very small.

Diagram 3, Plate 164, represents, by the length of the bars, the production of barley in 1899 in each state and territory producing over 80,000 bushels. California is first, with a yield of 25,149,335 bushels; Minnesota second, with 24,314,240 bushels; Wisconsin and Iowa following, with 18,699,690 and 18,059,060 bushels, respectively; these four states producing 72.0 per cent of the entire yield.

The relative importance of the production of barley as indicated by the number of bushels produced per capita of the population, in each state and territory at the Twelfth Census, is graphically presented in cartogram 4, Plate 172. The heaviest shade, indicating the greatest production of this cereal per capita, covers the states of Minnesota, North and South Dakota, and California. The cartogram also shows that this crop was an important one in but nine states, the remainder of the country producing less than 5 bushels per capita.

The average yield per acre of barley in 1899 is represented by diagram 1, Plate 171. Montana is first with an average yield of 36.9 bushels per acre, Wisconsin second, and Illinois third. California, which led in production, had an average yield of only 24.4 bushels per acre and ranks twenty-second, twenty-one states and territories having higher average yields.

## RYE.

Plate 160 represents, in five shades of color, the production of rye in each county per square mile of land area in 1899, and marks the regions in which this crop was most abundant. New York, Pennsylvania, Michigan, Illinois, Wisconsin, Minnesota, Iowa, and Nebraska show the greatest production of this cereal and were practically the only states in which it was an important agricultural product.

Diagram 2, Plate 164, represents, by the length of the bars, the total production of rye in 1899. Wisconsin is first, with 5,142,606 bushels; Pennsylvania second, with 3,944,750 bushels; New York third, with 2,431,670 bushels; and Michigan fourth, with 2,130,870 bushels; these four states producing 53.3 per cent of the total yield. Nebraska, Minnesota, Iowa, and Illinois also show a fair yield of this cereal in 1899, each producing over 1,000,000 bushels.

The average yield per acre of rye in 1899, by states and territories, is shown in diagram 2, Plate 171. New Mexico is first, with an average yield of 22.2 bushels per

acre; Connecticut second, with 19.8; and Montana third, with 16.5. The states producing the greatest number of bushels had only a medium yield per acre.

## BUCKWHEAT.

The production of buckwheat in 1899 in the eighteen states producing practically the entire crop is shown in diagram 4, Plate 164. Pennsylvania and New York produced nearly 70 per cent of the crop, while the five states, Pennsylvania, New York, Michigan, Wisconsin, and Maine, together produced 82.8 per cent of the amount reported.

The average yield per acre of buckwheat in 1899 for certain states and territories is represented by diagram 2, Plate 170, New Hampshire leading with an average yield of 23.6 bushels, California, Vermont, Washington, and Wyoming following in order. Pennsylvania and New York, the states producing the greatest quantity in 1899, show comparatively low yields per acre.

## HAY AND FORAGE.

Plate 162 shows, by six shades of color, the production of hay and forage per square mile of total land area in each county at the Twelfth Census. In 1899 the total crop reported (exclusive of cornstalks) was 79,251,946 tons, valued at \$484,256,846, and was exceeded in value by the corn crop only. It will be noted that the heaviest production was in the North Central and North Atlantic divisions, which together produced 77.3 per cent of the entire crop. Ranked according to the value of product of the hay and forage crop, New York is first, with \$55,237,446; Pennsylvania is second, with \$37,514,779; Iowa third, with \$30,042,246; and Ohio fourth, with \$29,047,532. The value of the crop of New York alone was nearly equal to that of the South Atlantic and South Central states combined, showing the value of the hay and forage crop of the South to be relatively very small.

## POTATOES.

The potato was the most important vegetable raised in 1899, the crop having a total value of \$98,387,614. The six states, New York, Pennsylvania, Michigan, Wisconsin, Ohio, and Illinois, produced a crop valued at \$47,454,184, which was nearly 50 per cent of the value of that of the United States.

Map 1, Plate 173, shows, in four shades of color, the production of potatoes in each county per square mile of land area in 1899. The largest groups of the heaviest shade, indicating the greatest production, will be noted in Massachusetts, Connecticut, New York, Pennsylvania, Ohio, Michigan, and Wisconsin. The North Atlantic and North Central divisions produced four-fifths of the number of bushels reported, the South Atlantic, South Central, and Western divisions showing a light production.



The number of bushels of potatoes produced in New York in 1899 was 38,060,471, in Wisconsin 24,641,498, in Michigan 23,476,444, and in Pennsylvania 21,769,472, these four states raising 39.5 per cent of the total crop. The number of bushels produced by each of these four states in 1899 is graphically represented by diagram 3, Plate 168.

## SWEET POTATOES.

Map 2, Plate 173, represents, by four shades of color, the production of sweet potatoes per square mile of land area in 1899, by counties, and indicates that this vegetable was grown principally in the South Atlantic and South Central divisions, these two divisions producing 87.2 per cent of the entire crop. A comparison of maps 1 and 2, Plate 173, shows that Irish potatoes were produced principally in the North, while sweet potatoes were mainly a product of the Southern states. The states leading in the production of sweet potatoes in 1899 were North Carolina, with 5,781,587 bushels; Georgia, with 5,087,674 bushels; Virginia, with 4,470,602 bushels; Alabama, with 3,457,386 bushels; South Carolina, with 3,369,957 bushels; and Texas, with 3,299,135 bushels, the combined valuation of their crops being \$11,108,793, or 55.9 per cent of the total for the United States. The number of bushels produced by each of these six states in 1899 is graphically represented by diagram 4, Plate 168.

## ONIONS.

Diagram 5, Plate 168, shows the production of onions in four states in 1899. New York is first, with 2,177,271 bushels; Ohio second, with 1,671,442 bushels; Michigan third, with 783,948 bushels; and Massachusetts fourth, with 748,309 bushels; these four states producing 45.6 per cent of the total amount reported.

## COTTON.

The quantity of cotton reported at each census, from 1850 to 1900, is graphically represented by diagram 4, Plate 152, which shows a large increase at each census, with the exception of 1870, when the crop reported showed a decrease of 44.7 per cent, due principally to the destruction caused by the Civil War. The Seventh Census (1850) reported an equivalent of 1,975,274 500-pound bales, and the Twelfth Census 9,434,345, an increase, in equivalent 500-pound bales, of 7,459,071 or nearly four times the quantity grown in 1849. The total area under cotton in 1899 was 24,275,101 acres, on which was grown the largest crop ever reported, 9,434,345 equivalent 500-pound bales, an increase of 32.3 per cent over the crop grown in 1889.

The production of cotton per square mile of total land area in each county as reported at the Twelfth Census is shown, in six shades of color, on the map, Plate 165. The heaviest shade, indicating the regions of

greatest production, is found principally in the alluvial region of the Mississippi valley and eastern Texas, with a few scattered areas in South Carolina, Georgia, Alabama, and Louisiana. The map also shows that practically the entire crop was grown in the region south of the thirty-seventh parallel and east of the one-hundredth meridian.

Diagram 1, Plate 168, represents the production of cotton in equivalent 500-pound bales grown in 1899 in the "cotton states." The four leading states, producing over 1,000,000 bales each, were Texas, with 2,584,810; Mississippi, with 1,286,680; Georgia, with 1,232,684; and Alabama, with 1,093,697. Texas, with its immense acreage, produced double the quantity grown in any other state.

The production of cotton, at the Twelfth Census, in pounds per capita of the population, is shown, by shades of color, in cartogram 5, Plate 172. The heaviest shade, indicating a production of 400 pounds and over per capita, covers Mississippi and Texas only.

The map, Plate 166, shows, in four shades of color, the yield of cotton per acre cultivated to that crop in 1899 in each county. The heaviest yield is indicated for the alluvial region of the Mississippi and Red rivers, and for a few scattered counties in other regions. Utah, Arizona, and Nevada reported a small quantity of cotton raised by means of irrigation, the average yield per acre being high for Utah and Arizona.

Diagram 3, Plate 170, shows the average yield of cotton per acre reported in 1900, for each state and territory reporting more than 100 bales. Kentucky is first, Missouri second, and Louisiana third. Texas, with the greatest production, ranked tenth in its yield per acre.

## TOBACCO.

The United States produced in 1889, 488,256,646 pounds of tobacco. In 1899 the production was 868,163,275 pounds, valued at \$56,993,003, an increase in quantity during the decade of nearly 80 per cent.

Plate 167 shows, in six shades of color, by counties, the production of tobacco in 1899 to each square mile of land area. The heavy shades indicate that this crop was produced in commercial quantities not only in the Southern states but as far north as Wisconsin, New York, and Connecticut, these states producing tobacco of the very best quality. The lightest shade on the map, representing a production of less than 100 pounds per square mile, outlines the regions in which small quantities of tobacco were produced. The states leading in the production of tobacco in 1899 were Kentucky, North Carolina, Virginia, Ohio, Tennessee, Wisconsin, Pennsylvania, Maryland, South Carolina, Connecticut, and New York.

Diagram 2, Plate 168, represents the production of tobacco in the ten states reporting 95.4 per cent of the crop of 1899. Kentucky, with 314,288,050 pounds, is



first, North Carolina, with 127,503,400, and Virginia, with 122,884,900, following in order, these three states producing 65.1 per cent of the entire crop.

Cartogram 6, Plate 172, shows the production of tobacco per capita of the population at the Twelfth Census. Virginia, North Carolina, and Kentucky produced the greatest number of pounds to each inhabitant; Connecticut, Maryland, South Carolina, Tennessee, Ohio, and Wisconsin also showing a fair production.

#### APPLES.

Map 1, Plate 174, indicates, by the colored area, those counties which produced more than 1,000 bushels of apples in 1899, and shows that this fruit was grown in nearly every portion of the settled area of the United States. The enumerators of the Twelfth Census reported 201,794,764 apple trees and 175,397,626 bushels of apples. The states producing the greatest quantity were New York, with 24,111,257 bushels; Pennsylvania, with 24,060,651; and Ohio, with 20,617,480. Of the orchard trees reported in 1900, 55.0 per cent were apple, and 82.8 per cent of the bushels of orchard fruit were of that variety.

#### PEARS.

The colored area on map 2, Plate 174, marks those counties producing more than 1,000 bushels of pears in 1899, and indicates the regions of the greatest production of this fruit. California, New York, New Jersey, Pennsylvania, Maryland, Ohio, Indiana, Michigan, Texas, Delaware, and Illinois were the leading states in the production of pears at the Twelfth Census, each reporting over 130,000 bushels. This fruit was one of the most important grown in the United States, ranking fourth among orchard fruits in the number of bushels produced.

#### CHERRIES.

The colored area on map 1, Plate 175, marks those counties which produced in 1899 more than 1,000 bushels of cherries, and indicates the principal areas of production. Nearly the entire crop of 1899 was grown in California and the region lying between the thirty-ninth and forty-third parallels, and extending from the Atlantic ocean to the states of Nebraska and Kansas. The leading states in production were Pennsylvania, with 474,940 bushels; California, with 318,960; Indiana, with 228,485; and New York, with 218,642.

#### GRAPES.

The area colored on map 2, Plate 175, covers those counties reporting over 100,000 pounds of grapes in 1900, and indicates the principal areas of production of this fruit. The states producing over 40,000,000 pounds of grapes in 1899 were California, with 721,433,400; New York, with 247,698,056; Ohio, with 79,173,873;

Pennsylvania, with 47,125,437; and Michigan, with 41,530,369; California alone reporting 55.5 per cent of the total crop.

#### PEACHES AND NECTARINES.

The statistics of these two closely related fruits were collected under one head and were reported as peaches, the crop ranking second in value among orchard fruits reported in 1900. The colored area on map 1, Plate 176, indicates the counties producing over 1,000 bushels of peaches in 1899. The region along the Atlantic coast from Massachusetts to Georgia, the states bordering on the Gulf of Mexico, Arkansas, Indian Territory, Oklahoma, Michigan, and the Pacific states show the most extensive areas of production. The only states reporting over 600,000 bushels in 1900 were California, with 8,563,427; Texas, with 1,400,240; and New Jersey, with 620,928; California alone reporting 55.5 per cent of the total amount produced.

#### APRICOTS.

The apricot crop was of importance only in California, which produced 96.4 per cent of the bushels reported in 1900. The principal regions of production in 1899, as shown by the colored area on map 2, Plate 176, were confined to California and a few counties in Utah, Colorado, New Mexico, Arizona, and New York.

#### PLUMS AND PRUNES.

Plums were reported from nearly every state and territory in 1900, the crop ranking third in value of products among orchard fruits. The states leading in production were California, with 5,632,036 bushels; Oregon, with 359,821; New York, with 303,688; Washington, with 229,207; and Michigan, with 213,682. The colored area on map 1, Plate 177, indicates each county producing over 1,000 bushels of plums and prunes. California was the only state which produced prunes in commercial quantities in 1899.

#### FIGS.

While the fig crop is not one of great importance, the reports of the Twelfth Census show that figs were grown in twenty-three states and territories. California, with 10,620,366 pounds, was the only state producing figs in commercial quantities. Arizona, Texas, Louisiana, and Alabama were the only additional states that produced over 100,000 pounds in 1899. The colored area on map 2, Plate 177, indicates those counties producing 10,000 pounds of figs and over in 1899.

#### IRRIGATION.

The entire western portion of the United States, extending from the one-hundredth meridian to the Pacific ocean, with the exception of portions of Idaho,



Washington, Oregon, and California, is generally referred to as the arid region, where irrigation becomes a necessity, the rainfall being insufficient for successful agriculture. The water supply being inadequate to irrigate all the arable land, water is an extremely valuable asset, while land inaccessible to water is of little value. The greater portion of this region, comprising over one-half of the area of the United States, is unsettled, the land still being under Government ownership.

Diagram 1, Plate 178, presents graphically the total area of each of the eleven arid states and territories, with the proportion in public land, private ownership, farm area, improved land, and irrigated acreage, in 1899. The total length of the bar represents the total area of the states and territories, the shaded part the proportion under private ownership, the unshaded portion indicating the land unoccupied and still under Government ownership. The shaded portion has four subdivisions—the first or black area, on the left, representing the land irrigated; the second division, including the first, the improved area; and the third, including the first two, the farm area. Arizona, Nevada, New Mexico, and Washington show a very small proportion of their total land area under irrigation. Nevada had the largest percentage of unoccupied land and Washington the smallest.

Diagram 2, Plate 178, compares the number of irrigators and the area irrigated in 1889 and 1899 for the arid states and territories. The number of irrigators

increased from 52,584 to 102,819, or 95.5 per cent, and the acreage irrigated from 3,564,416 to 7,263,273, or 103.8 per cent. The percentage of increase in the number of acres irrigated was, therefore, greater than in the number of irrigators. Washington, Arizona, New Mexico, Montana, and Idaho each show an increase of over 100 per cent in the number of irrigators, and Arizona, Idaho, Washington, Montana, and Wyoming an increase of over 150 per cent each in the number of acres irrigated.

Diagram 3, Plate 178, compares the value of irrigated crops in 1899 with the cost of irrigation construction. The value of the crops exceeded the cost of irrigation construction in all of the eleven states and territories, except Arizona, New Mexico, and Wyoming, the greatest excess being noted in California, Colorado, and Montana. The total cost of irrigation construction was \$64,289,601, the value of the irrigated crops being \$84,433,438, an excess of 31.3 per cent over the cost of construction.

Diagram 4, Plate 178, shows the average area of irrigated land on farms in 1889 and 1899 and indicates that this average was the greatest in Nevada for both censuses. The only states or territories showing a reduction in the average area of irrigated land on farms are California, Colorado, New Mexico, and Washington, while the states showing increases are Nevada, Wyoming, and Oregon in the order named.