

THE INTERNAL GRAIN TRADE OF THE UNITED STATES 1860-1890¹

I

The purpose of this study is to consider some of the distinctive features of the internal grain trade of the United States during the period from 1860 to 1890. Various movements and developments in the preceding period had resulted in the establishment, by 1860, of a mutual economic dependence between the three great sections of the Union — the manufacturing East, the plantation South, and the food producing West — and upon this the growing volume of internal trade depended.² The three decades following 1860 witnessed the rapid transformation of American agriculture from a primitive, pioneer, largely self-sufficing type of industry into a modern business organized on a scientific, capitalistic, commercial basis. The most significant result of this transformation was the rise of the United States to the leading place among the nations of the world in the production of grain and live stock — a position which

¹ This is the first of two articles covering the period 1860-1890. Other phases of the period will be treated in a later article. Attention is directed to an earlier article by the same writer on *The Internal Grain Trade of the United States, 1850-1860*, which appeared in *THE IOWA JOURNAL OF HISTORY AND POLITICS*, Vol. XVIII, pp. 94-124.

² It is interesting to note that the Federal Government made no provision for the collection of information on the internal trade of the United States until 1876 when the first annual report was issued; while from the very beginning of the national period of our history full and complete statistics on foreign commerce had been collected and published in a document known as the *Annual Report on the Commerce and Navigation of the United States*. See the *Report of the Select Committee on Transportation Routes to the Seaboard* (Washington, 1874), Vol. I, p. 8, and the *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1876, pp. 8, 9.

this country had already long since attained and still continued to hold with respect to cotton and tobacco. Grain was the most important American product and the leading item entering into the nation's domestic and foreign commerce. Its production and distribution therefore constitutes a subject of fundamental interest and significance in the study of American economic development.³

In undertaking a consideration of the internal grain trade of the United States during this period, attention will be given to the following aspects of the problem: first, the rapid expansion in the production of grain; second, the geographic distribution of population and grain production; third, the principal transportation routes connecting the surplus grain States of the North Central region with the consuming States of the East and the South; fourth, the growth of the great primary grain markets of the Middle West; and fifth, the movement of grain and flour from the primary markets to the Atlantic and Gulf ports. The grain trade of the Pacific coast will not be considered in this paper, inasmuch as this subject may more conveniently be treated in another article. A study of foreign grain trade of the United States during this period will also be presented in a subsequent paper.

THE RAPID EXPANSION IN THE PRODUCTION OF GRAIN

The rapid development of the grain growing industry in the United States is shown by Table I, which gives the production of the six leading cereals by ten-year periods from 1859 to 1889. It will be seen that the volume of corn production in 1859 amounted to 838,793,000 bushels. This was decreased in 1869 to 760,945,000 bushels, owing to the dis-

³ See Schmidt's articles on *The Internal Grain Trade of the United States, 1850-1860*, in THE IOWA JOURNAL OF HISTORY AND POLITICS, Vol. VIII, pp. 94-124; and *Some Significant Aspects of the Agrarian Revolution in the United States* in THE IOWA JOURNAL OF HISTORY AND POLITICS, Vol. XVIII, pp. 371-395.

TABLE I

PRODUCTION OF THE SIX LEADING CEREALS OF THE UNITED STATES BY TEN-YEAR PERIODS FROM 1859 TO 1889 ⁴				
CEREAL	1859		1869	
	BUSHEL	BUSHEL PER CAPITA	BUSHEL	BUSHEL PER CAPITA
CORN	838,792,742	26.6	760,944,549	19.8
WHEAT	173,104,924	5.5	287,745,626	7.4
OATS	172,643,185	5.4	282,107,157	7.3
BARLEY	15,825,898	.50	29,761,305	.77
RYE	21,101,380	.67	16,918,795	.43
BUCKWHEAT	17,571,818	.55	9,921,721	.25
TOTAL	1,239,039,947	39.22	1,387,299,153	35.95
CEREAL	1879		1889	
	BUSHEL	BUSHEL PER CAPITA	BUSHEL	BUSHEL PER CAPITA
CORN	1,754,591,676	34.9	2,122,327,547	33.8
WHEAT	459,483,137	9.2	468,373,968	7.4
OATS	407,858,999	8.2	809,250,666	13.0
BARLEY	43,997,495	.87	78,332,976	1.1
RYE	19,831,595	.39	28,421,398	0.4
BUCKWHEAT	11,817,327	.23	12,110,349	0.19
TOTAL	2,697,580,229	53.79	3,518,816,904	55.89

⁴ The writer is indebted to Miss Mary Nicholson of Winterset, Iowa, a senior student in History and Economics at the Iowa State College of Agriculture and Mechanic Arts during the academic year of 1920-1921, for assistance in the preparation of the statistical tables used in this paper.

The statistics used in Table I, giving the complete returns of each of the six leading cereals for the four census years included in this period, are taken from the tables of the *Twelfth Census of the United States*, 1900, Vol. VI, pp. 72-93. The per capita returns are based on these tables and on the statistics of population presented in Table II of this paper. For a brief historical sketch of American agriculture, particularly as related to grain production, see Brewer's *Report on the Cereal Production of the United States*, pp. 131-141, in the *Tenth Census of the United States*, 1880, Vol. III. For a brief statement of some of the more important aspects of grain production in the United States, see pp. 142-152 of the same report.

astrous effects of the Civil War on Southern agriculture which before 1860 had contributed a fair share of the total annual product. During the succeeding decade, however, production was more than doubled, amounting in 1879 to 1,754,592,000 bushels. This was further increased in 1889 to 2,122,328,000 bushels — an amount which represented about two and one-half times the returns of 1859. Wheat increased steadily from 173,105,000 bushels in 1859 to 287,746,000 bushels in 1869, mounted rapidly to 459,483,000 bushels in 1879, and then increased more slowly until 1889 when 468,374,000 bushels were produced. This represented an increase to more than two and one-half times the amount shown in the returns of 1859. Oats showed even a more remarkable proportionate increase than either corn or wheat, rising from 172,643,000 bushels in 1859 to 282,107,000 bushels in 1869. This was steadily increased to 407,859,000 bushels in 1879, after which production was expanded still more rapidly, amounting in 1889 to 809,251,000 bushels — nearly five times the volume of production in 1859. Barley showed a similar proportionate increase, although this cereal was of much less importance as to total volume of production which in 1859 amounted to only 15,826,000 bushels. This was increased to 29,761,000 bushels in 1869 after which there was a continued rise to 43,997,000 bushels in 1879. This was doubled during the succeeding decade, the volume of production in 1889 amounting to 78,333,000 bushels, or nearly five times the returns of 1859. Rye which was of greater importance than barley in 1859, amounting in that year to 21,101,000 bushels, decreased in both absolute and relative importance to 16,919,000 bushels in 1869, then increased to 19,832,000 bushels in 1879, thereafter rising to 28,421,000 bushels in 1889. This represented an increase to an amount less than one and one-half times the returns of 1859. Buckwheat was even of less impor-

tance than rye, decreasing from 17,572,000 bushels in 1859 to 9,922,000 bushels in 1869, and then increasing only slightly to 11,817,000 bushels in 1879 and amounting to but 12,110,000 bushels in 1889. The total volume of production of the six leading cereals amounted in 1859 to 1,239,040,000 bushels. This was increased to 1,387,299,000 bushels in 1869, in spite of the disturbances caused by the Civil War. The next ten years showed a marvellous expansion in cereal production, the returns of 1879 amounting to 2,697,580,000 bushels, while in 1889 the returns amounted to 3,518,817,000 bushels. This represented an increase to an amount three times that returned by the United States Census of 1860.

The significance of the rapid expansion in the volume of grain production during this period is further emphasized by the increase in per capita production. It will be seen by reference to Table I that while the production of corn decreased from 26.6 bushels per capita in 1859 to 19.8 bushels in 1869, the returns for 1879 increased to 34.9 bushels and thereafter were maintained at the same high average until 1889 when 33.8 bushels were returned. Wheat production increased with marvellous rapidity, rising from 5.5 bushels per capita in 1859 to 7.4 bushels in 1869 and then to 9.2 bushels in 1879, thereafter decreasing to 7.4 bushels in 1889, which represented a return to the per capita production of 1869. Oats showed a consistent growth from 5.4 bushels per capita in 1859 to 7.3 bushels in 1869, rising further to 8.2 bushels in 1879, and finally reaching 13 bushels in 1889. Barley, although of minor importance, showed an increase of from five-tenths of a bushel in 1859 to nearly eight-tenths of a bushel in 1869, rising further to nine-tenths of a bushel in 1879, and then to one and one-tenth bushels in 1889. Rye decreased from seven-tenths of a bushel per capita in 1859 to four-tenths of a bushel in 1869,

which amount was maintained approximately in the returns of 1879 and 1889. Buckwheat showed a steady decline for each census period, decreasing from six-tenths of a bushel per capita in 1859 to two-tenths of a bushel in 1889. Finally, it will be seen that while the production of the six leading cereals combined was decreased from 39.22 bushels per capita in 1859 to 35.98 bushels in 1869, the returns for 1879 amounted to 53.79 bushels and finally reached 55.89 bushels in 1889.

The rapid expansion in the grain-growing industry of the United States during this period was due to the operation of the following forces: first, the existence of a vast empire of virgin land, the soil and climate of which were well adapted to the raising of grain, and the liberal policy of the Federal Government favoring the rapid transference of this land from public to private ownership under the homestead, preëmption, and various other acts; second, the rapid growth of population, including a great influx of European immigrants who helped recruit the labor forces necessary for the development of agriculture, industry, and commerce; third, the introduction into general use of improved labor saving farm machinery; fourth, the extension and development of transportation facilities; fifth, the growth of domestic and foreign markets; and, sixth, the development of agencies for the promotion of scientific knowledge relating to agriculture, among which may be mentioned the Federal and State departments of agriculture, the State colleges of agriculture and mechanic arts, experiment stations, farmers' organizations, and the agricultural press.⁵

Through the operation of these forces, the total area of land in farms was increased from 407,213,000 acres in 1860

⁵ For a brief consideration of these forces, see Schmidt's article on *Some Significant Aspects of the Agrarian Revolution in the United States* in THE IOWA JOURNAL OF HISTORY AND POLITICS, Vol. XVIII, pp. 371-395.

to 623,219,000 acres in 1890. Much more significant, however, is the fact that whereas the area of improved land in farms amounts to but 163,111,000 acres in 1860, this was rapidly expanded to 357,617,000 acres in 1890.⁶ The increase in grain production was due in part to the cultivation of new lands in the West and Northwest; but it was more largely due to the gain in the farming regions already occupied by 1870, the statistics of production showing that most of the grain was recorded for regions which had for some time been under cultivation.⁷

THE GEOGRAPHIC DISTRIBUTION OF POPULATION AND
GRAIN PRODUCTION

The North Central region became the granary of the nation. This section includes the twelve States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Kansas, Nebraska, and North and South Dakota, which together have a land area of 756,368 square miles, or 484,075,520 acres — an area equal to one-fourth of the entire area of continental United States. It is an agricultural empire more than three and one-half times the area of the French Republic, more than five times the area of the United Kingdom of Great Britain and Ireland, and eleven times the area of the State of Iowa. This vast region is in turn divided into two geographic divisions by the Mississippi River: the five East North Central States of Ohio, Indiana, Illinois, Wisconsin, and Michigan, with a land area of 248,105 square miles, or 157,160,960 acres; and the seven West North Central States of Iowa, Minnesota, Missouri, Kansas, Nebraska, and the two Dakotas, with an area of 518,379 square miles, or 326,914,560 acres.⁸ Here

⁶ These statistics are taken from a table in the *Twelfth Census of the United States*, 1900, Vol. V, pp. xviii, xix.

⁷ Brewer's *Report on the Cereal Production of the United States*, p. 2, in the *Tenth Census of the United States*, 1880, Vol. III.

⁸ These statistics are taken from tables in the *Thirteenth Census of the United States*, 1910, Vol. I, pp. 39, 45.

in this great economic empire, the agricultural possibilities of which were only beginning to be realized in 1860, a great cereal kingdom was being founded upon which the East and the South became to an ever increasing extent dependent for the bread stuffs and provisions needed to fill the growing deficits in the home supplies.

The predominant importance of this region as the granary of the nation is shown by a comparative study of cereal production by geographic divisions during this period. The divisions adopted for this study are: first, the North Atlantic division comprising the six New England States of Massachusetts, Connecticut, Rhode Island, Maine, New Hampshire, and Vermont, and the three middle Atlantic States of New York, Pennsylvania, and New Jersey; second, the South Atlantic division, comprising the eight States of Virginia, North Carolina, South Carolina, Georgia, Florida, West Virginia, Delaware, and Maryland, with the District of Columbia included in this division; third, the North Central division, comprising the twelve States already mentioned; fourth, the South Central division, comprising the eight States of Kentucky, Tennessee, Alabama, Mississippi, Louisiana, Arkansas, Oklahoma, and Texas; and fifth, the Western division, comprising the eight mountain States and Territories of Montana, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, and Idaho, and the three Pacific States of California, Oregon, and Washington.⁹ The relative importance of these five divisions in population and grain production will now be considered.

It will be seen by reference to Table II, showing the geographic distribution of population in the United States by ten-year periods from 1860 to 1890, that the North At-

⁹ These five geographic divisions are defined in accordance with the principle of classification adopted in the United States Census Reports of 1890 and 1900.

TABLE II

GEOGRAPHIC DISTRIBUTION OF POPULATION IN THE UNITED STATES BY TEN-YEAR PERIODS FROM 1860 TO 1890 ¹⁰				
DIVISION	1860	1870	1880	1890
NORTH ATLANTIC	10,594,268	12,298,730	14,507,407	17,401,545
SOUTH ATLANTIC	5,564,703	5,853,610	7,597,197	8,857,920
NORTH CENTRAL	9,096,716	12,981,111	17,364,111	22,362,279
SOUTH CENTRAL	6,768,658	6,434,410	8,919,371	10,972,893
WESTERN	618,976	990,510	1,767,697	3,027,613
TOTAL	31,443,321	38,558,371	50,155,783	62,622,250

lantic division still maintained the lead in 1860 with a population of 10,595,000; while the North Central division was a close second with 9,097,000. The South Central division came next with 6,769,000, and the South Atlantic division followed with 5,565,000; while the Western division came last with only 619,000. By 1870, the population of the North Central division had been increased to 12,981,000, thus placing it in the lead by a small margin over the North Atlantic division which was now reduced to second place with 12,299,000. The South Central division had suffered a slight loss in population during the Civil War period but still retained third place with 6,434,000. The South Atlantic division came next with 5,854,000; while the population of the Western division now numbered 991,000. The lead in population which the North Central division had thus achieved over the North Atlantic division by 1870 was maintained by a considerable margin at the two succeeding census periods. By 1880 the population of this division had been increased to 17,364,000; while that of the North Atlantic division had been decreased to 14,507,000. The South Central division now had a population of 8,919,000; while

¹⁰ These statistics are taken from a table in the *Twelfth Census of the United States*, 1900, Vol. I, pp. xxii, xxiii.

the South Atlantic division had 7,597,000. The Western division had meanwhile increased its numbers to 1,768,000. In 1890 the North Central division had a population of 22,362,000 — nearly 4,961,000 more than the population of the North Atlantic division which now numbered 17,402,000. The population of the South Central division now numbered 10,973,000, or less than half of the population of the North Central division; while the South Atlantic division had a population of 8,858,000. The population of the Western division numbered 3,028,000, or only about one-seventh of the population of the North Central division.

A study of the geographic distribution of corn production in the United States by ten-year periods from 1859 to 1889, as set forth by Table III, shows that the North Central division was in 1859 already far in the lead with 406,167,000 bushels which represented 48.4 per cent of the entire crop. This was increased in 1869 to 439,245,000 bushels — an amount only slightly in excess of that returned for this division in 1859, but which, due to the sharp decline in the corn production of the Southern States during the Civil War and Reconstruction period, represented 57.7 per cent of the entire corn crop of the nation. The next decade was a period of remarkable expansion in the corn growing industry of the North Central division, the returns for 1879 amounting to 1,285,285,000 bushels, which was nearly treble the amount returned by the previous census and represented 73.2 per cent of the entire crop. This was further increased in 1889 to 1,598,870,000 bushels which represented 75.3 per cent of the nation's product. The South Central division ranked second in the production of corn, the returns for 1859 amounting to 229,596,000 bushels, or 27.4 per cent of the whole crop. This was decreased in 1869 to 165,583,000 bushels, or 21.8 per cent of the entire crop, and then increased in 1879 to 245,520,000 bushels

which exceeded the returns for 1859, though this product represented but 14 per cent of the whole product. The further development of corn production in this division during the eighties brought the returns up to 314,701,000 bushels which represented 14.8 per cent of the entire crop. The South Atlantic division ranked third with a return of 134,493,000 bushels in 1859, or 16 per cent of the entire crop. This was decreased in 1869 to 86,527,000 bushels, or 11.4 per cent of the entire crop, and then increased in 1879 to 129,266,000 bushels, which amount, however, represented but 7.4 per cent of the entire crop. In 1889, this division showed but a slight increase over the previous decade, the returns for that year amounting to 131,456,000 bushels, which represented but 6.2 per cent of the entire crop. The North Atlantic division ranked fourth in the production of corn with a return in 1859 of 67,146,000 bushels, or 8 per cent of the entire crop. This amount was maintained in 1869 at almost exactly the same level, at the same time representing 8.8 per cent of the entire crop. During the next decade there was a slight increase in corn production, the returns for 1879 amounting to 91,039,000 bushels, which, however, represented but 5.2 per cent of the entire product. This was decreased in 1889 to 72,191,000 bushels representing but 3.4 per cent of the nation's crop. The Western division came last, being of almost negligible importance in the production of corn, as shown by the returns of 1859 which amounted to but 1,392,000 bushels representing only two-tenths of one per cent of the entire crop. In 1869, this was nearly doubled, the returns for that year amounting to 2,331,000 bushels and representing three-tenths of one per cent of the entire crop. This was steadily increased to 1879 when 3,482,000 bushels were produced, representing two-tenths of one per cent of the entire crop. Although production continued to increase steadily, the returns for 1889

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amounted to but 5,109,000 bushels, which represented only three-tenths of one per cent of the nation's entire product.

The primary significance of the North Central division in the production of corn is further emphasized by a comparative analysis of the average per capita production of the several geographic divisions. It will be noted by reference to Table III that while the per capita production of this

TABLE III

GEOGRAPHIC DISTRIBUTION OF CORN PRODUCTION IN THE UNITED STATES BY TEN-YEAR PERIODS FROM 1859 TO 1889 ¹¹						
DIVISION	1859			1869		
	BUSHEL	PER CENT ENTIRE CROP	BUSHEL PER CAPITA	BUSHEL	PER CENT ENTIRE CROP	BUSHEL PER CAPITA
N. ATLANTIC	67,145,711	8.0	6.3	67,257,881	8.8	5.4
S. ATLANTIC	134,492,952	16.0	25.6	86,527,333	11.4	13.0
N. CENTRAL	406,166,733	48.4	44.6	439,244,945	57.7	33.0
S. CENTRAL	229,595,558	27.4	38.5	165,583,195	21.8	25.7
WESTERN	1,391,788	0.2	2.2	2,331,195	0.3	2.3
DIVISION	1879			1889		
	BUSHEL	PER CENT ENTIRE CROP	BUSHEL PER CAPITA	BUSHEL	PER CENT ENTIRE CROP	BUSHEL PER CAPITA
N. ATLANTIC	91,038,700	5.2	6.2	72,191,305	3.4	4.5
S. ATLANTIC	129,266,107	7.4	17.0	131,455,786	6.2	14.0
N. CENTRAL	1,285,284,661	73.2	73.9	1,598,870,008	75.3	71.5
S. CENTRAL	245,520,048	14.0	27.5	314,701,239	14.8	28.7
WESTERN	3,482,160	0.2	1.9	5,109,209	0.3	1.6

¹¹ The statistics used in this table giving the complete returns of corn production by geographic divisions for these four census periods, together with the percentage of the nation's entire product contributed by each division, are taken from a table in the *Twelfth Census of the United States*, 1900, Vol. VI, pp. 80, 81. The per capita returns are based on this table and on the statistics of population presented in Table II of this paper. For an extended review of

division was decreased from 44.6 bushels in 1859 to 33 bushels in 1869, this reduction was more than counter-balanced by the rapid expansion of the seventies which in 1879 brought the per capita production of this division up to 73.9 bushels. This high average was maintained during the succeeding decade with a reduction by only a slight margin to 71.5 bushels in 1889. Taking the period as a whole it will therefore be seen that the corn production of this division ran far ahead of the increase in population. The South Central division in 1859 produced 38.5 bushels of corn per capita, or nearly as much as the North Central division produced in the same year. This was reduced in 1869 to 25.7 bushels, then increased in 1879 to 27.5 bushels, and in 1889 to 28.7 bushels. Thus while the South Central division had by 1879 recovered sufficiently from the effects of the war to exceed the volume of corn which this division produced in 1859, the increased production did not keep pace with the growth of population, the per capita production declining from 38.5 bushels in 1859 to 28.7 bushels in 1889 — a decrease of 9.8 bushels per capita for this period; while the North Central division increased its per capita production from 44.6 bushels in 1859 to 71.5 bushels in 1889 — an increase of 26.9 bushels per capita during the same time. Or, to state it in another way: the North Central division in 1889 produced two and one-half times as much corn per capita as the South Central division produced in the same year. The South Atlantic division did not recover sufficiently by 1889 to produce the volume of corn which was

corn production in the United States according to the census returns of 1880, see especially: Brewer's *Report on the Cereal Production of the United States*, pp. 90-110, in the *Tenth Census of the United States*, 1880, Vol. III. Maps 6, 7, 8, and 9, showing the geographic distribution of corn production in the United States in 1879, are essential. See also: *Statistical Atlas of the United States: Eleventh Census*, 1890, maps 297, 298, 299, and 300, showing the geographic distribution of corn production in the United States according to the census of 1890.

returned for this division in 1859. Consequently, its per capita production, which suffered a sharp decline from 25.6 bushels in 1859 to 13 bushels in 1869, was increased in 1879 to only 17 bushels which in 1889 was decreased to 14 bushels. The per capita production of this division in 1889 was therefore but a little more than half of the amount returned in 1859; it was about half of the per capita production of the South Central division in 1889; and it was only one-fifth of the per capita production of the North Central division for the same year. The North Atlantic division, as already noted, occupied a position of relatively minor importance in the production of corn, the per capita returns reported for this division in 1859 amounting to but 6.3 bushels which were further decreased in 1869 to 5.4 bushels. This was increased again in 1879 to 6.2 bushels which however was reduced in 1889 to 4.5 bushels, or one-sixteenth of the per capita production of the North Central division for the same year. The Western division in 1859 showed the comparatively insignificant return of 2.2 bushels of corn per capita which was maintained in 1869, but reduced in 1879 to 1.9 bushels to be followed by a further reduction in 1889 to 1.6 bushels.

It will therefore be seen that while the production of corn was widely distributed throughout the vast region from the Great Lakes to the Gulf of Mexico and from the Atlantic Coast to the Western Plains and in scattered regions beyond, the North Central division contributed from one-half to three-fourths of the entire corn crop of the nation and registered the highest per capita production of the several geographic divisions. Of further significance is the fact that the bulk of the crop was produced by half a dozen States. These States in 1859 were, in order of their importance: Illinois, Ohio, Missouri, Indiana, Kentucky, and Tennessee, which together produced 53.5 per cent of the

entire crop. In 1869 the States of Illinois, Iowa, Ohio, Missouri, Indiana, and Kentucky produced 57.1 per cent of the whole crop. In 1879, the States of Illinois, Iowa, Missouri, Indiana, Ohio, and Kansas produced 64.8 per cent of the entire product. In 1889 the States of Iowa, Illinois, Kansas, Nebraska, Missouri, and Ohio together produced 65.6 per cent of the nation's product.¹² The region of greatest corn production extended from Ohio to the western plains of Kansas and Nebraska and northward from the thirty-sixth parallel of latitude.¹³ It included the seven States of Ohio, Indiana, Illinois, Iowa, Missouri, Kansas, and Nebraska which have since become designated as "the corn-belt States". The center of corn production was located in these States, moving rapidly westward throughout this period. In 1849, it was about 86 miles east-southeast of Columbus, Ohio; in 1859 it was 47 miles west-southwest of New Albany, Indiana; in 1869, it was 90 miles southwest of Indianapolis, Indiana; 1879, it was 36 miles southeast of Springfield, Illinois; and in 1889, it was 55 miles southwest of Springfield, or about 480 miles west and 5 miles north of the center of production in 1850.¹⁴

The rapid growth of the corn belt States is well illustrated by Iowa. This State in 1859 produced 42,411,000 bushels of corn or 5 per cent of the entire crop; in 1869 it produced 68,935,000 bushels, or 9.1 per cent of the whole crop; in 1879, it showed the remarkably high return of 275,014,000 bushels, or 15.7 per cent of the entire product; and in 1889, it achieved first rank with 313,131,000 bushels, which represented 14.8 per cent of the nation's corn pro-

¹² These percentages are based on a table in the *Twelfth Census of the United States*, 1900, Vol. VI, pp. 80, 81.

¹³ See Brewer's *Report on the Cereal Production of the United States*, pp. 90, 92, in the *Tenth Census of the United States*, 1880, Vol. III.

¹⁴ *Twelfth Census of the United States*, 1900, Vol. VI, p. 24.

duction.¹⁵ The per capita returns for this State amounted in 1859 to 62.8 bushels; in 1869, to 57.7 bushels; in 1879, to 169.2 bushels; and in 1889, to 163.8 bushels.¹⁶ Illinois affords another good illustration. In 1859, this State produced 115,175,000 bushels, or 13.7 per cent of the entire crop; in 1869, it produced 129,921,000 bushels, or 17.1 per cent of the whole crop; in 1879, it contributed the greatly increased return of 325,792,000 bushels, or 18.6 per cent of the entire crop; and in 1889, when it was superseded by Iowa for first place, it made the decreased return of 289,697,000 bushels, or 13.7 per cent of the nation's product.¹⁷ The per capita returns of Illinois amounted to 67.3 bushels in 1859, which was reduced to 51.2 bushels in 1869. This was rapidly increased to 105.9 bushels in 1879 and then again reduced in 1889 to 75.7 bushels.¹⁸ The other States of the corn belt showed a similar rapid development.

"While various causes have conduced to this increased production in any one State," observed W. H. Brewer, "among which are increase of population and better transportation facilities, yet the amounts grown in these late years could not have been produced and gathered by the population with the means and by the methods employed in growing the crop forty years ago. The relative increase of production is mostly on those soils of the West that admit the use of the most improved implements for the cultivation of the crop. The average yield per acre is about as large in some of the Eastern States, where the cultivation is more difficult, but a given amount of human labor producing a

¹⁵ *Twelfth Census of the United States*, 1900, Vol. VI, pp. 80, 81.

¹⁶ Blodgett's *Relations of Population and Food Products in the United States* (Bulletin No. 24, Division of Statistics, United States Department of Agriculture, 1903), p. 20.

¹⁷ *Twelfth Census of the United States*, 1900, Vol. VI, pp. 80, 81.

¹⁸ Blodgett's *Relations of Population and Food Products in the United States* (Bulletin No. 24, Division of Statistics, United States Department of Agriculture, 1903), p. 20.

smaller result, the crop is not grown to so great an extent. Ease of tillage, capability of planting and gathering large crops with a minimum of hand labor, along with sufficient fertility of soil to grow fair crops, characterize all the regions of specially large production."¹⁹

Wheat is the second cereal in quantity of production, but the first in commercial importance. It will be seen by reference to Table IV, showing the geographic distribution of

TABLE IV

GEOGRAPHIC DISTRIBUTION OF WHEAT PRODUCTION IN THE UNITED STATES BY TEN-YEAR PERIODS FROM 1859 TO 1889 ²⁰						
DIVISION	1859			1869		
	BUSHEL	PER CENT ENTIRE CROP	BUSHEL PER CAPITA	BUSHEL	PER CENT ENTIRE CROP	BUSHEL PER CAPITA
N. ATLANTIC	24,569,681	14.2	2.3	35,153,555	12.2	2.8
S. ATLANTIC	28,737,216	16.6	5.3	22,326,598	7.8	3.8
N. CENTRAL	95,005,130	54.9	10.4	194,934,540	67.7	15.0
S. CENTRAL	17,128,600	9.9	2.9	14,413,921	5.0	2.2
WESTERN	7,664,297	4.4	12.4	20,917,012	7.3	21.1
DIVISION	1879			1889		
	BUSHEL	PER CENT ENTIRE CROP	BUSHEL PER CAPITA	BUSHEL	PER CENT ENTIRE CROP	BUSHEL PER CAPITA
N. ATLANTIC	34,178,947	7.4	2.3	32,012,544	6.8	1.8
S. ATLANTIC	28,534,367	6.2	3.7	27,435,104	5.9	3.1
N. CENTRAL	329,550,755	71.7	18.9	321,316,830	68.6	14.3
S. CENTRAL	24,278,499	5.3	2.7	24,502,856	5.2	2.2
WESTERN	42,940,569	9.4	24.3	63,106,634	13.5	20.7

¹⁹ Brewer's *Report on the Cereal Production of the United States*, p. 91, in the *Tenth Census of the United States*, 1880, Vol. III.

²⁰ The statistics used in this table, giving the complete returns of corn production by geographic divisions, together with the percentage of the nation's

wheat production in the United States by ten-year periods from 1859 to 1889, that the North Central division in 1859 was already producing more than half of the nation's crop, the returns for that year amounting to 95,005,000 bushels, which represented 54.9 per cent of the entire product. The high price of wheat, occasioned by the growing foreign demand during the sixties, gave a great stimulus to the wheat growing industry, with the result that the production of this division was doubled during the decade, the returns for 1869 amounting to 194,935,000 bushels, representing 67.7 per cent of the entire crop. This was further increased in 1879 to 329,551,000 bushels, or 71.5 per cent of the whole crop; while the returns for 1889 showed a slight decrease to 321,317,000 bushels, representing 68.6 per cent of the entire product. The South Atlantic division in 1859 ranked second in the production of wheat with a return of 28,737,000 bushels, or 16.6 per cent of the whole crop. In 1869, this division was reduced to third place, the returns for that year amounting to but 22,327,000 bushels, or 7.8 per cent of the entire crop. In 1879, it was further reduced to fourth place, but with a slightly increased return of 28,535,000 bushels, which represented 6.2 per cent of the whole product. In 1889, it maintained the same rank with a return of 27,435,000 bushels, representing 5.9 per cent of the nation's crop. The North Atlantic division in 1859 ranked third in wheat production, the returns for that year amounting to

entire product contributed by each division, are taken from a table in the *Twelfth Census of the United States*, 1900, Vol. VI, pp. 92, 93. The per capita returns are based on this table and on the statistics of population given in Table II of this paper. For an extended review of wheat production in the United States according to the census returns of 1880, see, especially, Brewer's *Report on the Cereal Production of the United States*, pp. 60-89, in the *Tenth Census of the United States*, 1880, Vol. III. Maps 2, 3, 4, and 5, showing the geographic distribution of wheat production in the United States in 1879, are essential. See also: *Statistical Atlas of the United States: Eleventh Census*, 1890, maps 291, 292, 293, 294, showing the geographic distribution of wheat in the United States according to the census returns of 1890.

24,570,000 bushels, or 14.2 per cent of the entire crop. In 1869, this division advanced to second place with 35,154,000 bushels, or 12.2 per cent of the whole crop, thus superseding the South Atlantic division which now dropped to third place. In 1879, the North Atlantic division again dropped to third place, with a slightly decreased return of 34,179,000 bushels, representing but 7.4 per cent of the entire crop. In 1889, this division maintained the same rank with a continued decrease to 32,013,000 bushels, representing 6.8 per cent of the nation's product. The South Central division in 1859 ranked fourth in the production of wheat, with a return of 17,128,000 bushels, representing 9.9 per cent of the whole crop. In 1869, it was reduced to fifth place, the returns for that year being decreased to 14,414,000 bushels, or 5 per cent of the entire product. In 1879, and again in 1889, this division continued to hold the same rank, the returns for 1879 amounting to 24,278,000 bushels or 5.3 per cent of the whole crop, while the returns for 1889 maintained about the same level, amounting to 24,503,000 bushels, representing 5.2 per cent of the entire crop. The Western division in 1859 was at the bottom of the list, the production of wheat in that year being only 7,664,000 bushels, or 4.4 per cent of the whole crop. In 1869, it advanced to fourth place with 20,917,000 bushels, representing 7.3 per cent of the whole product, thus superseding the South Central division which was now reduced to fifth place. By 1879, the Western division had forged ahead to second place, having meanwhile doubled its returns which now amounted to 42,941,000 bushels, representing 9.4 per cent of the entire crop. The same rank was easily maintained in 1889 with a greatly increased return of 63,107,000 bushels, representing 13.5 per cent of the nation's product. Nearly all of the wheat reported for the Western division at these census periods was produced in the Pacific Coast States, California alone furnishing about two-thirds of the entire amount.

The ascendancy which the North Central division had thus achieved in the production of wheat assumes even a more remarkable significance by a comparison of the per capita returns of the several geographic divisions. It will be seen by further reference to Table IV that the North Central division in 1859 produced 10.4 bushels of wheat per capita. This was rapidly increased to 15 bushels in 1869, finally reaching 18.9 bushels in 1879, after which it was decreased to 14.3 bushels in 1889. The South Atlantic division in 1859 produced 5.3 bushels of wheat per capita. This was reduced in 1869 to 3.8 bushels which amount was maintained at practically the same level at the next census period when 3.7 bushels were returned. In 1889, this was further reduced to 3.1, or only about one-fifth of the per capita returns of the North Central division in the same year. The North Atlantic division in 1859 showed the comparatively small return of 2.3 bushels of wheat per capita which was increased by one-half a bushel per capita in 1869, then decreased in 1879 to 2.3 bushels, to be still further reduced to 1.8 bushels per capita in 1889, or only one-eighth of the per capita returns of the North Central division for that year. The South Central division reported about the same per capita returns of wheat for these census periods as the North Atlantic division, the returns amounting in 1859 to 2.9 bushels and decreasing in 1889 to 2.2 bushels, or nearly one-seventh of the amount returned for the North Central division in the same year. The Western division in 1859 showed the phenomenally high record of 12.4 bushels of wheat per capita which was nearly doubled during the next decade, amounting in 1869 to 21.1 bushels. This was still further increased in 1879 to 24.3 bushels, and then decreased in 1889 to 20.7 bushels. While these returns were considerably higher than the per capita returns of the North Central division, it is to be remembered that the

settlement of the Western division had hardly more than begun, its population numbers being far behind those of the other divisions, thus giving this division a relatively low volume of production. Even so, however, the high per capita returns furnished a considerable surplus which entered into the internal and export trade of the Pacific Coast.

The North Central division had thus become the great wheat emporium of the nation, producing more than two-thirds of all the wheat raised in the country. With this fact in mind, the relative importance of the East and West North Central sections in the production of wheat now commands our attention. In 1859, the East North Central section produced 46.1 per cent of the entire crop; while the West North Central section contributed but 8.8 per cent. In 1869, the East North Central section produced 44.3 per cent of the whole crop — a slight decrease as compared with the percentage returned by the previous census; while the West North Central section increased its contribution which now amounted to 23.4 per cent of the entire product. In 1879, the East North Central section returned 44.5 per cent of the whole product, or practically the same percentage reported for 1869; while the West North Central section showed a further increase of production to 27.1 per cent of the entire crop. In 1889, the proportion of the whole crop returned by the East North Central section was reduced to 31.4 per cent; while the returns for the West North Central section amounted to 37.4 per cent.²¹ Thus by 1889, the West North Central section had wrested the leadership from the East North Central section in the production of wheat. This fact is further emphasized by the rapidity with which the center of the wheat growing industry moved westward during this period. In 1849, the center of production was 57 miles east-northeast of Columbus, Ohio; in

²¹ These percentages are based on a table in the *Twelfth Census of the United States*, 1900, Vol. VI, pp. 92, 93.

1859, it was 18 miles north by east of Indianapolis, Indiana; in 1869, it was located 82 miles northeast of Springfield, Illinois; in 1879, it was 69 miles northwest of Springfield; and by 1889, it had crossed the Mississippi and was located in Missouri at a point 138 miles south by east of Des Moines, Iowa. At the close of the century, it was located 70 miles west of Des Moines, or about 99 miles north and about 680 miles west of the center of wheat production in 1850, which was nearly one and one-half times the westward movement of corn during the same period.²² This shows, furthermore, that the center of wheat production was moving northward as well as westward; while the center of corn production was moving almost due westward — a fact of fundamental importance in the study of the internal grain trade of this period.

Further study of the wheat returns for this period shows that more than half of this product was contributed by the six leading wheat producing States. These States in 1859, named in order of their importance, were Illinois, Indiana, Wisconsin, Ohio, Virginia, and Pennsylvania, which together produced 56.4 per cent of the entire crop. In 1869, the States of Illinois, Iowa, Ohio, Indiana, Wisconsin, and Pennsylvania produced 55.7 per cent of the whole product. In 1879, the States of Illinois, Indiana, Ohio, Michigan, Minnesota, and Iowa produced 53.4 per cent of the entire crop. In 1889, the States of Minnesota, California, Illinois, Indiana, Ohio, and Kansas contributed 50.2 per cent of the nation's product.²³ The region of greatest wheat production included the five East North Central States of Ohio, Indiana, Illinois, Michigan, and Wisconsin and the first tier of States beyond the Mississippi River in the West North

²² *Twelfth Census of the United States*, 1900, Vol. VI, p. 32.

²³ These percentages are based on a table in the *Twelfth Census of the United States*, 1900, Vol. VI, pp. 92, 93.

Central section: Iowa, Missouri, and Minnesota. Kansas was added near the close of the period; while the two States of North and South Dakota (together known as Dakota Territory until 1889) were rapidly forging ahead to become listed among the six leading wheat growing States by the close of the century.²⁴

The growth of the East North Central section in the production of wheat during this period may be illustrated by the State of Illinois; while Minnesota may be taken to represent the West North Central section. Illinois in 1859 produced 23,837,000 bushels of wheat which represented 13.8 per cent of the entire crop; in 1869, it produced 30,128,000 bushels, or 10.5 per cent of the whole product; in 1879, it showed the greatly increased return of 50,111,000 bushels representing 11.1 per cent of the entire crop; and in 1889, it produced 37,389,000 bushels, or 8 per cent of the entire crop.²⁵ An analysis of the per capita returns shows that this State in 1859 produced 13.9 bushels of wheat per capita, which in 1869 was decreased to 11.9 bushels, then increased in 1879 to 16.6 bushels, and finally decreased again in 1889 to 9.8 bushels.²⁶ Minnesota, on the other hand, showed the comparatively insignificant return in 1859 of 2,187,000 bushels of wheat which represented but 1.3 per cent of the whole crop; in 1869 this was increased to 18,866,000 bushels, or 6.6 per cent of the entire crop; in 1879 these returns were nearly doubled, amounting to 34,601,000 bushels, or 7.5 per cent of the entire crop; and in 1889, when this State superseded Illinois for first place, the returns were further increased to 52,300,000 bushels, which amount represented

²⁴ See the writer's article on *The Westward Movement of the Wheat Growing Industry in the United States* in THE IOWA JOURNAL OF HISTORY AND POLITICS, Vol. XVIII, pp. 396-412.

²⁵ *Twelfth Census of the United States*, 1900, Vol. VI, pp. 92, 93.

²⁶ Blodgett's *Relations of Population and Food Products in the United States* (Bulletin No. 24, Bureau of Statistics, United States Department of Agriculture, 1903), p. 30.

11.2 per cent of the nation's product.²⁷ A review of the per capita returns shows that Minnesota in 1859 was already producing 12.7 bushels of wheat per capita, which in 1869 was more than trebled, amounting in that year to 42.9 bushels, after which it was maintained at practically the same level, the returns amounting in 1879 to 44.3 bushels and in 1889 to 40.2 bushels.²⁸ Iowa affords another interesting illustration. In 1859 this State produced 8,449,000 bushels of wheat, or 4.9 per cent of the whole crop; in 1869, it produced 10,436,000 bushels, or 10.2 per cent of the entire crop; in 1879, it produced 31,154,000 bushels, or 6.8 per cent of the entire crop; and in 1889, it showed the abnormally low return of 8,250,000 bushels which represented but 1.8 per cent of the whole product.²⁹ The per capita returns of wheat for this State amounted in 1859 to 12.5 bushels; in 1869, to 24.7 bushels; in 1879, to 19.2 bushels; and in 1889, to 4.3 bushels, which, however, as already pointed out, was an abnormally low return, as shown by the fact that the per capita production of this State was increased to 10.2 bushels in 1899.³⁰ The rapid increase in the volume of wheat production, together with the high per capita returns received for these States, reflect in a general way the importance of all the States comprising the North Central division in the production of the growing surplus of wheat which entered into the internal trade of the nation during this period.³¹

²⁷ *Twelfth Census of the United States*, 1900, Vol. VI, pp. 92, 93.

²⁸ Blodgett's *Relations of Population and Food Products in the United States* (Bulletin No. 24, Bureau of Statistics, United States Department of Agriculture, 1903), p. 30.

²⁹ *Twelfth Census of the United States*, 1900, Vol. VI, pp. 92, 93.

³⁰ Blodgett's *Relations of Population and Food Products in the United States* (Bulletin No. 24, Bureau of Statistics, United States Department of Agriculture, 1903), p. 30.

³¹ "The remarkable fact here seen is not the great increase in the production but the increase per capita of population, notwithstanding the fact that during this period the country gained in population as no country ever did before."

TABLE V

GEOGRAPHIC DISTRIBUTION OF OAT PRODUCTION IN THE UNITED STATES BY TEN-YEAR PERIODS FROM 1859 TO 1889 ³²						
DIVISION	1859			1869		
	BUSHEL	PER CENT ENTIRE CROP	BUSHEL PER CAPITA	BUSHEL	PER CENT ENTIRE CROP	BUSHEL PER CAPITA
N. ATLANTIC	77,996,598	45.2	7.3	84,951,544	30.1	6.9
S. ATLANTIC	20,220,026	11.7	3.7	18,908,338	6.7	3.2
N. CENTRAL	62,953,218	36.5	6.09	159,804,821	56.7	12.3
S. CENTRAL	9,338,791	5.4	1.6	13,628,092	4.8	2.1
WESTERN	2,134,552	1.2	3.4	4,814,362	1.7	4.9
DIVISION	1879			1889		
	BUSHEL	PER CENT ENTIRE CROP	BUSHEL PER CAPITA	BUSHEL	PER CENT ENTIRE CROP	BUSHEL PER CAPITA
N. ATLANTIC	83,967,199	20.6	5.9	86,891,504	10.8	4.9
S. ATLANTIC	21,992,934	5.4	2.9	23,736,705	2.9	2.6
N. CENTRAL	270,166,435	66.2	15.5	645,127,344	79.7	28.8
S. CENTRAL	21,645,208	5.3	2.4	37,859,361	4.7	3.4
WESTERN	10,087,223	2.5	5.7	15,635,752	1.9	5.1

The next important cereal is oats. It will be seen by reference to Table V, showing the geographic distribution of oat production in the United States by ten-year periods from 1859 to 1889, that while the North Central division

Brewer's *Report on the Cereal Production of the United States*, p. 61, in the *Tenth Census of the United States*, 1880, Vol. III. See also Brewer's review of the conditions under which the cultivation of wheat as a successful commercial product is regulated and controlled, pp. 61-64 of this report.

³² The statistics used in this table, giving the complete returns of oat production in the United States by geographic divisions, together with the percentage of the nation's product contributed by each division, are taken from a table in the *Twelfth Census of the United States*, 1900, Vol. VI, pp. 84, 85. The per capita returns are based on this table and on the statistics of popula-

had by 1859 already achieved a great lead over the other divisions in the production of corn and wheat, it was still behind the other divisions in the production of oats, ranking second with a return of 62,953,000 bushels which represented 36.5 per cent of the entire crop. By 1869, however, this division had also achieved the lead in oat production with the greatly increased return of 159,805,000 bushels, representing 56.7 per cent of the entire product. This was further expanded in 1879 to 270,166,000 bushels which represented 66.2 per cent of the whole crop. In 1889, the North Central division reported 645,127,000 bushels of oats which was more than double the returns reported at the previous census and which represented 79.7 per cent of the nation's product. The North Atlantic division, as already stated, still held first place in 1859 in the production of oats, the returns for that year amounting to 77,997,000 bushels, representing 45.2 per cent of the entire crop. These returns were increased by only a slight margin in 1869 when 84,952,000 bushels were reported which, due to the rapid expansion of oat production in the North Central division, represented but 30.1 per cent of the entire crop, thus reducing the North Atlantic division to second place in the production of this cereal. Production was maintained at practically the same volume in 1879 when 83,967,000 bushels were returned representing a further decrease to 20.6 per cent of the whole crop, and in 1889 when 86,892,000 bushels were reported, representing a continued decrease to 10.8 per cent of the entire product. The South Atlantic division

tion given in Table II of this paper. For a brief review of oat production in the United States according to the census returns of 1880, see Brewer's *Report on the Cereal Production of the United States*, pp. 111-116, in the *Tenth Census of the United States*, 1880, Vol. III. Maps 10, 11, and 12, showing the geographic distribution of oat production in the United States in 1879, are essential. See also *Statistical Atlas of the United States: Eleventh Census*, 1890, maps 303, 304, 305, and 306, showing the geographic distribution of oat production in the United States according to the census returns of 1890.

in 1859 ranked third in the production of oats, the returns for that year amounting to 20,220,000 bushels, or 11.7 per cent of the entire crop. This was decreased in 1869 to 18,908,000 bushels, or 6.7 per cent of the whole crop, and then increased in 1879 to 21,993,000 bushels which, however, represented a decrease to 5.4 per cent of the entire crop. In 1889 this division was reduced to third place with a return of 23,737,000 bushels which represented but 2.9 per cent of the nation's product. The South Central division in 1859 ranked fourth in the production of oats with a return of 9,339,000 bushels, or 5.4 per cent of the whole crop. In 1869, this division reported 13,628,000 bushels, or 4.8 per cent of the entire product. This was increased in 1879 to 21,645,000 bushels, or 5.3 per cent of the entire crop. In 1889 this division advanced to third place, with 37,859,000 bushels, representing 4.7 per cent of the entire crop, thus superseding the South Atlantic division which was now reduced to fourth place. The Western division ranked fifth in the production of oats throughout the period, the returns in 1859 amounting to but 2,135,000 bushels, representing 1.2 per cent of the entire crop and thereafter increasing at each census period until 1889 when 15,636,000 bushels were reported for this division, representing 1.9 per cent of the entire product. It will therefore be seen that while the North Central division in 1859 produced but a little more than one-third of all the oats raised in the United States, in 1889 it contributed four-fifths of the entire product. The ascendancy which this division had thus achieved over the other divisions is also emphasized by the fact that the returns of 1889 amounted to nearly eight times the returns of the North Atlantic division, seventeen times the returns of the South Central division, twenty-seven times the returns of the South Atlantic division, and forty-one times the returns of the Western division.

The supremacy of the North Central division in the production of oats is further shown by the rapid growth in its per capita returns which greatly exceeded the returns of all the other divisions. In 1859, this division, as already noted, ranked only second in the volume of oats produced. This fact was reflected in the per capita returns for that year when but 6.1 bushels were produced which amount was exceeded by the North Atlantic division. During the next decade, however, the North Central division advanced rapidly to first place in the per capita production of oats, the returns for 1869 amounting to 12.3 bushels, or double the returns for the previous census year. This was further increased in 1879 to 15.5 bushels and in 1889 to 28.8 bushels. The North Atlantic division in 1859 ranked first with a per capita oat production of 7.3 bushels but at the next census period it was reduced to second place with a per capita return of 6.9 bushels. This was further reduced in 1879 to 5.9 bushels and finally to 4.9 bushels in 1889. The South Atlantic division reported a decreased per capita return throughout the period from 3.7 bushels in 1859 to 2.6 bushels in 1889. The South Central division, on the other hand, reported an increasing per capita return of from 1.6 bushels in 1859 to 3.4 bushels in 1889. The Western division reported an increase from 3.4 bushels in 1859 to 5.7 bushels in 1879 and then a slight decrease to 5.1 bushels in 1889.

Further consideration of the geographic distribution of oat production in the United States during this period shows that nearly two-thirds of the crop was returned by the six leading oat producing States. These States in 1859, in order of their importance, were New York, Pennsylvania, Ohio, Illinois, Wisconsin, and Virginia, which together contributed 66.3 per cent of the entire crop. In 1869, the States of Illinois, Pennsylvania, New York, Ohio, Iowa, and Wisconsin produced 64.2 per cent of the

whole crop. In 1879, the States of Illinois, Iowa, New York, Pennsylvania, Wisconsin, and Ohio produced 60.5 per cent of the entire crop. In 1889 the States of Iowa, Illinois, Wisconsin, Minnesota, Kansas, and Nebraska contributed 59.7 per cent of the nation's product.³³ The region of greatest oat production during this period included the States of New York, Pennsylvania, Ohio, Indiana, Illinois, Iowa, Wisconsin, Michigan, and Minnesota. Kansas and Nebraska were added near the close of the period. The rapidity with which the oat belt moved westward is further emphasized by the movement of the center of production. In 1849, the center of oat production was 80 miles east by south of Columbus, Ohio; in 1859, it was 48 miles southeast of Cleveland, Ohio; in 1869, it was 30 miles west by south of Fort Wayne, Indiana; in 1879, it was 62 miles south-southeast of Chicago, Illinois (in Indiana); and in 1889, it was 39 miles north-northwest of Peoria, Illinois. By 1899, it had moved to a point 58 miles north of Burlington, Iowa. This was about 575 miles west and 120 miles north of the center of oat production in 1850.³⁴

The growth of oat production in this region may be illustrated by an analysis of the returns of New York and Iowa for the various census periods from 1859 to 1889. New York in 1859 ranked first with 35,175,000 bushels which represented 20.4 per cent of the entire crop; in 1869 this State was reduced to third place with 35,294,000 bushels, which represented a marked decrease to 12.5 per cent of the whole crop; in 1879 it maintained the same rank with a slightly increased return of 37,576,000 bushels, representing, however, a further decrease to 9.2 per cent of the whole crop; and in 1889, it was reduced to ninth place, the oat

³³ These percentages are based on a table in the *Twelfth Census of the United States*, 1900, Vol. VI, pp. 84, 85.

³⁴ *Twelfth Census of the United States*, 1900, Vol. VI, p. 38.

production for that year amounting to 38,896,000 bushels representing but 4.8 per cent of the entire product.³⁵ A review of the per capita oat production for this State shows a return of 9.1 bushels in 1859, which was decreased to 8.1 bushels in 1869, then 7.4 bushels in 1879, and finally to 6.5 bushels in 1889.³⁶ Iowa in 1859 ranked seventh in the production of oats, the returns for that year amounting to 5,888,000 bushels, or 3.4 per cent of the entire crop; in 1869 this State advanced to fifth place with 21,005,000 bushels, or 7.4 per cent of the whole crop; in 1879, it advanced to second place with 50,611,000 bushels, or 12.4 per cent of the entire crop; and in 1889, it achieved first place with 146,679,000 bushels, representing 18.1 per cent of the nation's product.³⁷ This remarkable expansion in the volume of oat production is further emphasized by the rapid growth in per capita production which was increased from 8.7 bushels in 1859 to 17.6 bushels in 1869, then to 31.2 bushels in 1879, and finally to 76.7 bushels in 1889.³⁸ These two States, together with the other States of the oat belt, furnished the great surplus that entered into the internal trade of the country during this period.

Barley and rye occupy a place of relatively minor significance in the internal grain trade of the United States, and so these two cereals will be more briefly considered. Reference to Table VI, giving the geographic distribution of barley production in the United States by ten-year periods from 1859 to 1889, shows that the North Central divi-

³⁵ *Twelfth Census of the United States*, 1900, Vol. VI, pp. 84, 85.

³⁶ Blodgett's *The Relations of Population and Food Products in the United States* (Bulletin No. 24, Bureau of Statistics, United States Department of Agriculture, 1903), p. 24.

³⁷ *Twelfth Census of the United States*, 1900, Vol. VI, pp. 84, 85.

³⁸ Blodgett's *The Relations of Population and Food Products in the United States* (Bulletin No. 24, Bureau of Statistics, United States Department of Agriculture, 1903), p. 24.

TABLE VI

GEOGRAPHIC DISTRIBUTION OF BARLEY PRODUCTION IN THE UNITED STATES BY TEN-YEAR PERIODS FROM 1859 TO 1889 ³⁹						
DIVISION	1859			1869		
	BUSHEL	PER CENT ENTIRE CROP	BUSHEL PER CAPITA	BUSHEL	PER CENT ENTIRE CROP	BUSHEL PER CAPITA
N. ATLANTIC	5,941,416	37.6	.05	9,047,525	30.4	.73
S. ATLANTIC	128,003	0.8	.02	84,326	0.3	.01
N. CENTRAL	4,908,723	31.0	.54	10,612,507	35.7	.91
S. CENTRAL	383,783	2.4	.06	370,199	1.2	.05
WESTERN	4,463,973	28.2	7.2	9,646,748	32.4	9.7
DIVISION	1879			1889		
	BUSHEL	PER CENT ENTIRE CROP	BUSHEL PER CAPITA	BUSHEL	PER CENT ENTIRE CROP	BUSHEL PER CAPITA
N. ATLANTIC	8,932,137	20.3	.61	9,587,050	12.2	.5
S. ATLANTIC	68,133	0.1	.01	84,482	0.1	.008
N. CENTRAL	19,007,888	43.2	1.9	47,257,785	60.3	2.1
S. CENTRAL	596,712	1.4	.06	282,552	0.4	.002
WESTERN	15,392,625	35.0	8.7	21,121,107	27.0	6.9

sion in 1859 ranked second in the production of barley, the returns for that year amounting to 4,909,000 bushels which represented 31 per cent of the entire crop. In 1869, this

³⁹ The statistics used in this table, giving the complete returns of barley production in the United States by geographic divisions together with the percentage of the nation's entire product contributed by each division, are taken from a table in the *Twelfth Census of the United States*, 1900, Vol. VI, pp. 72, 73. The per capita returns are based on this table and on the statistics of population given in Table II of this paper. For a brief review of barley production in the United States according to the census returns of 1880, see Brewer's *Report on the Cereal Production of the United States*, pp. 117-121, in the *Tenth Census of the United States*, 1880, Vol. III. Maps 13 and 14 are essential. See also *Statistical Atlas of the United States: Eleventh Census*, 1890, maps 313 and 314, showing the geographic distribution of barley production in the United States according to the census returns of 1890.

division achieved first place, thereafter maintaining the lead with a rapidly increasing volume of production which was practically doubled every census year until by 1889 it reported a return of 47,258,000 bushels representing 60.3 per cent of the entire product of the nation. The North Atlantic division in 1859 ranked first in barley production with 5,941,000 bushels, representing 37.6 per cent of the entire crop. In 1869, the returns were increased to 9,049,000 bushels, which, however, were exceeded by the returns reported for the North Central and Western divisions, thus reducing the North Atlantic division to third place. Thereafter, this division barely maintained its production of barley at the level of 1869, the returns for 1889 amounting to 9,587,000 bushels which represented but 12.2 per cent of the entire crop. The Western division, it is interesting to note, ranked third in 1859 in the production of barley with a return of 4,464,000 bushels representing 28.2 per cent of the entire crop. In 1869, it advanced to second place with more than double the returns reported in 1859. This was again more than doubled by 1889 when the returns reported for this division amounted to 21,121,000 bushels which, however, represented a slight decrease to 27 per cent of the entire crop. The South Central division ranked fourth in the production of barley throughout the period, the returns for this division amounting in 1859 to 384,000 bushels representing 2.4 per cent of the entire crop, then fluctuating at the next two census periods, but finally decreasing in 1889 to 283,000 bushels, representing but four-tenths of one per cent of the entire product. The South Atlantic division was at the bottom of the list in barley production, the returns for 1859 amounting to 128,000 bushels, or eight-tenths of one per cent of the entire crop. This was decreased at the next two census periods and then increased by a very small margin in 1889 when 84,000 bushels were reported, repre-

senting but one-tenth of one per cent of the entire product.

Further reference to Table VI shows that the Western division reported the highest per capita production of barley at these census periods. In 1859 it produced 7.2 bushels per capita which amount was further increased in 1869 to 9.7 bushels. This was decreased to 8.7 bushels in 1879 and finally to 6.9 bushels in 1889. The North Central division ranked second with a per capita production in 1859 of a little more than one-half a bushel which was increased at each succeeding census period until 1889 when it amounted to a fraction over two bushels. The North Atlantic division ranked third with a per capita production in 1859 of one-twentieth of a bushel which was increased in 1869 to nearly three-fourths of a bushel, then decreased in 1879 to nearly two-thirds of a bushel, and then decreased still further in 1889 to one-half a bushel. The South Atlantic and South Central divisions followed next in order with a decreasing per capita production which at the respective census years represented but a small fraction of a bushel.

Four-fifths of the barley grown in the United States was contributed by the six leading barley producing States. These States in 1859 were in order of their importance: California, New York, Ohio, Illinois, Maine, and Wisconsin, which together produced 81 per cent of the entire crop. In 1869, the States of California, New York, Illinois, Iowa, Ohio, and Wisconsin produced 80.7 per cent of the whole crop. In 1879, the States of California, New York, Wisconsin, Iowa, Minnesota, and Nebraska produced 77.4 per cent of the entire crop. In 1889, the States of California, Wisconsin, Iowa, Minnesota, New York, and Michigan contributed 84.2 per cent of the nation's entire product.⁴⁰ The region of greatest production therefore included: first, the

⁴⁰ These statistics are based on a table in the *Twelfth Census of the United States*, 1900, Vol. VI, pp. 72, 73.

State of California; and, second, the States of New York, Ohio, Wisconsin, Illinois, Indiana, Michigan, Iowa, and Minnesota; while the two Dakotas entered the list near the close of the century as important barley producing States. The center of production moved rapidly westward during this period. "Although no accurate mathematical calculation of that center has been made", the statistics of production show that in 1849, it was located "in the State of New York, and probably east of the center of that State"; while as a result of "the great development of barley growing in the States of California, Minnesota, Wisconsin, Iowa, South Dakota, and Washington" the center of production in 1899 "was somewhere near the junction of Iowa and South Dakota."⁴¹

California alone contributed about one-fourth of the entire barley product. The returns reported for that State in 1859 amounting to 4,415,000 bushels, or 27.9 per cent; in 1869 to 8,783,000 bushels, or 29.5 per cent; in 1879, to 12,464,000 bushels, or 28.3 per cent; and in 1889, to 17,548,000 bushels, or 22.4 per cent.⁴² The reasons for this great production were: first, that the soil and climate were, of course, well adapted to the crop; and second, neither the soil nor the climate was so well adapted to the growth of either corn or oats. Consequently barley was raised on the Pacific Coast primarily for feeding purposes. The rapid growth of barley production in the North Central region was due to other causes: first, the growing demand occasioned by the increasing consumption of beer and ale; and second, that it frequently took the place of wheat as a crop in localities where the Hessian fly rendered wheat growing precarious. The latter fact had much to do with stimulating the production of barley in New York which State ranked next to

⁴¹ *Twelfth Census of the United States, 1900, Vol. VI, p. 43.*

⁴² *Twelfth Census of the United States, 1900, Vol. VI, pp. 72, 73.*

California until 1889, when it was replaced by Wisconsin. The same cause operated also in the States of Ohio and Iowa.⁴³ Wisconsin may be taken to illustrate the rapid growth of barley production during this period. In 1859, this State produced 707,000 bushels, or 4.5 per cent of the entire crop; in 1869, it produced 1,645,000 bushels, or 5.5 per cent; in 1879, it produced 5,043,000 bushels, or 11.5 per cent; and, in 1889, it ranked second to California with a return of 15,226,000 bushels, representing 19.4 per cent of the entire product.⁴⁴

Rye, as shown by Table I, was in 1859 more important than barley as to quantity of production. Thereafter it declined in relative importance, ranking fifth among the cereals. Production, though gradually increased, did not keep pace with the growth in population. Consequently the per capita returns of this grain suffered a decline, the explanation for which may be stated as follows:

“With the opening up of transportation routes, and since wheat grown west of the Appalachians has been so abundantly and cheaply transported to the sea-coast, rye as a grain product has steadily declined in relative importance, until in many regions it has about ceased to be grown merely for its grain. So completely has this come about that in some districts where the previous generation knew it as their chief breadstuff now thousands of families, even the poorest ones, know not even the taste of rye bread.”⁴⁵

A review of the geographic distribution of rye production in the United States, similar to that undertaken for barley, is presented by Table VII. The North Atlantic division in 1859 ranked first in the production of this cereal,

⁴³ Brewer's *Report on the Cereal Production of the United States*, p. 117, in the *Tenth Census of the United States*, 1880, Vol. III.

⁴⁴ *Twelfth Census of the United States*, 1900, Vol. VI, pp. 72, 73.

⁴⁵ Brewer's *Report on the Cereal Production of the United States*, p. 123, in the *Tenth Census of the United States*, 1880, Vol. III.

TABLE VII

GEOGRAPHIC DISTRIBUTION OF RYE PRODUCTION IN THE UNITED STATES BY TEN-YEAR PERIODS FROM 1859 TO 1889 ⁴⁶						
DIVISION	1859			1869		
	BUSHEL	PER CENT ENTIRE CROP	BUSHEL PER CAPITA	BUSHEL	PER CENT ENTIRE CROP	BUSHEL PER CAPITA
N. ATLANTIC	13,127,041	62.2	1.2	7,325,920	43.3	.6
S. ATLANTIC	2,160,144	10.2	.44	1,652,310	9.8	.28
N. CENTRAL	4,105,858	19.5	.45	6,472,904	38.2	.49
S. CENTRAL	1,651,197	7.8	.28	1,423,247	8.4	.02
WESTERN	57,140	.3	.09	44,414	.3	.04

DIVISION	1879			1889		
	BUSHEL	PER CENT ENTIRE CROP	BUSHEL PER CAPITA	BUSHEL	PER CENT ENTIRE CROP	BUSHEL PER CAPITA
N. ATLANTIC	7,997,590	40.3	.55	8,085,361	28.4	.46
S. ATLANTIC	1,152,226	5.8	.01	1,268,879	4.5	.14
N. CENTRAL	9,538,706	48.1	.54	17,951,629	63.2	.8
S. CENTRAL	906,804	4.6	.10	686,607	2.4	.006
WESTERN	236,269	1.2	.13	428,922	1.5	.14

the returns for that year amounting to 13,127,000 bushels, which represented 62.2 per cent or nearly two-thirds of the entire crop. In 1869, it still retained the same rank with a

⁴⁶ The statistics used in this table, giving the complete returns of rye production in the United States by geographic divisions, together with the percentage of the nation's entire product contributed by each division, are taken from a table in the *Twelfth Census of the United States*, 1900, Vol. VI, pp. 88, 89. The per capita returns are based on this table and on the statistics of population given in Table II of this paper. For a brief review of rye production in the United States according to the census returns of 1880, see Brewer's *Report on the Cereal Production of the United States*, pp. 122-125, in the *Tenth Census of the United States*, 1880, Vol. III. Map 15 is essential. See also *Statistical Atlas of the United States: Eleventh Census*, 1890, maps 309 and 310, showing the geographic distribution of rye production in the United States according to the census returns of 1890.

reduced production which amounted to but a little more than half of the returns reported for the previous census, but which nevertheless represented 43.3 per cent, or more than two-fifths of the entire crop. In 1879 it was reduced to second place with a return which amounted to 7,998,000 bushels, representing 40.3 per cent of the entire crop. Approximately the same volume of production was reported for 1889, representing, however, but 28.4 per cent of the entire product. The North Central division in 1859 ranked second in the production of rye with a return of 4,106,000 bushels, representing 19.5 per cent of the entire crop. In 1869, it reported 6,473,000 bushels, representing 38.2 per cent of the whole crop. In 1879, it achieved first place with a return of 9,539,000 bushels, representing 48.1 per cent, or almost half, of the whole crop. In 1889, it reported nearly twice this amount representing 63.2 per cent, or nearly two-thirds, of the entire product of the nation. The South Atlantic division ranked third in rye production throughout the period, the returns for that division in 1859 amounting to 2,160,000 bushels representing 10.2 per cent of the entire crop. This was reduced at each succeeding census period until by 1889, the returns amounted to only 1,269,000 bushels, representing but 4.5 per cent of the entire product. The South Central ranked fourth in rye production with a return in 1859 amounting to 1,651,000 bushels representing 7.8 per cent of the entire crop which was reduced at each succeeding census period until by 1889 it amounted to only 687,000 bushels, representing but 2.4 per cent of the entire crop. The Western division was at the bottom of the list with only 57,000 bushels in 1859 representing but three-tenths of one per cent of the entire crop, which, however, was increased in 1889 to 429,000 bushels, representing 1.5 per cent of the entire product. It will therefore be seen that while the rye production of the North Central division in

1859 was but one-third as large as that of the North Atlantic division, in 1889 it was more than twice as large. These two divisions together in 1859 produced 81.7 per cent of all the rye raised in the United States; in 1889, they contributed 91.6 per cent of all the rye production. The other three divisions were therefore of negligible importance in the production of this grain.

These facts are further emphasized by an analysis of the per capita production of rye of the several geographic divisions, as set forth by Table VII, to which only a brief reference needs to be made. It will be noted that the per capita rye production of the North Atlantic division was decreased from one and two-tenths bushels in 1859 to five-tenths of a bushel in 1889; while the per capita production of the North Central division was increased during the same period from five-tenths of a bushel to eight-tenths of a bushel. All the other divisions reported a per capita return which for the various census periods amounted to less than one-half a bushel.

More than two-thirds of the rye produced in the United States during this period was contributed by the six leading rye growing States. These States in 1859 were in order of their importance: Pennsylvania, New York, New Jersey, Kentucky, Illinois, and Virginia, which together produced 69.5 per cent of the entire crop. In 1869, the States of Pennsylvania, New York, Illinois, Wisconsin, Kentucky, and Ohio produced 69.7 per cent of the entire crop. In 1879, the States of Pennsylvania, Illinois, New York, Wisconsin, Iowa, and New Jersey produced 71.7 per cent of the entire crop. In 1889, the States of Wisconsin, New York, Kansas, Illinois, and Michigan contributed 65.9 per cent of the nation's product.⁴⁷ The region of greatest production

⁴⁷ The statistics are based on a table in the *Twelfth Census of the United States*, 1900, Vol. VI, pp. 88, 89.

included the States of Pennsylvania, New York, Ohio, Michigan, Wisconsin, Illinois, Kentucky, and Iowa; while Kansas entered the list near the close of the period as an important rye producing State. The center of rye production in 1849 was not far west of the center of the States of Pennsylvania and New York and near the boundary line between those States. At the close of the century it was located in the State of Illinois.⁴⁸

Pennsylvania and Wisconsin may be taken to illustrate the growth of rye production in this region. Pennsylvania, as already noted, led in the production of rye at the first three census periods. In 1859, it produced 5,475,000 bushels, which represented 26 per cent of the entire crop; in 1869 it produced 3,578,000 bushels, or 21.1 per cent of the entire crop; in 1879, it produced 3,684,000 bushels, or 18.6 per cent of the whole crop and in 1889, when it was reduced to second place, it contributed 3,742,000 bushels which represented 13.2 per cent of the entire product. Wisconsin in 1859 ranked seventh in rye production with a return of 889,000 bushels representing 4.2 per cent of the whole crop; in 1869 it ranked fourth with 1,325,000 bushels, representing 7.8 per cent of the entire crop; in 1879, it maintained the same rank with 2,299,000 bushels, representing 11.6 per cent of the entire crop; and, in 1889, it achieved first place with 4,251,000 bushels which represented 15 per cent of the entire product of the nation.⁴⁹

Buckwheat is the least important of the six leading cereals of the United States. Until about the middle of the century, it was a very important breadstuff over considerable areas of the country; but after 1850 its importance rapidly diminished. Buckwheat production decreased relatively both to population and to the other cereals, until by

⁴⁸ *Twelfth Census of the United States*, 1900, Vol. VI, p. 47.

⁴⁹ *Twelfth Census of the United States*, 1900, Vol. VI, pp. 88, 89.

1880 it became too insignificant in amount to produce any material effect on the bread supply of the country at large. Consequently, this grain is omitted from the list of cereals mentioned in the annual reports of the various commercial exchanges. Even so, however, buckwheat deserves brief mention in view of the fact that its production during this period was concentrated largely in the North Atlantic division, thus furnishing a small contribution to the supply of breadstuffs needed by that division.

TABLE VIII

GEOGRAPHIC DISTRIBUTION OF BUCKWHEAT PRODUCTION IN THE UNITED STATES BY TEN-YEAR PERIODS FROM 1859 TO 1889 ⁵⁰						
DIVISION	1859			1869		
	BUSHEL	PER CENT ENTIRE CROP	BUSHEL PER CAPITA	BUSHEL	PER CENT ENTIRE CROP	BUSHEL PER CAPITA
N. ATLANTIC	12,366,529	71.5	1.1	7,979,599	81.2	.65
S. ATLANTIC	745,777	4.2	.13	228,037	2.3	.04
N. CENTRAL	4,140,622	23.6	.45	1,504,684	15.3	.12
S. CENTRAL	38,473	0.2	.006	83,173	0.9	.01
WESTERN	80,417	0.5	.13	26,228	0.3	.03
DIVISION	1879			1889		
	BUSHEL	PER CENT ENTIRE CROP	BUSHEL PER CAPITA	BUSHEL	PER CENT ENTIRE CROP	BUSHEL PER CAPITA
N. ATLANTIC	9,560,283	80.9	.65	8,750,506	72.3	0.51
S. ATLANTIC	608,896	5.1	.08	277,899	2.3	0.003
N. CENTRAL	1,571,759	13.3	.09	3,042,395	25.1	0.13
S. CENTRAL	44,822	0.4	.005	22,251	0.2	0.0002
WESTERN	31,567	0.2	0.2	17,300	0.1	0.005

⁵⁰ The statistics used in this table, giving the complete returns of buckwheat production in the United States by geographic divisions, together with the percentage of the nation's entire product contributed by each division, are taken from a table in the *Twelfth Census of the United States*, 1900, Vol. VI, pp.

It will be seen by reference to Table VIII, showing the geographic distribution of buckwheat production in the United States by ten-year periods from 1859 to 1889, that the North Atlantic division maintained first place throughout the period. The returns for 1859 amounted to 12,367,000 bushels which represented 71.5 per cent of the entire crop. In 1869, the returns were decreased to 7,980,000 bushels representing, however, 81.2 per cent of the whole crop. This was increased in 1879 to 9,560,000 bushels, or 80.9 per cent of the entire crop and then decreased again in 1889 to 8,751,000 bushels which represented 72.3 per cent of the entire crop. The North Atlantic division therefore contributed from three-fourths to four-fifths of all the buckwheat produced in the United States during this period. The North Central division ranked second in buckwheat production with 4,141,000 bushels in 1859 representing 23.6 per cent of the entire crop. In 1869 it produced only 1,505,000 bushels or 15.3 per cent of the whole crop. This return was barely maintained in 1879, to be doubled however in 1889 when 3,042,000 bushels were reported, representing 25.1 per cent of the entire product. If the returns of the North Atlantic and North Central divisions be combined it will be seen that these two divisions contributed more than nine-tenths of all the buckwheat in the country. The South Atlantic division ranked third in buckwheat production; while the South Central and Western divisions came next; but the returns reported for these three divisions were too insignificant to be mentioned. The decline in buckwheat production is emphasized finally by the fact that the per capita returns of the North Atlantic division were reduced

76, 77. The per capita returns are based on this table and on the statistics of population given in Table II of this paper. For a brief review of buckwheat production in the United States according to the census returns of 1880, see Brewer's *Report on the Cereal Production of the United States*, pp. 126-129, in the *Tenth Census of the United States*, 1880, Vol. III. Map 16 is essential.

from 1.1 bushels in 1859 to one-half a bushel in 1889; while the per capita production of the North Central division was decreased during the same period from nearly one-half a bushel to a little more than one-tenth of a bushel. The other divisions reported but a small fraction of a bushel per capita at the various census periods.

More than one-half of the buckwheat raised in the United States was contributed by the two States of New York and Pennsylvania which together in 1859 produced 60.9 per cent of the entire crop; in 1869 they produced 65.6 per cent; in 1879, they produced 68.1 per cent; and in 1889, they furnished 64 per cent of the entire product.⁵¹ Among the other buckwheat producing States during this period may be mentioned Maine in the East; and in the West, Ohio, Michigan, and Wisconsin. The center of buckwheat production at the close of the century remained practically where it was in 1849: somewhere in the western part of New York or Pennsylvania.⁵²

The relative importance of the several geographic divisions in the production of the six leading cereals during this period may now be summarized. In 1859, the North Central division was first in wheat and corn — the two most important bread-stuffs; and second in oats, barley, rye, and buckwheat. The North Atlantic division was first in oats, barley, rye, and buckwheat; third in wheat; and fourth in corn. The South Atlantic division was second in wheat; third in corn, oats, rye, and buckwheat; and fifth in barley. The South Central division was second in corn; fourth in wheat, oats, barley, and rye; and fifth in buckwheat. The Western division was third in barley; fourth in buckwheat; and fifth in corn, wheat, oats, and rye. In 1869, the North

⁵¹ These statistics are based on a table in the *Twelfth Census of the United States*, 1900, Vol. VI, pp. 76, 77.

⁵² *Twelfth Census of the United States*, 1900, Vol. VI, p. 51.

Central division, in addition to the lead already gained in corn and wheat, also achieved first place in oats and barley, at the same time retaining second place in rye and buckwheat. The North Atlantic division (the nearest competitor of the North Central division at the previous census period) still retained first place only in rye and buckwheat; while it dropped to second in oats and to third in barley, rose to second in wheat, and remained fourth in corn. The South Atlantic division now held third place in corn, wheat, oats, and rye; third in buckwheat; and fifth in barley. The South Central division was second in corn; fourth in oats, barley, rye, and buckwheat; and fifth in wheat. The Western division was second in barley; fourth in wheat; and fifth in oats, corn, rye, and buckwheat. By 1879, the North Central division had acquired the lead in all the principal cereals, except buckwheat; while the North Atlantic division was first in buckwheat; second in oats and rye; third in wheat and barley, and fourth in corn. The South Atlantic division retained third place in corn, oats, rye, and buckwheat; while it dropped to fourth in wheat and to fifth in barley. The South Central division retained the same rank in each product as in the preceding census returns. The Western division gained second in wheat, retained second in barley, and remained fifth in corn, oats, rye, and buckwheat as before. In 1889, the relative importance of the several geographic divisions in the production of the six leading cereals remained unchanged, except for the rise of the South Central division from fourth to third place in oat production and the consequent reduction of the South Atlantic division from third to fourth place.

The important position achieved by the North Central division during this period as the granary of the nation is shown finally by a study of the relative importance of the several geographic divisions in the production of all the

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TABLE IX

GEOGRAPHIC DISTRIBUTION OF THE SIX LEADING CEREALS OF THE UNITED STATES BY TEN-YEAR PERIODS FROM 1859 TO 1889 ⁵³						
DIVISION	1859			1869		
	BUSHEL	PER CENT ENTIRE CROP	BUSHEL PER CAPITA	BUSHEL	PER CENT ENTIRE CROP	BUSHEL PER CAPITA
N. ATLANTIC	201,146,976	16.2	18.25	211,716,024	15.2	17.18
S. ATLANTIC	186,484,118	15.0	35.13	129,726,942	9.3	20.33
N. CENTRAL	577,280,284	46.7	62.53	812,674,401	58.7	61.82
S. CENTRAL	258,136,402	20.9	43.35	195,501,827	14.1	30.08
WESTERN	15,792,167	1.2	25.42	37,779,959	2.7	38.07

DIVISION	1879			1889		
	BUSHEL	PER CENT ENTIRE CROP	BUSHEL PER CAPITA	BUSHEL	PER CENT ENTIRE CROP	BUSHEL PER CAPITA
N. ATLANTIC	225,674,856	8.4	15.21	207,518,270	6.0	11.92
S. ATLANTIC	181,622,663	6.7	23.70	184,258,853	5.3	20.80
N. CENTRAL	1,915,120,204	71.4	110.83	2,633,565,991	75.1	117.76
S. CENTRAL	292,992,093	10.8	32.77	378,054,866	10.6	34.45
WESTERN	72,170,413	2.7	40.93	105,418,924	3.0	34.81

leading cereals (corn, wheat, oats, barley, rye, and buckwheat) combined. It will be seen by reference to Table IX, giving the geographic distribution of cereal production in the United States by ten-year periods from 1859 to 1889,

⁵³ The statistics used in this table, giving the complete returns of grain production (corn, wheat, oats, barley, rye, and buckwheat combined) in the United States by geographic divisions, together with the percentage of the nation's entire product contributed by each division, are based on the tables in the *Twelfth Census of the United States, 1900, Vol. VI, pp. 72-93*. The per capita returns are based on these tables and on the statistics of population given in Table II of this paper. For a brief general review of grain production in the United States, according to the census returns of 1880, see Brewer's *Report on the Cereal Production of the United States, pp. 9-18, in the Tenth Census of the United States, 1880, Vol. III. Map No. 1, showing the geo-*

that the North Central division in 1859 was already far in the lead with the comparatively large return of 577,280,000 bushels representing 46.7 per cent, or nearly half, of the entire product. In 1869, it produced 812,674,000 bushels, or 58.7 per cent of the whole crop. In 1879, it reported a return of more than double that amount, representing 71.4 per cent of the entire crop. This was rapidly increased during the succeeding decade until by 1889 the North Central division was able to report 2,633,566,000 bushels of grain which represented 75.1 per cent, or three-fourths, of the entire cereal product of the nation. The South Central division in 1859 ranked second in the production of grain, the returns for that year amounting to 258,136,000 bushels, representing 20.9 per cent of the entire crop. In 1869, it was reduced to third place with a decreased return of 195,502,000 bushels, representing but 14.1 per cent of the whole product; by 1879, it had recovered sufficiently from the effects of the war to hold second place again with an increased return of 292,992,000 bushels, representing, however, due to the rapid expansion of cereal production in the North Central division, a decrease to 10.8 per cent of the entire product. In 1889, the South Central division further increased its volume of production to 378,055,000 bushels which represented substantially the same percentage of the nation's entire product at the previous census period. The North Atlantic division in 1859 ranked third in grain production with 201,147,000 bushels, representing 16.2 per cent of the entire product. In 1869, it advanced to second place with a slightly increased return of 211,716,000 bushels, representing 15.2 per cent of the whole product, thus superseding the South Central division, which, as already noted, geographic distribution of grain production, is essential. See also *Statistical Atlas of the United States: Eleventh Census, 1890*, map No. 317, showing the geographic distribution of grain production in the United States according to the census of 1890.

was temporarily reduced to third place. In 1879, the North Atlantic division reported only a slight increase in grain production which now represented but 8.4 per cent of the whole product, with the result that this division was again reduced to third place. In 1889, it reported a decreased production amounting to 207,518,000 bushels, representing but 6 per cent of the nation's entire product. The South Atlantic division ranked fourth in grain production throughout the period. In 1859 it reported a return of 186,484,000 bushels or 15 per cent of the whole product. This was decreased in 1869 to 129,727,000 bushels, representing a reduction to 9.3 per cent of the whole crop. In 1879, the South Atlantic division reported a slightly increased production amounting to 181,623,000 bushels but representing a decrease to 6.7 per cent of the entire product. The volume of production was barely maintained in 1889 when a return of 184,259,000 bushels representing but 5.3 per cent of the nation's entire product was reported. In volume of grain production and the percentage of the entire crop which this represented, the South Atlantic division in 1889 therefore began to crowd the North Atlantic division for third place. The Western division ranked fifth in grain production with the comparatively insignificant return in 1859 of 15,792,000 bushels representing but 1.2 per cent of the entire product. This was more than doubled in 1869, the returns reported for that year amounting to 37,780,000 bushels or 2.7 per cent of the whole product. The volume of production was again doubled in 1879, amounting to 72,170,000 bushels, which represented the same percentage of the whole product as that reported at the previous census. In 1889, this division contributed 105,419,000 bushels representing 3 per cent of the entire product. Finally, a comparison of the volume of grain production of the several geographic divisions at the close of the period, shows

that the North Central division produced thirteen times as much grain as the North Atlantic division; more than fourteen times as much as the South Atlantic division; seven times as much as the South Central division; and twenty-five times as much as the Western division.

The real significance of the position which the North Central division had thus achieved as the granary of the nation is to be found, however, in the remarkable expansion in its per capita production of corn, wheat, oats, barley, rye, and buckwheat combined. It will be seen by reference to Table IX that this division had by 1859 already achieved a considerable lead over all the other divisions with the relatively high per capita return of 62.5 bushels. In 1869, it reported practically the same amount, or 61.8 bushels. During the succeeding decade, grain production ran far ahead of the rapid growth in population, as shown by the greatly increased per capita return of 110.8 bushels which this division reported in 1879. The continued expansion in grain production after that date brought the per capita returns in 1889 up to 117.8 bushels. The South Central division in 1859 ranked second in grain production with a per capita return of 43.4 bushels. In 1869, it was reduced to third place with a per capita return of 30.1 bushels. This was decreased still further in 1879 to 32.8 bushels, and then increased by a small margin in 1889 to 34.5 bushels. The South Atlantic division in 1859 ranked third in the per capita production of grain, with a return of 35.1 bushels. In 1869 it was reduced to fourth place with a per capita production amounting to 20.3 bushels. In 1879, it reported an increased return of 23.7 bushels which in 1889 was again decreased to 20.8 bushels, or practically the same per capita return reported in 1869. The western division in 1859 ranked fourth with a per capita production of 25.4 bushels. In 1869, it achieved second place with 38.1 bushels, thus

superseding the South Central and South Atlantic divisions which were reduced to third and fourth places respectively. In 1879, it maintained the same rank with but a slight increase to 40.9 bushels which in 1889 was reduced to 34.8 bushels. The North Atlantic division ranked fifth in the per capita production of grain throughout the period. In 1859, it produced 18.3 bushels per capita. This was decreased in 1869 to 17.2 bushels and in 1879 to 15.2 bushels. By 1889 the per capita production of grain returned by the North Atlantic division amounted to but 11.9 bushels. This was only about one-eleventh of the per capita production of the North Central division which in thirty years had been expanded from 62.5 bushels to 117.8 bushels.

More than one-half of all the grain raised in the United States during this period was produced by the six leading grain growing States. These States in 1859 were in order of their importance: Illinois, Ohio, Indiana, Missouri, Pennsylvania, and New York, which together contributed 48.4 per cent of the entire product. In 1869, the States of Illinois, Ohio, Iowa, Missouri, Pennsylvania, and Indiana produced 53.1 per cent of all the grain. In 1879, the States of Illinois, Iowa, Missouri, Ohio, Indiana, and Kansas produced 57.6 per cent of the whole product. In 1889, the States of Iowa, Illinois, Kansas, Nebraska, Missouri, and Ohio contributed 57.1 per cent of the nation's entire product.⁵⁴ The rapidity with which the grain belt moved westward in the North Central division is shown by the fact that while the six leading grain growing States in 1859 included two North Atlantic States (New York and Pennsylvania), three East North Central States (Ohio, Indiana, and Illinois), and one West North Central State (Missouri),

⁵⁴ These percentages are based on a table in the *Twelfth Census of the United States*, 1900, Vol. VI, pp. 64, 65. This table includes rice and Kafir corn, which rank seventh and eighth respectively among the cereals, and so occupy a place of negligible importance in the present study.

in 1869 New York was dropped out and Iowa was added; in 1879, Pennsylvania was dropped out and Kansas was added; and in 1889, Indiana was dropped out and Nebraska was added. Or, to state it differently, whereas in 1859 but one West North Central State was listed among the six leading grain growing States, in 1889 four West North Central States were included in this group. "The region of greatest cereal production in the United States", said Brewer in his *Report on the Cereal Production of the United States* in 1880, "is oval in outline stretching westward from the Eastern borders of Ohio about 800 miles, and is about 600 miles wide near the Mississippi river."⁵⁵ It included the States of Ohio, Indiana, Illinois, Iowa, Missouri, the eastern half of Kansas and Nebraska, Minnesota (including the valley of the Red River of the North), the southwestern half of Wisconsin, Southern Michigan, and small sections of western Kentucky and Tennessee. The rapid growth of grain production in this region may be illustrated by Iowa which is located in the midst of the grain belt. In 1859, Iowa ranked tenth in grain production with 57,614,000 bushels, representing 46 per cent of the entire product. By 1869, it had advanced to third place with 121,952,000 bushels, representing 7 per cent of the whole crop. In 1879, it ranked second with 362,487,000 bushels, representing 13.4 per cent of the whole product. By 1889, this State had achieved first place in grain production with 483,198,000 bushels which represented 13.7 per cent, or more than one-eighth of the entire product of the nation.⁵⁶

This comparative review of the several geographic divisions in the production of the six leading cereals has been

⁵⁵ Brewer's *Report on the Cereal Production of the United States*, p. 18, in the *Tenth Census of the United States*, 1880, Vol. III.

⁵⁶ These statistics are based on a table in the *Twelfth Census of the United States*, 1900, Vol. VI, pp. 64, 65.

presented somewhat in detail in order to show the extent to which the manufacturing-commercial East and the cotton-growing South had by 1890 given way to the food-producing West in the production of grain, thus illustrating that territorial division of labor (mentioned at the beginning of this paper) upon which the growing volume of internal trade depended. A great cereal and live-stock⁵⁷ kingdom had been founded in the North Central region, furnishing the huge surplus of grain and provisions which were required in ever increasing volume to fill the annually recurring deficits in the food supplies of the East and the South and of the countries of Western Europe. This surplus developed the great primary and provision markets of the Middle West, expanded the volume of internal commerce which found its way eastward and southward via the great interior waterways and the trunk line railroads, and contributed to the development of the Atlantic seaboard cities as distributing centers for western agricultural products. These aspects of the problem will be presented in the next article.

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⁵⁷ For a brief analysis of the relations of grain and live stock production, see Brewer's *Report on the Cereal Production of the United States*, pp. 150-152, in the *Tenth Census of the United States*, 1880, Vol. III.