

THE INTERNAL GRAIN TRADE OF THE UNITED STATES 1860-1890¹

III

In the preceding studies on the internal grain trade of the United States from 1860 to 1890, attention has been given to the following aspects of the problem: first, the rapid expansion in grain production in the United States during this period; second, the geographic distribution of population and grain production showing the rapid expansion of the Middle West as the great surplus cereal producing region upon which the older sections of the country and the western nations of Europe had become increasingly dependent; third, the principal transportation routes connecting this region with the Atlantic and Gulf seaboard; and fourth, the growth of the great primary markets of the Middle West. The purpose of this study is to present a consideration of the movement of flour and grain from the primary markets of the Middle West to the Atlantic and Gulf ports.

In proceeding with a consideration of this aspect of the problem, attention should be called to the fact that while the Federal Government from the very beginning of the national period of our history collected a great amount of statistical information on the foreign commerce of the United States, which was published in a document known as the *Annual Report on the Commerce and Navigation of the United States*, the whole subject of the internal trade of the

¹ See the writer's first two studies on *The Internal Grain Trade of the United States, 1860-1890*, in *THE IOWA JOURNAL OF HISTORY AND POLITICS*, Vol. XIX, pp. 196-245, 414-455.

United States was treated with general indifference and neglect down to the year 1872. In that year Congress, recognizing the need of detailed information bearing on the internal trade of the country which had already assumed vast proportions, passed an act providing for the appointment of a *Select Committee on Transportation Routes to the Seaboard* "to investigate and report on the subject of transportation between the interior and the seaboard". This Committee known as the Windom Committee, in its two volume report published in 1874, made the following pertinent observation:

Perhaps the most extraordinary feature of our governmental policy touching the vast internal trade of the nation, is the apparent indifference and neglect with which it has been treated. While detailed information has been obtained by the Government, under customs and revenue laws, in relation to commerce with foreign countries, no means have been provided for collecting accurate statistics concerning the vastly more important interests of internal commerce. No officer of the Government has ever been charged with the duty of collecting information on this subject, and the legislator who desires to inform himself concerning the nature, extent, value, or necessities of our immense internal trade, or of its relations to foreign commerce, must patiently grope his way through the statistics furnished by boards of trade, chambers of commerce, and transportation companies. Even the census reports which purport to contain an inventory of the property and business pursuits of the people, and which in some matters descend to the minutest details, are silent with regard to the billions of dollars represented by railways and other instruments of internal transportation, and to the much greater values of commodities annually moved by them.²

The reasons for the failure of the Federal Government to provide for the collection of information on the internal trade of the United States prior to this time are contained

² *Report of the Select Committee on Transportation Routes to the Seaboard* (Washington, 1874), Vol. I, p. 8.

in the following statement by Joseph Nimmo, Chief of the Division of Internal Commerce, in the first annual report for 1876:

At the time of the formation of the Federal Government the term *commerce* was generally understood to comprehend trade carried on by means of sailing-vessels employed in our coastwise trade and in our trade with foreign nations. The commercial interests of the country were at that time almost exclusively maritime, and our foreign commerce, on account of issues growing out of the war of Independence and of the war of 1812, attracted public attention much more than did the then comparatively small *internal commerce*.

The omission to collect information in regard to internal commerce is also attributable to the fact that it has never been a source of national revenue, whereas the Government has largely drawn its means of support from duties laid upon imports from foreign countries.³

Nimmo stated further that "during the first century of its existence our internal commerce has assumed proportions vastly greater than those of our foreign commerce." He presented estimates showing that "the value of our internal commerce on railroads is *about sixteen times the value of our foreign commerce*", adding that the data on internal commerce related "only to railroads"; and that "if it were possible to ascertain the value of the commerce between the different sections of the country on the ocean and Gulf and on the lakes, rivers, and other avenues of transportation, we should probably find that the total value of our internal commerce is at least twenty-five times greater than the value of our foreign commerce." If tonnage rather than value be considered, Nimmo thought it probable "that the tonnage transported on the various avenues of internal commerce is *more than one hundred*

³ *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1876, pp. 8, 9.

times greater than the tonnage composing our foreign commerce."⁴

THE MOVEMENT OF FLOUR AND GRAIN FROM THE PRIMARY
MARKETS OF THE MIDDLE WEST TO THE ATLANTIC
AND GULF SEABOARDS

The movement of grain and animal products from the Middle West to the Atlantic and Gulf seaboard has always constituted the major and controlling interest in our internal trade. Of these two classes of food, grain commands primary consideration. A study of the production and distribution of grain shows that while the volume of corn production has always exceeded that of wheat — amounting as a matter of fact to more than all the other cereals (wheat, oats, barley, rye, and buckwheat) combined — as an article of commerce wheat has been of greater importance than corn. The reasons for this are: first, that wheat is the most important breadstuff, constituting the first article of necessity in the food consumption of the United States, England, and France, a very decided prejudice having always existed in these countries against the use of corn as a breadstuff; and, second, that wheat is especially well adapted to the requirements of commerce, possessing relatively less bulk and higher value and being less susceptible to injury in transportation than corn. Wheat has therefore occupied the leading place in the internal and export grain trade of the United States. Corn, lacking the commercial advantages of wheat, has been better adapted to the local markets for feeding purposes. It has therefore been raised primarily as an animal food reaching the ultimate consumer largely in the form of beef, pork, dairy, and poultry products. Even so, however, corn has constituted an important article of commerce, second only to wheat among the

⁴ *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1876, p. 9.

cereals. Thus while primary emphasis must be given to wheat in any study of the grain trade of the United States, considerable attention should also be accorded to corn. Oats rank third in importance; while barley comes next. Rye and buckwheat occupy positions of comparatively minor significance in the grain trade, buckwheat not being listed at all in the commercial reports of this period.

The region of surplus production, as already shown, was the North Central division, the proportionate share of grain contributed by this division amounting in 1859 to 46.7 per cent of the entire product of the nation which in 1889 was increased to 71.4 per cent of the whole product; while the per capita production of this division was practically doubled, being increased from 62.4 bushels in 1859 to 117.8 bushels in 1889.⁵ Production ran far ahead of the rapid increase in population, thus giving rise to an annual product far in excess of local needs, for which there existed a growing demand in the East, the South, and the countries of western Europe.

The predominant position which the North Central division had thus achieved as the great surplus cereal producing region upon which the older sections of the country had become dependent, is shown by a statistical review of the production and distribution of grain for the year 1872. In that year the total volume of cereal production in the United States was estimated at 1,656,198,000 bushels. Of this amount the ten North Central States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Kansas, and Nebraska (the other two States of this division known as Dakota Territory until 1889 being omitted) produced 1,028,987,000 bushels, consisting of 156,228,000 bushels of wheat, 693,625,000 bushels of corn, 163,479,000 bushels of

⁵ Schmidt's *The Internal Grain Trade of the United States, 1860-1890*, in THE IOWA JOURNAL OF HISTORY AND POLITICS, Vol. XIX, p. 242.

oats, 10,092,000 bushels of barley, and 5,563,000 bushels of rye.⁶ Wheat, as already noted, was the most important, commercially, of all the cereals. According to the estimates of the United States Department of Agriculture, the consumption of wheat in these States amounted to five bushels per capita,⁷ which for a population estimated at 13,000,000 amounted to 65,000,000 bushels. The quantity of wheat used for seed was estimated at one and one-half bushels per acre, which for 13,811,008 acres under cultivation required 20,716,512 bushels. The estimated needs of this division, both for consumption and for seed, therefore amounted to 85,716,512 bushels which, subtracted from the total amount produced, left a surplus of 70,511,488 bushels available for shipment to the distant markets. Of this surplus the commercial reports show that 55,248,046 bushels were shipped east to the Atlantic seaboard States; 11,281,328 bushels were shipped south to the Gulf States; and 7,566,639 bushels were shipped north through Canada. The whole shipment amounted to 74,096,013 bushels which was destined for consumption in the Atlantic and Gulf States and the countries of western Europe.⁸ It will be noted that the estimated

⁶ *Report of the Select Committee on Transportation Routes to the Seaboard* (Washington, 1874), Vol. I, p. 12.

⁷ "The requirement of wheat per capita is not the same in all sections. In the South there is a large proportion of corn used, by whites as well as negroes. There are localities in the cotton States where half the average rate of consumption of wheat for the whole country is not sustained. In Maryland and Virginia the proportion used is much larger than in Alabama or Mississippi. Taking the twelve States from Maryland to Texas together, while some use less than four bushels and others nearly five, four bushels may be deemed a full average. For Tennessee and Kentucky a barrel of flour per capita, or 4½ bushels, is assumed; and for the east, where little corn is used, and for the west, where wheat is so abundant and cheap, 5 bushels per head."—*Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1879, Appendix, p. 177.

⁸ *Report of the Select Committee on Transportation Routes to the Seaboard* (Washington, 1874), Vol. I, p. 12.

"The portion of the country requiring a part of this surplus comprises New

shipments exceeded the estimated surplus by 3,584,525 bushels; but this does not affect materially the general view of the production and distribution of wheat as presented by these statistics.

The large quantity of corn produced in these ten States, amounting to 693,625,000 bushels, was used principally for the feeding of animals and for conversion into spirituous liquors, in which form it constituted a very large surplus product of the Middle West; hence the quantity of corn shipped to other States in the form of grain constituted but a small part of the actual surplus corn product. Oats were also used as an animal food and so contributed to the surplus products of this section largely in the form of animals and their products; though this cereal now began to assume increasing importance as a breadstuff. The barley and rye produced in the North Central division was also consumed largely by this division, but a small fraction being shipped to the seaboard States. The total quantity of grain produced by the ten North Central States as already noted, amounted to 1,028,987,000 bushels. Of this amount 815,965,574 bushels were consumed in the States of this division; 104,877,122 bushels were shipped to the Atlantic seaboard States; 33,783,526 bushels were shipped to the Gulf States; and 74,360,778 bushels were shipped to foreign countries. The huge consumption of grain in the North Central States, it should be emphasized, included not only

England, the Middle States, and the cotton States. New England produces nearly three-tenths of a bushel for each inhabitant; the Middle States grow about half the quantity necessary for a full supply, or $3\frac{1}{3}$ bushels; the Southern Atlantic and Gulf States almost as much; and Kentucky and Tennessee are self-supporting with nearly 6 bushels. All the remaining States, except Nevada and Colorado, yield a surplus. This surplus, for consumption in 1878, was $11\frac{4}{5}$ bushels per capita in the corn-growing belt between Ohio and Kansas, $22\frac{1}{2}$ bushels in the Lake belt, and 23 in the Pacific States and Territories, but fully 25 bushels in a year of large production in California."—*Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1879, Appendix, p. 177.

the quantity consumed as a breadstuff by the people, but also the quantity consumed as an animal food and shipped to other States and foreign countries in the form of animals and animal products.⁹

The dependence of the deficiency States of the North Atlantic division on the surplus States of the Middle West is set forth in an editorial on *The Production and Distribution of Breadstuffs* in *The Merchants' Magazine and Commercial Review* for June, 1869. The per capita wheat and corn production of the deficiency States as compared with that of representative surplus States is reviewed by this editorial as follows:

Thus, while Pennsylvania produces corn and wheat to the value of \$19 for each of its inhabitants, and New York to the value of \$15, Massachusetts produces only \$2¼ and Rhode Island \$3½. Vermont produces \$12, Maine \$4½, New Hampshire \$5, and Connecticut \$6; and, altogether, these States only produce an aggregate of about 10 bushels per head to the population. Turn now to some of the great producing States — Iowa, Illinois, Ohio, and Michigan. . . .

Iowa raises of corn and wheat the value of \$72 to each inhabitant, Illinois \$60, Ohio \$35, and Michigan \$50; or altogether, they produce 62 bushels to each inhabitant. If we add the aggregate production of potatoes, rye, oats, barley and fruits, some idea may be formed of the vast food resources of these great States and the immense surplus they have with which to make up the deficiency of the Eastern States. It is thus out of their abundance that they pour forth such lavish supplies to feed the population of less productive portions of the Union and of foreign countries. The surplus they send to the Lake ports is 80,000,000 of bushels. Four-fifths of this, after the export is taken out, remain to supply the wants of New England and the East, and to make up the deficient average of grain production which we have shown above, and

⁹ *Report of the Select Committee on Transportation Routes to the Seaboard* (Washington, 1874), Vol. I, p. 13. See also *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1879, Appendix, No. 19.

which varies from \$2 $\frac{1}{4}$ a head in Massachusetts, whose energies are given over to manufacturing, to \$72 a head in Iowa, which State is the heritage of an agricultural people, and has the capacity to raise food enough for the whole country. Only one-fourth of her area is now under cultivation.¹⁰

The bearing of these facts on the transportation of grain and flour via the railroads and inland waterways from the Middle West to the Atlantic seaboard and on the subject of freight rates is also emphasized:

The figures we have given exhibit the vastly preponderant value of the internal commerce of this country compared with the foreign traffic. They suggest, too, the great value of the railroad system for collecting these products at the centres of business and then distributing them wherever they may be needed over all the land. The grain comes from Chicago to New York by water for 32 cents. The railroad, in the heat of competition, brings it for 30 cents. From Oswego to New York, hardly a quarter of the distance from Chicago, the railroad charge is 58 cents for a barrel of flour, and the water charge is 32 cents. From St. Louis to New Orleans the freight on flour is 40 cents, from New Orleans to New York 75 cents — an aggregate of \$1.15, while from St. Louis to New York, direct by rail, the freight is \$1.30.

The grain and flour start from the Lake ports and are dropped everywhere by the way. The large cities demand millions of bushels; the manufacturing towns hold out their hands for a supply; the small villages all take their quota, and the farmer's wagon comes to the railroad station and bears away to his farm the barrel of flour which represents the food the unkind climate refuses to produce. In this work of distribution, as we remarked in a former article, the routes are few and fixed. New land routes are opening daily, and are penetrating to every part of the country. The flour which is transported over half the continent for a dollar, is charged on the local routes 30 or 40 cents, or even more for a dozen miles; and one may ship a barrel of flour from Chicago to New York for less than the cost of getting it to a point not without the reach of the sound of the City Hall bell.

¹⁰ *The Merchants' Magazine and Commercial Review*, Vol. LX, June, 1869, pp. 454-457.

The period before railroads and canals was the period before manufactures. It was the era of home production and home consumption. The New England farmer was obliged to raise his food; he could not bring it from distant regions. Soon followed the marvellous growth and extension of the lines of intercommunication. As soon as the fertile valley of the Genesee was reached, New England found that food could be bought cheaper than it could be raised, and that the muscle and brain of her people could be more profitably employed in other pursuits than agriculture. The Ohio was reached, and the States along the Lakes; and as these immense granaries began to empty their riches into the lap of the East, the latter found new fields for its energies. Production and distribution have gone hand in hand, and the channel to market never remains long over-crowded. As a new demand is made upon it, new facilities are offered, and the restless energy of commerce is ever on the alert to make easy the transfer and interchange of commodities.¹¹

Until about the year 1856, almost the entire surplus grain and flour of the Middle West was transported to the Atlantic seaboard by way of the Great Lakes and the Erie Canal and to the Gulf States by way of the Mississippi River and its tributaries. New York was almost the sole distributing port in the East and New Orleans in the South. The extension of the railroads throughout the Middle Western States effected radical changes in the conditions of transportation during the sixties and seventies. The most significant changes in the movement of grain from the Middle West to the seaboard was effected by the competition between the railroads and the inland waterways. This competition, culminating in the diversion of the major part of the traffic to the railroads, was first developed on the eastern routes.

The competition between the rail and water routes was at first comparatively ineffective. The railroads of the country were as a rule short; consequently through billing was difficult, if not impossible. Iron rails were still in use; hence

¹¹ *The Merchants' Magazine and Commercial Review*, Vol. LX, June, 1869, pp. 454-457.

small train loads and resulting high operating expenses. Moreover, terminal facilities for loading and unloading grain were as yet undeveloped. The railroads were therefore at a decided disadvantage in the competitive struggle with the lake and canal route for the western flour and grain traffic. Gradually, however, they achieved the victory. By means of combinations of roads and by the organization of through freight lines, the railroads were enabled to transport grain from interior points to the local and export trade centers of the East without breaking bulk. The introduction of steel rails in 1869 and the consequent increase in the size and hauling power of locomotives, and the construction of elevators with loading and unloading machinery enabled the railroads to compete on more even terms with the waterways. Active competition sprang up in many directions. By 1872, sixty-seven per cent of all the grain shipped east was transported by the main trunk railroads.¹²

The railroads competed most vigorously for the flour, corn, and oats traffic. The flour traffic was quickly and almost completely absorbed by the railroads. The reasons for this were: first, that flour was susceptible to injury by moisture, thus giving the railroads a distinct advantage over the Great Lakes route in the transportation of this commodity; second, flour was more difficult to handle, hence through shipments were made by rail rather than by water to eastern lake ports, at which points it was necessary to transfer the flour to the eastern lines; and, third, a considerable portion of the flour shipped east was destined for consumption at local points along the way to the seaboard, which were situated remote from, and out of reach of, the waterways. In short, flour was shipped east by rail because

¹² *Report of the Select Committee on Transportation Routes to the Seaboard* (Washington, 1874), p. 24; *Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Treasury Department), January, 1900, p. 1962.

the rail routes were safer and quicker and because flour constituted a finished product ready for consumption at the local markets.¹³

The railroads were more successful in the competitive struggle for the corn traffic than they were for the wheat traffic. This is to be explained by the geographic location of the areas of surplus production.¹⁴ The great bulk of the eastbound shipments of wheat came from the States west and northwest of Lake Michigan, thus giving the lake route a strategic advantage over the railroads in the transportation of this commodity; while the bulk of the eastbound corn shipments originated in the States south and west of the lake region and so afforded the railroads an advantage over the lake route in the transportation of corn. The railroads practically controlled the transportation of grain from those parts of Illinois and Indiana lying south of a latitudinal line

¹³ "The railroads gained this traffic, partly because shipment by lake to points not accessible to lake craft involved a transshipment, and flour could not be transferred with the same ease and facility that grain could be transshipped; partly because barrels are broken in this process and in passage if rough weather be encountered; and finally because expeditious delivery is frequently demanded—the elements of time being of much greater importance in the movement of flour than of grain. To these causes may be added a fourth—the cost of marine insurance".—Tunell's *The Diversion of the Flour and Grain Traffic from the Great Lakes to the Railroads* in *The Journal of Political Economy*, Vol. V, 1897, p. 348.

¹⁴ Schmidt's *The Internal Grain Trade of the United States, 1860-1890*, in *THE IOWA JOURNAL OF HISTORY AND POLITICS*, Vol. XIX, pp. 205-219. See also Blodgett's *Relations of Population and Food Products in the United States* (Bulletin No. 24, Bureau of Statistics, United States Department of Agriculture, 1903), pp. 16-21, 27-32; *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1879, Appendix, No. 19; Brewer's *Report on the Cereal Production of the United States* in the *Tenth Census of the United States*, 1880, Vol. III, maps 2 to 9 inclusive, showing the geographic distribution of wheat and corn production in the United States in 1879; *Statistical Atlas of the United States: Eleventh Census*, 1890, maps 291 to 294 and 297 to 300 inclusive, showing the geographic distribution of wheat and corn production in the United States in 1889.

sixty miles south of Lake Michigan.¹⁵ This control was extended into the region north of that line by high local rates to Chicago which constituted an effective discrimination against the lake route. This is shown by a comparison of the cost of transporting a bushel of wheat from Sandoval, Illinois, to New York City by direct all-rail and by rail and water route via Chicago, the Great Lakes, the Erie Canal, and the Hudson River to New York. The direct all-rail rate in 1874 was 34 cents; while the rail-water rate via Chicago was 47.3 cents, which was distributed as follows: Sandoval to Chicago, 15.8 cents; transfer charges at Chicago, 2 cents; Chicago to New York by lake and canal, 26.6 cents; transfer charges at Buffalo, 1.3 cents; lake insurance, 1.2 cents; and Erie Canal and Hudson River insurance, 0.4 cents. This shows that the average all-rail rate was 11.3 cents or 15 per cent lower than the average cost of transport by the rail and water route, including transfer charges and marine insurance but not including commissions which amounted to about 2 cents a bushel.¹⁶ Many illustrations of this kind could be given; but the one just given is sufficient to show that grain could be transported from many points in the Middle West to the eastern and southern markets by the all-rail lines at less cost than by the lake and canal route.

Rates were not the only determining factor, however, in the choice of routes for the shipment of grain from interior points to the seaboard. Terminal facilities for the handling and storage of the huge volume of grain which was poured into the markets after harvest also had a determining influence on the course of the grain trade which the railroads could not ignore. The lake ports of Chicago, Toledo, Mil-

¹⁵ *Report of the Select Committee on Transportation Routes to the Seaboard* (Washington, 1874), Vol. I, p. 24.

¹⁶ *Report of the Select Committee on Transportation Routes to the Seaboard* (Washington, 1874), Vol. I, pp. 24, 25.

waukee, and Detroit, including Buffalo, the Gate City to the East, through the capitalistic interests of those cities, provided these facilities. The lake ports therefore captured the great bulk of the eastbound grain traffic. In 1872 the amount of grain passing through these ports amounted to 86 per cent of the whole volume; while the remaining 14 per cent was shipped from the interior points direct to the Atlantic seaboard without first passing through the lake ports.¹⁷

Chicago affords the best illustration of the effects of competition between the railroads and the Great Lakes for the western grain and flour traffic.¹⁸ It was here that the railroads entered most vigorously and most successfully into competition with the lake vessels. The rail distance from this port to Buffalo and thence to the Atlantic seaboard was the shortest; while the distance by lake was the longest.¹⁹ Even so, however, competition between the rail and lake routes was unequal, as shown by a comparative study of the eastbound flour and grain shipments during this period.

The flour traffic, for reasons already given, was rapidly absorbed by the railroads. It will be seen by reference to

¹⁷ *Report of the Select Committee on Transportation Routes to the Seaboard* (Washington, 1874), Vol. I, p. 26.

¹⁸ See Tunell's *The Diversion of Flour and Grain from the Great Lakes to the Railroad* in *The Journal of Political Economy*, Vol. V, 1897, pp. 348-355; *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1876, pp. 110-114 and Appendix, No. 4, 1879, pp. 99-103 and Appendix, No. 3, 1880, pp. 101-118 and Appendix, No. 1, 1882, pp. 59, 60 and Appendix, No. 3.

¹⁹ The distance from Chicago to Buffalo by lake is 889 miles and from Buffalo to New York City by the shortest rail route is 410 miles. The total lake and rail distance from Chicago to New York City is therefore 1299 miles. The rail distances from Chicago to the different seaboard cities are as follows: Chicago to Boston, 1000 miles; Chicago to New York City, 912 miles; Chicago to Philadelphia, 822 miles; Chicago to Baltimore, 802 miles; Chicago to Newport News, 896 miles; and Chicago to Norfolk, 984 miles.—*The Railroad Gazette*, Vol. XXIX, No. 13, pp. 215, 216.

TABLE I

| CHICAGO EAST BOUND SHIPMENTS OF FLOUR BY LAKE AND RAIL FROM 1860 TO 1890 ²⁰ | | | |
|---|-------------------|-------------------|--------------------|
| YEAR | LAKE (BARRELS) | RAIL (BARRELS) | TOTAL (BARRELS) |
| 1860 | 218,741 | 408,082 | 626,823 |
| 1861 | 452,927 | 1,001,618 | 1,544,545 |
| 1862 | 1,057,803 | 672,961 | 1,730,764 |
| 1864 | 1,007,343 | 270,855 | 1,478,198 |
| 1865 | 1,034,793 | 208,747 | 1,243,540 |
| 1866 | 646,356 | 721,068 | 1,367,424 |
| 1867 | 481,491 | 1,585,776 | 2,067,267 |
| 1868 | 650,367 | 1,187,582 | 1,837,949 |
| 1869 | 774,556 | 1,749,973 | 2,524,529 |
| 1870 | 574,393 | 989,160 | 1,563,553 |
| 1871 | 488,705 | 694,274 | 1,182,979 |
| 1872 | 223,457 | 1,022,968 | 1,246,425 |
| 1873 | 428,321 | 1,773,467 | 2,201,788 |
| 1874 | 555,152 | 1,672,037 | 2,227,189 |
| 1875 | 328,283 | 1,872,943 | 2,201,226 |
| 1876 | 236,591 | 2,309,530 | 2,546,121 |
| 1877 | 148,779 | 2,229,729 | 2,378,508 |
| 1878 | 321,648 | 2,371,623 | 2,693,271 |
| 1879 | 330,257 | 2,675,402 | 3,005,659 |
| 1880 | 527,873 | 2,264,886 | 2,792,759 |
| 1881 | 159,415 | 4,235,559 | 4,394,974 |
| 1882 | 792,764 | 2,887,603 | 3,680,367 |
| 1883 | 801,099 | 3,067,275 | 3,868,374 |
| 1884 | 753,357 | 3,930,576 | 4,683,933 |
| 1885 | 652,373 | 4,450,051 | 5,102,424 |
| 1886 | 1,391,235 | 2,244,376 | 3,635,611 |
| 1887 | 1,544,196 | 4,682,546 | 6,226,742 |
| 1888 | 1,711,370 | 3,613,922 | 5,325,292 |
| 1889 | 1,811,467 | 1,951,274 | 3,762,741 |
| 1890 | 1,757,745 | 2,172,761 | 3,930,506 |

²⁰ The statistics in Table I showing the comparative eastbound lake and rail shipments of flour from Chicago from 1860 to 1890 are taken from the *Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Treasury Department), January, 1900, p. 1964.

Table I showing the eastbound lake and rail shipments from Chicago during the period from 1860 to 1890 that in 1860 and 1861 the railroads transported almost twice as much flour as the lake vessels; but in 1862 the lake route gained supremacy and easily maintained the lead during the next two years. In the year 1866, however, the railroads began to encroach upon the lake route. In that year they transported 53 per cent of the flour; in 1867, they carried 77 per cent; in 1872, they carried 82 per cent; in 1877, they carried 94 per cent; and in 1881, they transported 96 per cent. After that date, however, the relative importance of the railroads as carriers of the Chicago eastbound flour traffic declined. In 1882, they transported 79 per cent of this traffic; in 1886, they transported 62 per cent; in 1889, they transported 54 per cent; and in 1890, they transported 56 per cent.

The eastbound flour traffic from Chicago reached its maximum volume in 1887 when 6,226,742 barrels were shipped. Of this amount 4,682,546 barrels were transported by the railroads and 1,544,196 barrels were carried by the lake vessels. After 1887 the relative importance of the railroads in the transportation of flour declined. This decline was coincident with the diversion of the great bulk of the eastbound flour traffic from Lake Michigan to Lake Superior ports which was made possible by the completion in 1888 of the Minneapolis, St. Paul, and Sault Ste. Marie Railway. This road shortened the direct water route to the east by the whole length of Lake Michigan, at the same time that it also made good connections with the Canadian Pacific Railroad. These advantages were determining factors in favor of the new route to which the great bulk of the surplus flour of the northwest was thereafter diverted, thus avoiding the delay at Chicago due to the congestion of the flour traffic at that point. By 1897, the flour shipments over the

“Soo” route exceeded the combined rail and lake shipments from Chicago.²¹

The wheat traffic was diverted from the lake vessels to the rail routes less rapidly and completely than the flour traffic. A comparison of the eastbound lake and rail shipments of wheat from Chicago (Table II) shows that in 1860 the railroads secured three per cent of the total shipments. In 1861 they secured five per cent; while in 1862 they transported but one per cent and in 1864 but four-tenths of one per cent of the total shipments. After the Civil War, the railroads entered upon a vigorous competition for the wheat traffic with the result that by 1867, they transported 38 per cent of the total shipments, which, however, represented an abnormally high proportion of the entire eastbound wheat traffic. In 1871 the rail shipments were reduced to five per cent; while in 1874 they were increased to 37 per cent. From that date to 1877 the rail shipments decreased rapidly, but in 1878 they were rapidly increased to 44 per cent. In 1879 they constituted 41 per cent of the total shipments which now amounted to nearly 30,000,000 bushels. After that date the rail shipments underwent a slight relative decline with the exception of the years 1881 and 1885 when they amounted to 50 per cent of the total shipments. In 1890 the railroads carried 42 per cent of the total shipments. From 1895 to 1897 they carried but 32 per cent of the total shipments.

The diversion of the corn traffic from the lake to the rail routes was effected even more slowly and less completely than the wheat traffic. A comparison of the eastbound lake and rail shipments of corn from Chicago (Table III) shows that in 1860, the railroads carried four per cent of the entire shipments. During the war period, however, the rail

²¹ *Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Treasury Department), January, 1900, p. 1988.

TABLE II

| CHICAGO EAST BOUND SHIPMENTS OF WHEAT BY LAKE AND RAIL FROM 1860 TO 1890 ²² | | | |
|---|------------------|------------------|-------------------|
| YEAR | LAKE (BUSHEL) | RAIL (BUSHEL) | TOTAL (BUSHEL) |
| 1860 | 11,817,476 | 377,647 | 12,195,123 |
| 1861 | 15,005,735 | 730,873 | 15,736,608 |
| 1862 | 13,466,325 | 175,322 | 13,641,647 |
| 1864 | 10,646,052 | 39,768 | 10,685,820 |
| 1865 | 9,983,567 | 114,075 | 10,097,642 |
| 1866 | 6,502,575 | 1,147,510 | 7,650,085 |
| 1867 | 5,827,846 | 3,605,618 | 9,433,464 |
| 1868 | 8,492,187 | 1,072,078 | 9,564,265 |
| 1869 | 8,896,647 | 2,114,300 | 11,010,947 |
| 1870 | 13,429,069 | 2,621,699 | 16,050,768 |
| 1871 | 12,120,923 | 576,648 | 12,697,571 |
| 1872 | 8,831,870 | 2,363,810 | 11,195,680 |
| 1873 | 15,528,984 | 8,149,209 | 23,678,193 |
| 1874 | 16,974,149 | 9,725,251 | 26,699,400 |
| 1875 | 16,061,054 | 5,956,609 | 22,017,663 |
| 1876 | 7,396,369 | 5,378,792 | 12,775,161 |
| 1877 | 10,345,983 | 2,957,250 | 13,303,233 |
| 1878 | 12,903,481 | 10,018,880 | 22,922,361 |
| 1879 | 17,622,796 | 12,232,323 | 29,855,119 |
| 1880 | 16,685,046 | 4,742,343 | 21,427,389 |
| 1881 | 7,688,072 | 7,728,124 | 15,416,196 |
| 1882 | 14,944,258 | 2,920,526 | 17,864,784 |
| 1883 | 7,067,657 | 2,696,071 | 9,763,728 |
| 1884 | 11,518,884 | 6,322,493 | 17,841,377 |
| 1885 | 5,436,461 | 5,496,544 | 10,933,005 |
| 1886 | 10,513,126 | 2,462,918 | 12,976,044 |
| 1887 | 17,313,351 | 6,893,504 | 24,206,855 |
| 1888 | 5,895,379 | 3,998,998 | 9,894,377 |
| 1889 | 10,330,675 | 4,814,978 | 15,145,653 |
| 1890 | 6,965,834 | 2,953,826 | 9,919,660 |

²² The statistics in Table II showing the comparative eastbound lake and rail shipments of wheat from Chicago from 1860 to 1890 are taken from the *Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Treasury Department), January, 1900, p. 1964.

TABLE III

| CHICAGO EAST BOUND SHIPMENTS OF CORN BY LAKE AND RAIL FROM 1860 TO 1890 ²³ | | | |
|--|------------------|------------------|-------------------|
| YEAR | LAKE (BUSHEL) | RAIL (BUSHEL) | TOTAL (BUSHEL) |
| 1860 | 13,063,043 | 577,611 | 13,040,654 |
| 1861 | 23,987,240 | 352,044 | 24,339,284 |
| 1862 | 29,248,677 | 125,162 | 29,373,839 |
| 1864 | 24,749,400 | 120,694 | 24,870,094 |
| 1865 | 11,998,475 | 616,077 | 12,614,552 |
| 1866 | 24,421,660 | 674,053 | 25,095,653 |
| 1867 | 31,457,855 | 1,452,162 | 32,910,017 |
| 1868 | 19,940,172 | 1,612,851 | 21,553,023 |
| 1869 | 21,671,071 | 3,367,718 | 25,038,780 |
| 1870 | 13,598,387 | 4,018,479 | 17,616,866 |
| 1871 | 34,200,876 | 2,435,220 | 36,636,096 |
| 1872 | 41,589,508 | 5,388,402 | 46,977,910 |
| 1873 | 34,487,205 | 2,194,361 | 36,681,566 |
| 1874 | 30,242,311 | 2,364,833 | 32,607,144 |
| 1875 | 21,850,652 | 4,321,559 | 26,172,211 |
| 1876 | 28,104,265 | 17,299,232 | 45,403,497 |
| 1877 | 38,607,611 | 7,657,511 | 46,265,122 |
| 1878 | 46,368,653 | 13,504,458 | 59,873,111 |
| 1879 | 41,561,336 | 19,711,615 | 61,272,951 |
| 1880 | 72,400,769 | 21,100,849 | 93,501,618 |
| 1881 | 44,164,571 | 29,625,348 | 73,789,919 |
| 1882 | 31,394,261 | 16,965,706 | 48,359,967 |
| 1883 | 47,738,117 | 22,766,745 | 70,501,862 |
| 1884 | 27,360,924 | 24,526,517 | 51,887,441 |
| 1885 | 29,382,591 | 28,682,864 | 58,065,455 |
| 1886 | 40,956,177 | 13,903,051 | 54,859,228 |
| 1887 | 38,710,856 | 10,674,781 | 49,385,637 |
| 1888 | 47,759,708 | 20,520,599 | 68,280,307 |
| 1889 | 63,200,754 | 20,070,032 | 83,270,786 |
| 1890 | 57,255,466 | 31,834,558 | 89,090,024 |

²³ The statistics in Table III showing the comparative eastbound lake and rail shipments of corn from Chicago from 1860 to 1890 are taken from the *Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Treasury Department), January, 1900, p. 1965.

shipments declined in both absolute and relative importance, amounting in 1862 and 1864 to but four-tenths of one per cent of the entire shipments. At the close of the war the railroads entered upon a vigorous competition for the corn traffic, with the result that by 1870, they had captured 23 per cent of the entire shipments. In 1876 the rail shipments suddenly mounted from an annual average of less than 5,000,000 bushels to more than 17,000,000 bushels, which constituted 38 per cent of the entire shipments. In 1884, the railroads carried 48 per cent and in 1885 they carried 49 per cent of the entire shipments. After that date the eastbound rail shipments of corn declined in both absolute and relative importance. In 1894 they carried but 14 per cent of the total shipments.

The oat traffic was diverted more rapidly and completely from the lake to the rail routes than either the wheat or the corn traffic. It will be seen by Table IV that there was a rapid growth in the volume of oats shipped east from Chicago during the war period. This is explained in large part by the fact that the principal contracts for supplying the armies in the south were filled in Chicago. The blockade of the Mississippi River had closed that important highway of commerce, hence it was impossible to send commodities by that route. Moreover, there were as yet no north and south railroads adequate for this purpose, and so it became necessary to utilize the railroads connecting Chicago with the Atlantic seaport cities for the transportation of the great bulk of the oats destined for the southern States. After the war the rail shipments declined in both absolute and relative importance; but in 1870 the railroads began a vigorous competition for the oat traffic, with the result that by 1873 they carried 60 per cent of the total shipments which now amounted to nearly 16,000,000 bushels. From that date to 1886 the railroads secured nearly all the oat traffic. In

TABLE IV

| CHICAGO EAST BOUND SHIPMENTS OF OATS BY LAKE AND RAIL FROM 1860 TO 1890 ²⁴ | | | |
|--|------------------|------------------|-------------------|
| YEAR | LAKE (BUSHEL) | RAIL (BUSHEL) | TOTAL (BUSHEL) |
| 1860 | 605,304 | 242,580 | 847,884 |
| 1861 | 1,422,776 | 69,731 | 1,492,507 |
| 1862 | 2,470,745 | 357,451 | 2,828,196 |
| 1864 | 5,696,800 | 2,213,058 | 7,909,858 |
| 1865 | 12,098,000 | 2,922,792 | 15,020,792 |
| 1866 | 8,719,900 | 1,538,383 | 10,258,283 |
| 1867 | 7,395,113 | 1,911,664 | 9,366,777 |
| 1868 | 9,745,205 | 388,114 | 10,133,319 |
| 1869 | 12,755,929 | 2,004,191 | 14,760,120 |
| 1870 | 6,339,220 | 2,064,333 | 8,403,553 |
| 1871 | 8,797,599 | 3,312,421 | 12,110,020 |
| 1872 | 6,370,784 | 5,853,319 | 12,224,103 |
| 1873 | 5,985,954 | 9,559,635 | 15,545,589 |
| 1874 | 4,741,088 | 5,674,137 | 10,415,225 |
| 1875 | 4,579,248 | 5,512,812 | 10,092,060 |
| 1876 | 2,997,335 | 8,166,155 | 11,163,490 |
| 1877 | 5,013,278 | 7,424,788 | 12,438,066 |
| 1878 | 6,255,003 | 10,149,386 | 16,404,389 |
| 1879 | 1,589,939 | 11,880,719 | 13,470,658 |
| 1880 | 2,139,473 | 18,402,996 | 20,542,469 |
| 1881 | 4,807,581 | 17,844,017 | 22,651,598 |
| 1882 | 3,633,638 | 18,966,513 | 22,600,151 |
| 1883 | 4,938,546 | 26,372,649 | 31,311,195 |
| 1884 | 5,444,889 | 27,780,317 | 33,225,206 |
| 1885 | 1,571,481 | 29,925,784 | 31,497,265 |
| 1886 | 3,219,833 | 27,756,005 | 30,975,838 |
| 1887 | 10,215,112 | 24,612,448 | 34,827,560 |
| 1888 | 13,764,336 | 25,761,204 | 39,525,540 |
| 1889 | 24,948,459 | 24,814,104 | 49,762,563 |
| 1890 | 18,522,884 | 50,604,575 | 69,127,459 |

²⁴ The statistics in Table IV showing the comparative eastbound lake and rail shipments of oats are taken from the *Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Treasury Department), January, 1900, p. 1965.

the latter year the lake vessels entered the field again and secured a large share of the oat shipments; but the railroads still continued to retain the major portion of this traffic.

The railroads were therefore more successful in the competitive struggle for the eastbound oat traffic than they were for the wheat and corn traffic. Since oats constitute a commodity of large bulk with relatively low value why did the railroads transport a larger proportion of this grain than of either wheat or corn? The reasons have been stated in part by one writer as follows:

Oats take up moisture more readily than other grains and as a very small amount will cause oats to become musty, and thus unfit for horsefeed, this grain when not in the best of condition is generally shipped by rail. Recently there has been a device invented for "clipping" oats by which the portion that most freely absorbs moisture can be removed at slight expense. By "clipping" the weight of the measured bushel is also increased by some four to six pounds. During the germinating season grain is more liable to spoil and during this period it is safer to ship by rail. But there is another and far more potent reason for the unusually large rail movement of oats. It is the lake rates. These are fixed more upon the basis of bulk than weight, and as oats is a bulky product the freight per hundred pounds is considerably higher than on wheat and corn. Enough oats cannot be stowed away in the hold of a ship to secure a cargo equal in weight to that of the same ship loaded with wheat, and therefore it is necessary to fix a higher rate per hundred pounds upon oats than upon wheat. The grain car, on the other hand, is so large that there is no difficulty in loading it to its full carrying capacity with the bulky product oats, and as a consequence the rail rates on oats are no more per hundred pounds than those on wheat and corn. Lake rates per hundred pounds on oats are very much higher than the rates on wheat and corn.²⁵

²⁵ Tunell's *The Diversion of the Flour and Grain Traffic from the Great Lakes to the Railroads* in *The Journal of Political Economy*, Vol. V, 1897, pp. 354, 355.

Milwaukee was the next important western lake port in the competitive struggle between the lake and rail routes for the eastbound flour and grain traffic. This city is located about 85 miles north of Chicago on the western shore of Lake Michigan. It is therefore farther removed by the all-rail route from the seaboard than Chicago; though it is correspondingly nearer by the lake route. Consequently the railroads were not as successful in securing the eastbound flour and grain traffic at Milwaukee as they were at Chicago. The rail shipments were sent southward around the lower end of Lake Michigan through Chicago. Large shipments were also made via the transit lines across Lake Michigan and thence by rail eastward and southeastward without unloading. The great bulk of the traffic, however, was sent directly eastward by the all-lake route.²⁶

A comparative review of the eastbound lake and rail shipments of flour from Milwaukee shows that in 1876 the railroads transported 1,289,147 barrels of flour, or 49 per cent of the total shipments. This represented the largest shipment of flour, both absolutely and relatively considered, that was secured by the railroads throughout the entire period. In 1877, the rail shipments from Milwaukee declined to 102,675 barrels, which represented but 9 per cent of the entire shipments. After that date they constituted only about 10 per cent of the entire shipments. From 1895 to 1897 the all-lake shipments amounted to 50 per cent of the total shipments; and the transit line shipments amount-

²⁶ See Thompson's *The Rise and Decline of the Wheat Growing Industry in Wisconsin* (Bulletin of the University of Wisconsin, Economics and Political Science Series, Vol. V, No. 3, 1909), Pt. II, Ch. VII; Merk's *Economic History of Wisconsin During the Civil War Decade*, Ch. XV. This is Volume I of the *Studies* published by the State Historical Society of Wisconsin. See also *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1882, Appendix, No. 10.

ed to 39 per cent; while the all-rail shipments amounted to but 11 per cent.²⁷

Milwaukee during the war period became the most important primary wheat market in the world — a distinction which had previously been held by Chicago but which after the war and in the seventies passed back and forth between the two cities. In 1873 the Milwaukee wheat shipments amounted to nearly 25,000,000 bushels. In 1877 they were reduced to a little less than 18,000,000 bushels. After that date the Milwaukee wheat market rapidly declined, while the Chicago wheat market was for a time maintained as to quantity of wheat received and shipped; although Chicago was soon overtaken in the early nineties by Minneapolis and Duluth-Superior which had now become the leading primary wheat markets of the Middle West. Meanwhile Milwaukee declined in both absolute and relative importance as a wheat market. After 1880 the annual wheat shipments amounted to considerably less than 8,000,000 bushels. The rail shipments during the Civil War period were almost negligible. After the war they were suddenly increased to over 300,000 bushels, which amount was maintained with slight fluctuations until 1873 when the rail shipments suddenly rose to about 1,700,000 bushels. From 1873 to 1876 they averaged nearly 3,000,000 bushels. After that date the rail shipments declined in amount but increased in proportion to the total shipments. In 1873 the rail shipments of wheat from Milwaukee amounted to seven per cent of the total shipments; the transit line shipments to two per cent, and the lake shipments to 91 per cent. By 1895 rail shipments had been increased to 57 per cent and

²⁷ These statistics showing the relative importance of the eastbound lake and rail shipments of flour from Milwaukee from 1860 to 1890 are taken from the *Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Treasury Department), January, 1900, pp. 1965, 1966.

the transit line shipments to ten per cent; while the lake shipments had been reduced to 33 per cent.²⁸

The eastbound corn shipments from Milwaukee were of minor importance. Throughout the entire period from 1860 to 1890 there were but three years in which the shipments exceeded 1,000,000 bushels and but four years in which they exceeded 500,000 bushels. The great bulk of the corn was shipped by the lake route. In 1872, the lakes carried 98 per cent of the total shipments; in 1880, they carried 92 per cent; and in 1897 they carried 91 per cent. The oat traffic though more important than the corn traffic, did not undergo a rapid growth until about 1890. The bulk of the oats was shipped out by the lake route.²⁹

Chicago and Milwaukee have been selected for this study for the reason that competition between the lake and rail routes for the western grain and flour traffic was practically confined to shipments from these two great primary markets to points located on the Great Lakes-Erie Canal-Hudson River waterway and to New York City: the eastern terminus of that line. The other leading primary markets of the lakes were Toledo, Detroit, Duluth, and Superior, not to mention a host of minor cities which contributed very materially to the total volume of the eastbound flour and grain traffic.³⁰

²⁸ These statistics showing the relative importance of the eastbound lake and rail shipments of wheat from Milwaukee from 1860 to 1890 are taken from the *Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Treasury Department), January, 1900, p. 1966.

²⁹ These statistics showing the relative importance of the eastbound lake and rail shipments of corn from Milwaukee from 1860 to 1890 are taken from the *Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Treasury Department), January, 1900, p. 1966. See same reference for oat shipments.

³⁰ Among these cities may be mentioned Racine, Kenosha, Sheboygan, Port Washington, and Green Bay. See map showing the freight traffic on the

The most significant feature of this development was the rapid northwestward movement of the wheat growing and flour milling industries and the consequent diversion of the wheat and flour traffic from Lake Michigan to Lake Superior ports. As long as the surplus wheat areas were tributary to Chicago the railroads had a strategic advantage over the lake vessels in the competitive struggle for the east-bound flour and wheat traffic. The rail route from Chicago to Buffalo is almost a direct line; whereas the lake route is extremely circuitous, thus making necessary a considerable deviation from the direct route. That is to say the distance from Chicago to Buffalo by rail is 540 miles; while the distance by lake is 889 miles. This is equivalent to saying that for every mile by the direct rail route, the lake vessels must go 1.65 miles.³¹ The movement of the surplus wheat areas into Minnesota and the Dakotas in the eighties and the nineties brought Minneapolis into prominence as the greatest primary wheat market and flour milling center in the world; while the construction of the St. Paul and Duluth Railroad brought Duluth and Superior at the head of Lake Superior nearer to the wheat fields of the Great Northwest than Chicago. Duluth and Superior are no further by lake from Buffalo than Chicago and Milwaukee; consequently these two lake ports were able to secure the great bulk of the surplus wheat destined for the eastern markets. Duluth also became a great flour milling center, thus becoming an important shipping point for both wheat and flour. Moreover, the completion of the Minneapolis, St. Paul, and Sault Ste. Marie Railroad in 1888 opened up a direct route

Great Lakes during the year 1890 in the *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1891, opposite p. 96.

³¹ The time tables of the New York Central Railroad give 540 miles as the distance by the main line and 535.88 miles by the Michigan Central route. The *Rand McNally Commercial Atlas of America* (1921 edition), p. xl, gives the shortest rail distance between Chicago and Buffalo as 513 miles.

between the twin cities and the east, with the result that considerable quantities of flour and wheat were sent over this route to Sault Ste. Marie, at which point these commodities were sent by the lake route to Buffalo or over the Canadian Pacific Railroad to Montreal.

An accurate description of the eastbound flour and grain traffic of Duluth and Superior is furnished by the statistics of the volume of flour, wheat, and other grains passing through the St. Marys Falls Canal. This statement is supported by two facts: first, that there was but little local grain traffic on Lake Superior, since most of it was destined for the lower lake ports; and second that the Lake Superior traffic had to pass through this canal. In 1860 the flour shipments through the Soo Canal amounted to 50,250 barrels. No wheat shipments were reported; while shipments of other grains amounted to 133,000 bushels. In 1873 the flour shipments amounted to 172,692 barrels; the wheat shipments to 2,120,000 bushels; and all other grains to 310,000 bushels. In 1884, the flour shipments amounted to 1,248,243 barrels; the wheat shipments to 11,986,000 bushels; and all other grains to 517,000 bushels. By 1890 the flour shipment had been increased to 3,239,104 barrels, the wheat shipments to 16,217,000 bushels, and all other grains to 2,044,000 bushels.³²

The eastbound flour shipments over the Minneapolis, St. Paul, and Sault Ste. Marie Railroad amounted in 1888 to 931,502 barrels, and in 1889 to 1,367,792 barrels. In 1895 they were increased to 2,111,455 barrels and in 1897 to 2,857,942 barrels. This now exceeded the eastbound shipments from Chicago by both lake and rail which amounted to 2,618,076 barrels.³³

³² *Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Treasury Department), January, 1900, p. 1990.

³³ *Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Treasury Department), January, 1900, p. 1988.

These movements explain the extent to which the lake vessels were able to recover a considerable portion of the grain and wheat traffic which had hitherto been lost to the railroads. The Great Lakes occupied a midway position in the movement of grain from the Middle West to the Atlantic seaboard. Duluth, Superior, Milwaukee, Chicago, Green Bay, Port Washington, Sheboygan, Kenosha, and Racine sent vast quantities of wheat, corn, and oats by lake lines to the lower lake ports of Detroit, Toledo, Cleveland, Erie, Buffalo, Oswego, and Ogdensburg. From these lower lake shore cities the grain and flour receipts were transshipped to the eastern and foreign markets. Most of the lake lines were in the service of the railroads which reached these ports. All the leading trunk lines owned lake lines of steamers which transported grain and flour from the upper to the lower lake ports.³⁴

The principal transshipment point was Buffalo: the gate city to the East. Through this city passed the great bulk of the western flour and grain shipped east to the Atlantic seaboard by the lake route. The rapid growth in the volume of this traffic is shown by Table V which gives the annual receipts from 1860 to 1890. Of special significance is the remarkable expansion in the volume of flour receipts during the latter part of this period. It will be noted that the flour receipts were increased from 2,903,280 barrels in 1885 to 6,245,580 barrels in 1890. The rapid growth in flour receipts continued after that date, amounting in 1891 to 11,488,530 barrels. A comparison of the relative quantities of flour and wheat received at Buffalo shows that from 1877 to 1888 the total flour receipts amounted to 22,100,000 barrels; while the aggregate wheat receipts amounted to

³⁴ *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1880, p. 158; *Annual Report of the New York Produce Exchange, 1875-1876*, pp. 220, 221.

TABLE V

| BUFFALO FLOUR AND GRAIN RECEIPTS BY LAKE FROM 1860 TO 1890 ³⁵ | | | | | |
|---|--------------------|--------------------|-------------------|-------------------|---------------------------------------|
| YEAR | FLOUR (BARRELS) | WHEAT (BUSHELS) | CORN (BUSHELS) | OATS (BUSHELS) | TOTAL FLOUR AND GRAIN (BUSHELS) |
| 1860 | 1,122,335 | 18,502,649 | 11,386,217 | 1,209,594 | 37,053,115 |
| 1861 | 2,150,591 | 27,105,219 | 21,024,657 | 1,797,905 | 61,460,601 |
| 1862 | 2,846,022 | 30,435,831 | 24,388,627 | 2,624,932 | 72,872,454 |
| 1863 | 2,978,089 | 21,240,348 | 20,086,952 | 7,322,187 | 64,735,510 |
| 1864 | 2,048,530 | 17,677,549 | 10,478,681 | 11,682,637 | 51,177,146 |
| 1865 | 1,788,393 | 12,437,888 | 19,840,931 | 8,494,799 | 51,415,188 |
| 1866 | 1,213,543 | 10,479,694 | 27,894,798 | 10,227,472 | 58,388,087 |
| 1867 | 1,440,056 | 11,879,685 | 17,873,638 | 10,933,166 | 50,700,060 |
| 1868 | 1,502,731 | 12,555,731 | 16,804,067 | 11,492,472 | 49,949,856 |
| 1869 | 1,598,487 | 19,228,546 | 11,549,403 | 5,459,403 | 45,007,163 |
| 1870 | 1,470,391 | 20,556,722 | 9,410,128 | 8,846,983 | 46,613,096 |
| 1871 | 1,278,077 | 22,606,217 | 26,110,769 | 9,006,409 | 67,155,742 |
| 1872 | 762,502 | 14,304,942 | 34,643,187 | 6,050,045 | 62,260,332 |
| 1873 | 1,259,205 | 30,618,372 | 28,550,828 | 5,972,346 | 73,636,595 |
| 1874 | 1,693,585 | 20,778,572 | 24,974,548 | 5,396,781 | 70,030,552 |
| 1875 | 1,810,402 | 32,967,656 | 22,593,891 | 8,494,124 | 74,246,726 |
| 1876 | 807,210 | 19,324,612 | 20,939,853 | 2,397,257 | 50,074,648 |
| 1877 | 693,044 | 23,284,405 | 33,362,866 | 4,279,229 | 65,199,291 |
| 1878 | 911,980 | 35,419,136 | 35,133,853 | 5,122,972 | 84,046,052 |
| 1879 | 897,105 | 37,788,501 | 32,990,993 | 1,104,793 | 78,865,354 |
| 1880 | 1,317,911 | 40,510,229 | 62,214,417 | 649,350 | 112,042,927 |
| 1881 | 1,051,250 | 18,495,320 | 34,434,830 | 3,565,737 | 62,062,895 |
| 1882 | 1,199,350 | 26,050,030 | 21,664,530 | 1,650,170 | 56,830,340 |
| 1883 | 2,071,570 | 24,105,420 | 34,975,040 | 3,226,900 | 76,079,930 |
| 1884 | 2,615,510 | 32,469,710 | 18,538,340 | 3,174,730 | 70,041,520 |
| 1885 | 2,903,280 | 27,130,400 | 21,028,230 | 767,580 | 64,329,230 |
| 1886 | 4,582,190 | 41,430,440 | 29,155,370 | 1,014,670 | 95,425,790 |
| 1887 | 4,001,360 | 48,111,180 | 30,199,490 | 4,656,280 | 104,737,710 |
| 1888 | 5,244,930 | 27,548,110 | 36,422,270 | 7,897,310 | 99,448,150 |
| 1889 | 5,480,710 | 26,051,600 | 47,127,150 | 14,309,800 | 118,273,430 |
| 1890 | 6,245,580 | 24,868,630 | 44,136,060 | 13,860,780 | 120,540,700 |

³⁵ The statistics in Table V showing the flour and grain receipts of Buffalo from 1860 to 1890 are taken from the *Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Treasury Department), January, 1900, p. 2015. The total receipts given in the last column include barley and rye. See also Brewer's *Report on the Cereal Production of the United States*, p. 162, in the *Tenth Census of the United States*, 1880, Vol. III.

354,800,000 bushels. From 1889 to 1898, however, flour receipts amounted to 97,700,000 barrels; while the wheat receipts amounted to 594,000,000 bushels. That is to say, whereas in the first period Buffalo received one barrel of flour for every 16 bushels of wheat, in the second period it received one barrel of flour for every 6 bushels of wheat. Or, to state it in another way, in the first period 22 per cent of the total wheat receipts of Buffalo was in the form of flour; while in the second period, 42 per cent of the wheat receipts was in that form.³⁶ This change in the relative importance of wheat and flour receipts at Buffalo emphasizes the rapidity with which the milling industry was shifted from the Atlantic seaboard States to the Middle West.³⁷

The relative importance of Buffalo as the transshipment point for western grain and flour shipped by the lake route is shown by the fact that in 1890 this city received 92 per cent of the wheat shipments, 74 per cent of the corn shipments, 73 per cent of the oat shipments, 92 per cent of the barley shipments, and 63 per cent of the flour shipments. Oswego, Ogdensburg, Cleveland, Erie, Chicago, and Milwaukee received nearly all of the remainder.³⁸

Buffalo thus continued to be the great transshipment center — a position which this city had achieved upon the completion of the Erie Canal in 1825 — for the great bulk of the flour and grain shipped eastward by the lake route. At this point the shipper had the choice of water and rail

³⁶ *Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Treasury Department), January, 1900, p. 2014.

³⁷ See Thompson's *The Rise and Decline of the Wheat Growing Industry in Wisconsin* (Bulletin of the University of Wisconsin, Economics and Political Science Series, Vol. V, No. 3, 1909), Pt. II, Ch. VI; *Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Treasury Department), January, 1900, pp. 1988-1990.

³⁸ *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1891, p. xxvi.

routes to the seaboard. The water routes consisted of: first, the Erie Canal and Hudson River to New York City; and, second, the Welland Canal and the St. Lawrence River to Montreal, at which point shipments could be continued by that river to Europe or transferred to the Canadian Grand Trunk Railroad to Portland and Boston. The rail routes consisted of: first, the New York Central Railroad to Albany and thence to New York City or to Boston; and, second, the Erie Railroad to New York City.

The Welland Canal-St. Lawrence River route entered into competition with the Canadian Grand Trunk and Canadian Pacific Railroad for the flour and grain trade destined for Montreal. The greater part of the corn traffic was handled by the lakes; while the flour traffic was rapidly and completely absorbed by the railroads. Of the total flour receipts of Montreal in 1875 the proportion carried by the Canadian Grand Trunk Railroad amounted to 75 per cent, thus leaving but 25 per cent for the Welland Canal and St. Lawrence routes; while in 1882, the Grand Trunk Railroad carried 85 per cent of the total shipments received by Montreal. The wheat traffic was also secured by the railroads, although much more gradually. In 1875, the Grand Trunk Railroad carried 14 per cent of the total shipments received by Montreal; while in 1882, they handled 19 per cent of the total flour and grain receipts of Montreal. In 1898, the railroads carried 83 per cent of the flour, 24 per cent of the wheat, 14 per cent of the corn, 77 per cent of the oats, 28 per cent of the barley, and 17 per cent of the rye.³⁹ It will therefore be seen that the Welland Canal-St. Lawrence River route surrendered a considerable proportion of the eastbound traffic for Montreal to the railroads. Even so, however, it is noteworthy that the Welland Canal had an

³⁹ *Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Treasury Department), January, 1900, p. 1968.

advantage over the Erie Canal with respect to length, depth, and geographic position. At the same time it also occupied a more favorable position with respect to its natural competitors (the Canadian Grand Trunk and Pacific railroads) in the struggle for the eastbound flour and grain traffic destined for Montreal than the Erie Canal occupied with reference to the New York Central and Erie railroads in the competitive struggle for the traffic destined for New York City.

The Erie Canal — once the great highway of commerce between the Middle West and the Atlantic seaboard — was now superseded by the railroads in the competitive struggle which ensued after the Civil War for the western flour and grain traffic. For a time the encroachment of the railroads upon the canals continued unobserved. Confidence in the ability of the canal to compete successfully for the grain traffic was frequently expressed. Apropos of the belief in the superiority of the Erie Canal and the cost of transporting a bushel of wheat from the Mississippi River to New York City, the following editorial in *The Merchants' Magazine and Commercial Review* for May, 1869, is of pertinent interest:

The subject of cheaper transportation from the West to the East has attracted much attention of late. The report of the Hon. Israel T. Hatch, of Buffalo, to the Secretary of the Treasury; the speech of the same gentlemen before the New York Produce Exchange; the mission of representatives of New York grain interests to the shippers and dealers of the lake cities; the action of the Board of Trade in these cities; and, finally, the convention of delegates from boards of trade in the lake cities at Chicago during the last week, attest the interest that is felt in this matter by shippers and commercial men. This action and agitation has been stimulated by the conviction that the cost of transportation of grain and breadstuffs is higher than is necessary, that the transfer charges at Chicago, Buffalo, Oswego and New York are too great,

and to the further fact that the merchants of St. Louis and New Orleans are energetically moving with reference to making the Mississippi the outlet to the sea for agricultural products of the Northwest. Other disturbing causes are the agitation in reference to a Niagara Ship Canal, the enlargement of the Welland Canal, and the marvellous growth of the railroad interest which menace the ordinarily cheaper lines of water communication.

Grain and flour will, as a matter of course, take that route to market which, all things considered, is the cheapest. Time is not an important element. To the millions of bushels of grain in the Northwest which seek a market various routes are presented, and the solicitations of these are of various degrees of strength. Thus far transportation by the Lakes and the Erie Canal or by the railroads direct to the seaboard have been the favorite routes. Rivals have risen and grown threatening; direct trade with Europe has been talked and dreamed of, but there has been no really formidable competition to the route which has for so many years been the natural outlet. The fact that the Erie Canal earned over and above expenses some \$3,000,000 last year, at once suggested the thought that the canal tolls were excessive, and this stimulated an investigation which has shown that freight and transfer charges could be reduced, and that the whole business of shipping grain could be transacted at less cost, and the saving to be transferred to the pockets of the producer and the consumer.

In the discussion of this question of cheaper transportation there are two classes of reasoners: One believes that the cheapening of freight must be in the direction of water transportation; the other looks to the railroads as the certain means for reducing charges and as the commanding power in transportation for the future. Into this question we do not propose to enter at present. Our object is to show that freight and transfer charges are now too high, and that they can be reduced. To transport a bushel of grain from the Mississippi to the seaboard, it now costs $52\frac{1}{4}$ cents. The details are as follows:

| | |
|---------------------------------|----------------|
| Freight by rail to Chicago..... | 20 |
| Inspection (in and out)..... | $\frac{1}{4}$ |
| Storage | $2\frac{1}{2}$ |
| Commissions | $1\frac{1}{2}$ |
| Freight to Buffalo..... | $6\frac{1}{2}$ |

| | |
|-----------------------------------|------------------|
| Insurance | 1 $\frac{1}{4}$ |
| Elevator at Buffalo..... | 2 |
| Handling | $\frac{1}{4}$ |
| Commissions at Buffalo..... | 1 $\frac{1}{2}$ |
| Freight by Canal to New York..... | 13 $\frac{1}{2}$ |
| Expenses in New York..... | 3 |
| | <hr/> |
| Total expenses..... | 52 $\frac{1}{4}$ |

Of this sum, 40 cents are for carriage, and 12 $\frac{1}{4}$ are for transfer and local charges. The railway West of Chicago receives 20 cents for 200 miles. The canal, 352 miles, and the Hudson River, 150 miles, require 13 $\frac{1}{2}$ cents, of which 6 cents are for tolls. The lake charges for a distance of more than a 1,000 miles are but 6 $\frac{1}{2}$ cents. The aggregate is about \$10 a ton from Chicago, or \$17 from the Mississippi. The charges at grain elevators vary from one cent to two cents bushel. The charge for shoveling is from \$2 to \$5 for 1,000 bushels. At Buffalo, last year, the transfer and shovelling charges on 36,754,948 bushels exceeded the canal tolls by \$216,000; and at Oswego the transfer charges alone on 6,270,466 bushels exceeded the tolls by \$15,000. To this the charge for shovelling is to be added. It is a curious fact that the steam elevators have actually been in the habit of charging more than the same work could be done for by hand power. Two cases are cited at Buffalo. In one instance a cargo of 87,000 bushels of oats was transferred by an elevator in fifteen hours. The elevator fees were \$1,740, the cost of shovelling \$435; total, \$2,175, or 2 $\frac{1}{2}$ cents a bushel. In another case, two vessels were unloaded by hand, and the cargo transferred to cars, at a cost of 1 $\frac{1}{2}$ cents a bushel. An inspection and comparison of these figures indicate that in order to cheapen transportation, it is not necessary merely to reduce canal tolls and freight charges. The local charges for transfer, etc., also require reduction.

As the elevator charges at Chicago, Buffalo, and New York are 5 $\frac{1}{4}$ cents a bushel, and the shovelling from 1 to 1 $\frac{1}{2}$ cents more, a movement for a general reduction has been made. The work can be profitably done at half the price, and the leading dealers in the ports named have agreed to make the reduction. It remains for the Legislature of the State of New York to reduce the Canal tolls to a proportionate extent, and for the transportation lines West

of Chicago to reduce their rates. They now charge from 20 to 30 cents a bushel. The result of this is that grain is carried past Chicago and as the journals of that city complain, it can be carried from Central Illinois half way to New York for the cost of carrying it to Chicago alone.

This subject is of great importance not only to New York City and State, but to the whole seaboard. It has an interest too for every producer in the great Northwest, and it is not strange that such vigorous efforts are put forth to secure so important a trade in the channels now occupied by it, or to divert it into new channels. The business of the Erie Canal comes from the West. Only one-ninth of its traffic is local. The residue is from beyond Buffalo. There are single States in the West which, when the Erie Canal was due, had not even a name, that furnish it now more traffic than all that the State of New York now supplies. Year by year this business increases, and it is the part of wisdom to see to it that the channel of trade is equal to the demands upon it, and that the Erie Canal remains what it has so long been, the great route of transportation between the seaboard and the West.⁴⁰

The railroads with their improved facilities⁴¹ and low rates continued nevertheless to encroach upon the Erie Canal in the transportation of the eastbound flour and grain traffic, and this in spite of the fact that the Erie Canal was enlarged, freight rates on the Canal lowered, elevator and storage charges lessened, and tolls reduced and finally abolished in 1882.⁴² The Erie Canal became less a factor in the movement of flour and grain to the seaboard. This is shown by a comparison of the total flour and grain receipts at New York by the rail and canal routes. In 1860 the total receipts of New York by the Erie and Champlain canals

⁴⁰ *The Merchants' Magazine and Commercial Review*, Vol. LX, May, 1869, pp. 385-387.

⁴¹ See Schmidt's *The Internal Grain Trade of the United States, 1860-1890*, in *THE IOWA JOURNAL OF HISTORY AND POLITICS*, Vol. XIX, pp. 428, 429.

⁴² *Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Treasury Department), January, 1900, pp. 1972-1974.

amounted to 41,122,000 bushels; while the total receipts by the rail routes amounted to 16,010,000 bushels.⁴³ In 1870, the total receipts of New York by the canal route amounted to 36,312,000 bushels; while the total receipts by the rail route amounted to 34,208,000 bushels.⁴⁴ In 1880, the total receipts by the canal route amounted to 71,090,000 bushels; while the total receipts by the rail route amounted to 97,953,000 bushels.⁴⁵ In 1890, the total receipts by the canal route amounted to 30,185,000 bushels; while the total receipts by the rail route amounted to 90,219,000 bushels.⁴⁶ That is to say, in 1860 the Erie and Champlain canals carried two and a half times as much flour and grain to New York as the railroads; while in 1890 they carried only about one-third as much as the railroads. It will therefore be seen that while the Great Lakes were maintaining their relative position with the railroads and even regaining in part their old supremacy near the close of this period, the Erie Canal was becoming less and less important. The break in water transportation, however, was not in the west but at Buffalo, the point where the lake and canal routes met.

In order to understand the nature of the competition between the Erie Canal and the New York Central and Erie railroads for the eastbound flour and grain traffic it is necessary to inquire into the conditions which controlled the shipments from Buffalo by the various routes. These shipments consisted almost entirely of flour and grain received at Buffalo by the lake route. The railroads connect-

⁴³ *Annual Report of the New York Produce Exchange, 1872-1873*, pp. 338-391.

⁴⁴ *Annual Report of the New York Produce Exchange, 1872-1873*, pp. 338-391.

⁴⁵ *Annual Report of the New York Produce Exchange, 1881*, p. 407.

⁴⁶ *Annual Report of the New York Produce Exchange, 1890-1891*, p. 5.

ing Buffalo with the Middle West brought very little traffic to the canal. It was estimated in 1876 that probably not to exceed three per cent of all the freights received at Buffalo were shipped by lake from that point.⁴⁷ But the trunk line railroads which competed with the canal at Buffalo had both rail and lake connections with the west. This gave them great advantages over the canal. The steamer lines on the lakes brought to these roads large amounts of grain and flour from Chicago, Milwaukee, and the lake ports. Their rail connections also brought them considerable traffic from the Middle West. Moreover, the eastern and lateral connections of the New York Central and Erie railroads afforded these lines great advantages in the competitive struggle for the western grain and flour destined for the Atlantic seaports and the interior points in the seaboard States. These roads were therefore enabled to secure a large volume of traffic which led to a great reduction in the actual cost of moving grain by rail from the lakes to the seaboard. This fact constituted the most important condition in the lowering of freight rates. As long as the eastbound flour and grain was marketed almost exclusively at Chicago, Milwaukee, Toledo, and other lake ports, the Erie Canal was the principal transportation route; but after the trunk line railroads were built and direct rail connections were formed throughout the Middle West, a large proportion of the traffic was secured by these roads. The trunk line railroads opened up new areas of surplus production. Thus was developed an eastbound flour and grain traffic which far exceeded the amount diverted from the water lines to the railroads. The traffic secured by the railroads throughout the country was, as a matter of fact, developed by them rather than diverted to them from other transpor-

⁴⁷ *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1876, p. 115.

TABLE VI

| FREIGHT RATES ON WHEAT BY LAKE AND CANAL, BY LAKE AND RAIL, AND BY RAIL FROM CHICAGO TO NEW YORK FROM 1860 TO 1890 ⁴⁸ | | | |
|--|-----------------------------------|------------------|-------------|
| YEAR | AVERAGE RATES PER BUSHEL IN CENTS | | |
| | BY LAKE AND CANAL | BY LAKE AND RAIL | BY ALL RAIL |
| 1860 | 24.83 | ..... | ..... |
| 1861 | 26.55 | ..... | ..... |
| 1862 | 26.33 | ..... | ..... |
| 1863 | 22.91 | ..... | ..... |
| 1864 | 28.36 | ..... | ..... |
| 1865 | 26.62 | ..... | ..... |
| 1866 | 29.61 | ..... | ..... |
| 1867 | 22.36 | ..... | ..... |
| 1868 | 22.79 | 29.0 | 42.6 |
| 1869 | 25.12 | 25.0 | 35.1 |
| 1870 | 17.10 | 22.0 | 33.3 |
| 1871 | 20.24 | 25.0 | 31.0 |
| 1872 | 24.47 | 28.0 | 33.5 |
| 1873 | 19.19 | 26.9 | 33.2 |
| 1874 | 14.10 | 16.9 | 28.7 |
| 1875 | 11.43 | 14.6 | 24.1 |
| 1876 | 9.58 | 11.8 | 16.5 |
| 1877 | 1.24 | 15.8 | 20.3 |
| 1878 | 9.15 | 11.4 | 17.7 |
| 1879 | 11.60 | 13.3 | 17.3 |
| 1880 | 12.27 | 15.7 | 19.9 |
| 1881 | 8.19 | 10.4 | 14.4 |
| 1882 | 7.89 | 10.9 | 14.6 |
| 1883 | 8.37 | 11.5 | 16.5 |
| 1884 | 6.31 | 9.55 | 13.12 |
| 1885 | 5.87 | 9.02 | 14.00 |
| 1886 | 8.71 | 12.00 | 16.50 |
| 1887 | 8.51 | 12.00 | 16.33 |
| 1888 | 5.93 | 11.00 | 14.50 |
| 1889 | 6.89 | 8.70 | 15.00 |
| 1890 | 5.85 | 8.50 | 14.31 |

⁴⁸ *Annual Report of the New York Produce Exchange, 1890-1891, p. 72.* The lake and canal rates include canal tolls until 1882, but not Buffalo transfer charges. See also *Annual Report on the Internal Commerce of the United*

tation lines. Although rail rates were considerably higher than the lake and canal rates, the railroads, by making direct shipments, effected such saving of commissions, transfer and warehousing charges, insurance, and other expenses incident to transportation by the water line as to enable them to become successful competitors for the transportation of flour and grain and other bulky products from the Middle West to the Atlantic seaboard.

The great reduction in rail and water rates may be seen by Table VI showing the average annual freight rates on a bushel of wheat by lake and canal, by lake and rail, and by all rail from Chicago to New York from 1860 to 1890. In 1860 the lake and canal rates amounted to 24.8 cents a bushel. In 1870 they were reduced to 17.1 cents; while the lake and rail rates for that year amounted to 29 cents, and the all-rail rates amounted to 42.6 cents. In 1880, the lake and canal rates were further reduced to 12.3 cents, the lake and rail rates to 15.7 cents, and the all-rail rates to 19.9 cents. In 1890, the lake and canal rates were still further reduced to 5.9 cents, the lake and rail rates to 8.5 cents, and the all-rail rates to 14.3 cents. These rates were the published rates. As a matter of fact, there were great variations in these schedules. During the summer months when the waterways were open the rail rates were lower than the published rates; while during the winter months when the waterways were closed to navigation the rail rates were considerably higher.⁴⁹ The value of the water line in the

States (Bureau of Statistics, Treasury Department), 1891, p. xliii; *Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Treasury Department), January, 1900, p. 1973.

⁴⁹ This fact was clearly brought out in the testimony before the Windom Committee in 1874. Mr. Hayes, manager of the Blue Line Fast Freight, testified that the general freight agents of the western roads based the rail rates upon the water rates. That is to say, the water rate was taken as a competitive rate and the rail rates were fixed accordingly. "For seven months

transportation of western products to the seaboard is therefore to be measured not only by the amount of traffic carried by this route, but also by the fact that during a period of about seven months in the year when it was free of ice and open to navigation it served as a potent factor in reducing rail rates, thus effecting a great saving in the cost of transportation of products from the producer to the consumer.⁵⁰

The westward movement of cereal production and the competition between the water and rail routes and in turn between the railroads themselves for the surplus flour and grain destined for the markets of the east and of western Europe effected important changes in the distribution of these products at the eastern terminals. Formerly much of the grain sent to the Atlantic seaports was shipped by the coastwise route from New Orleans. The opening of a new

of the year during the period of open canal navigation the rates are much less than that indicated by the foregoing averages for the year, and during the four months in which canal navigation is closed by frost, the rates largely exceed the foregoing season averages."—*Report of the Select Committee on Transportation Routes to the Seaboard* (Washington, 1874), Vol. II, pp. 7, 95. See also statistical chart showing the average freight rates on grain from Chicago to New York for each month during the years 1869 to 1873 inclusive, by lake and canal, by lake and rail, and by all rail, in the *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1876, Chart No. 6, opposite p. 254.

⁵⁰ "Mr. J. C. Brown, statistician of the New York Produce Exchange, shows that the average freight rate on wheat from Chicago to New York in 1890 was 5.85 cents a bushel by lake and canal, and 14.31 cents a bushel by rail—the water cost being \$1.94 a ton and the rail cost \$4.77 per ton. That the rail cost between the two points should be less than one-half the average carrying rate for all the roads of the country is due to lake competition; and that, low as this rail cost is, the lake and canal cost for the same service is more than one-half lower still, affords a sharp conception of the great value of the lake line to the States of the North and Northwest—for they not only furnish a water carriage cheaper by one-half than the lowest rail cost, but they force the rail cost down to one-half the general average for the whole country. It would be within the limits of a reasonable estimate to say that the 16 feet of water all the way from Chicago to Buffalo saves to the people of those States, on freight charges, \$10,000,000 a year, if not double that sum."—*Annual Re-*

water route to the east by the completion of the Erie Canal in 1825 and the consequent rapid diversion of this surplus flour and grain of the Middle West from the southern to the eastern routes gave New York City a great ascendancy over Boston, Philadelphia, and Baltimore. The Erie Canal, in short, made New York City "the commercial metropolis of the east." From this port, grain and flour shipments were made to the other Atlantic seaports. The completion of the Welland Canal in 1833 and the St. Lawrence canals in 1848 opened up another water route to the east with Montreal as the terminal shipping point for western products. Thereupon began an active competition between New York City and Montreal for the traffic between the Middle West and the countries of Western Europe which has continued to the present. Formerly the competition with respect to the transportation of grain and other western products was confined almost exclusively to the two rival water lines: the Great Lakes-Canadian Canals-St. Lawrence River route and the Great Lakes-Erie Canal-Hudson River route. The competition of the rail lines for the transportation of grain to New York was begun in 1856; but it was not until 1867 that grain was first shipped by rail from the west to Mon-

port on the Internal Commerce of the United States (Bureau of Statistics, Treasury Department), 1891, p. xlvi. It was further estimated that in 1890 the Erie Canal effected a saving of \$4,000,000 a year on the wheat receipts alone, and probably five times as much on all the domestic receipts and shipments of New York City. Mr. Albert Fink, an eminent authority on the subject of railway transportation, testified before a special committee of the New York legislature that "the Erie Canal regulates the freight rates on all the railroads east of the Mississippi River, not only on those whose tracks run parallel with the canal, but upon those which run in an opposite direction." Quoted from the *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1891, p. xlix. "It is not necessary, therefore, that a water line should carry the freight to cheapen the rate; it cheapens what it does not carry as well as what it does. In short, it regulates rates on all lines of carriage that converge at a common point with it." — *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1891, p. xlix.

treal.⁵¹ The railroads connecting these two seaports with the west constituted important commercial highways between which the competition for western agricultural products became quite as active as between the two water lines.

The competition between New York and Montreal was confined almost exclusively to the transportation of the products of the west to Europe. Montreal did not compete with New York City or any other Atlantic seaport for the enormous traffic between the Middle West and the Atlantic seaboard States. This traffic greatly exceeded the traffic between the Middle West and Europe, as shown, for example, by the fact that in 1872, the eastbound shipments of grain amounted to 178,000,000 bushels, of which but 63,000,000 bushels, or 35 per cent, were shipped to Europe.⁵² It was the shipment to Europe which constituted the entire volume of grain for which the Montreal route entered into competition with the routes in the United States. The total exports of wheat at Montreal were nearly equal to the total receipts of wheat at that port from the United States.⁵³ Moreover, all the corn received and shipped at Montreal was exclusively of American growth. It may therefore be assumed that practically all the American wheat and corn transported by the St. Lawrence route was intended for exportation beyond Canada. Nearly all the grain exported from Montreal was shipped to Europe and chiefly to Great Britain.⁵⁴ The distance of Montreal from Liverpool via the

⁵¹ *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1880, p. 162.

⁵² *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1876, p. 120.

⁵³ For statistics showing the flour and grain receipts and shipments of Montreal from 1860 to 1890 see the *Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Treasury Department), January, 1900, p. 1978.

⁵⁴ *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1876, p. 120.

Straits of Belle Isle (the usual route) was 2766 miles; while the distance from New York City to Liverpool was 3075 miles⁵⁵—a difference of over 300 miles in favor of Montreal, although the comparative distance of export trade centers of the Atlantic seaboard from the markets of Europe was of no commercial importance in the determination of ocean freight rates.

Montreal became New York's most formidable competitor for the western flour and grain destined for the continent of Europe. This is shown by the relative increase in the grain receipts of these two cities during the period from 1856 to 1872. The total grain receipts of New York were increased from 57,045,000 bushels in 1856 to 90,482,000 bushels in 1872—an increase of 33,437,000 bushels, or 57 per cent; while the total grain receipts of Montreal were increased from 4,847,000 bushels in 1854 to 17,629,000 bushels in 1872—an increase of 12,782,000 bushels, or 263 per cent.⁵⁶ The rapid growth in the relative importance of Montreal as an exporting center for western grain and flour led the commercial interests of New York to become alarmed lest the grain trade would be ultimately diverted to the St. Lawrence River. This is evidenced by the *Report of the New York Produce Exchange* for 1875-1876 which observed that "If the export Grain trade shall once be turned down the St. Lawrence, it will be more difficult to regain it than to regain the export trade already diverted to Baltimore and Philadelphia. These large seaboard cities will always have a large Grain trade, but it will be limited chiefly to their domestic requirements for consumption."⁵⁷

⁵⁵ *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1876, p. 120.

⁵⁶ *Annual Report of the New York Produce Exchange*, 1872-1873, p. 237.

⁵⁷ *Annual Report of the New York Produce Exchange*, 1875-1876, p. 224.

But while the competition of Montreal threatened the supremacy of New York City during this period it was not destined to be an effective barrier to the development of that city as a flour and grain market. Nor did it divert the flour and grain traffic to the St. Lawrence route. Although Montreal by the usual route (the Straits of Belle Isle) was nearer to Liverpool than New York City, it was subject to several serious disadvantages as an export center. These disadvantages may be stated as follows:

First. The trade of Montreal was entirely suspended by ice for five months of the year, whereas the harbor of New York was never closed.

Second. The St. Lawrence route was subject to dangers and difficulties in consequence of fogs and floating ice during a period of several weeks after the opening and before the close of navigation.

Third. The rates of insurance on vessels and cargoes from Montreal to Liverpool were higher than the rates on vessels from New York City to Liverpool.

Fourth. Montreal was not advantageously situated as an importing center while New York City was the most favorably situated of all the seaports not only as an exporting but also as an importing center. This was a factor of great importance for the reason that the export trade depends to a large extent upon the import trade which shall pay a part of the expenses of the whole voyage to and from foreign ports. The absence of an import trade had the effect of raising the cost of ocean freights on exports, which constituted a serious disadvantage in competition with ports which are favored by a large import trade.

Fifth. The absence of a sufficiently large and regular amount of shipping at Montreal also rendered the grain and flour exporting business precarious; whereas New York always had a large amount of available shipping.

Sixth. The distance of Montreal from the West Indies and South America was much greater than the distance from New York City to these countries. The St. Lawrence route was not therefore in any sense a competitor of New York City and other Atlantic seaports for the flour and grain exports destined for these markets.

Seventh. Grain and flour shipped to Montreal from the Middle West could not be distributed to points in the Atlantic seaboard States except upon payment of a duty. This had the effect of practically prohibiting such trade, thus giving New York City another advantage over Montreal as a shipping point for western products.

Eighth. Montreal had practically no home market, while New York had a home market which absorbed large quantities of the western surplus which was poured into that city.⁵⁸

These conditions gave New York City a great advantage over Montreal which was reflected in ocean freight rates on grain from these two cities to Liverpool. In 1871 the ocean rates on wheat from Montreal to Liverpool by steamer were four cents a bushel higher than the New York rates. In 1872 the Montreal rate was six and one-half cents higher than the New York rates. These rates more than counterbalanced the advantages which Montreal enjoyed over New York City in freight rates from Chicago. This is illustrated by the fact that in 1872 the wheat rate from Chicago to Liverpool by steamer was 53.7 cents via New York; while it was 56.5 cents via Montreal. By sailing vessel the rate via New York was 51.4 cents; while the rate via Montreal was 57.1 cents. Similar though smaller differences prevailed in the relative rates on corn shipped to Europe via these two cities.⁵⁹

⁵⁸ See *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1876, pp. 120-125, 1880, pp. 161-166.

⁵⁹ *Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Treasury Department), January, 1900, p. 1977.

From 1872 to 1890 the total grain and flour receipts of Montreal were maintained at a fairly even level;⁶⁰ while they decreased relatively to the total receipts of New York.⁶¹ At the same time Baltimore and Philadelphia, the leading Atlantic ports south of New York City, began to come in for a larger share of the surplus flour and grain of the Middle West destined for the markets of the east and of western Europe. The diversion of the eastbound grain and flour traffic to these ports therefore next commands brief attention.

It has already been shown that this traffic favored the terminal cities of Chicago and New York City. As long as the great bulk of the eastbound flour and grain was transported by way of the Great Lakes and thence by the Erie Canal-Hudson River route and the New York Central and Erie railroads, New York City enjoyed a great preëminence over other Atlantic ports, her chief rivals being Montreal and Boston. The advantages thus secured by New York City taken in connection with her naturally fine harbor and good terminal facilities gave that city a predominant position in the export and import trade of the country, which was further strengthened by the density of the population tributary to New York. The extension and development of the trunk line railroads south of the northern water and rail routes, however, brought the more southern seaports of Philadelphia and Baltimore nearer to the markets

⁶⁰ See total of grain and flour receipts of Montreal during this period in *Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Treasury Department), January, 1900, p. 1978.

⁶¹ In 1872 the total flour and grain receipts of Montreal amounted to 17,547,000 bushels; while the total receipts of New York City amounted to 90,217,000. In 1890 the total receipts of Montreal amounted to 17,445,000 bushels; while the total receipts of New York City amounted to 122,013,670 bushels.—*Annual Report of the New York Produce Exchange, 1872-1873*, pp. 372, 376, 1890-1891, pp. 25, 28.

of the Middle West than New York City.⁶² The shorter distance of these cities, as well as the advantage of the different rates which they enjoyed,⁶³ enabled them to secure a larger proportion of the eastbound traffic than they had hitherto possessed, with the result that New York City declined in relative importance as a flour and grain market, although the total receipts of this city were maintained at a high level throughout the period.

The relative importance of the four leading Atlantic seaboard cities of New York, Boston, Philadelphia, and Baltimore in the competitive struggle for the western flour and grain traffic is shown by Table VII which gives the percentage of the total volume of flour, wheat, and corn received at these ports for the years 1872 to 1890 inclusive. Norfolk and Newport News, although of negligible importance, are included in this table. It will be seen that while New York City in 1873 secured 61.4 per cent of the total receipts of these six ports, in 1890 the proportion of the traffic secured by this city had been decreased to 50.8 per cent. Boston increased its share of the total receipts from 10.9 per cent in 1873 to 15.2 per cent in 1890.⁶⁴ Philadelphia increased its share from 14.3 per cent in 1873 to 15.9 per cent in 1880; but in the eighties Philadelphia suffered a relative decline, its share of the total receipts in 1890 amounting to 8.7 per cent. After 1890, however, Philadelphia recovered its former relative position achieved in

⁶² See note 19 above for statement of distances from Chicago to the six Atlantic ports of Boston, New York, Philadelphia, Baltimore, Norfolk, and Newport News.

⁶³ See *Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Treasury Department), January, 1900, pp. 1984-1986.

⁶⁴ For a consideration of the transportation lines and commercial movements of Boston, see *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1876, Appendix, Nos. 6, 11.

TABLE VII

| PERCENTAGE OF THE TOTAL RECEIPTS OF FLOUR, WHEAT, AND CORN AT EACH OF THE SIX ATLANTIC PORTS OF NEW YORK, BOSTON, PHILADELPHIA, BALTIMORE, NORFOLK, AND NEWPORT NEWS FROM 1873 TO 1890 ⁶⁵ | | | | | | |
|--|-------------|--------|--------------|-----------|---------|-----------------|
| YEAR | NEW YORK | BOSTON | PHILADELPHIA | BALTIMORE | NORFOLK | NEWPORT NEWS |
| 1873 | 61.4 | 10.9 | 14.3 | 13.3 | 0.1 | |
| 1874 | 62.5 | 9.7 | 12.6 | 15.2 | | |
| 1875 | 58.0 | 11.0 | 16.3 | 14.6 | .1 | |
| 1876 | 47.0 | 12.0 | 19.1 | 21.7 | .2 | |
| 1877 | 51.5 | 12.3 | 14.3 | 21.6 | .3 | |
| 1878 | 53.6 | 9.8 | 17.2 | 19.3 | .1 | |
| 1879 | 51.1 | 9.8 | 16.2 | 22.8 | .1 | |
| 1880 | 52.2 | 11.4 | 15.9 | 20.4 | .1 | |
| 1881 | 55.1 | 14.4 | 11.3 | 19.1 | .1 | |
| 1882 | 57.3 | 15.7 | 10.5 | 16.1 | | 0.4 |
| 1883 | 52.5 | 17.6 | 10.8 | 18.4 | .3 | .4 |
| 1884 | 54.1 | 18.0 | 9.2 | 18.1 | | .6 |
| 1885 | 55.5 | 15.0 | 10.8 | 18.1 | | .6 |
| 1886 | 55.0 | 15.1 | 8.2 | 18.6 | | 3.1 |
| 1887 | 53.4 | 14.4 | 11.0 | 19.4 | .3 | 1.5 |
| 1888 | 54.9 | 15.9 | 8.8 | 19.4 | .1 | .9 |
| 1889 | 44.5 | 12.6 | 17.3 | 23.8 | | 1.8 |
| 1890 | 50.8 | 15.2 | 8.7 | 24.4 | | .9 |

⁶⁵ These statistics are taken from a table in the *Report on Trunk Line Traffic and Differential Rates in the Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Department of Commerce and Labor), April, 1904, p. 3979. See also diagrams showing course of flour and grain receipts in millions of bushels at Montreal, Portland, Boston, Philadelphia, New York, Norfolk, Newport News, New Orleans, and Galveston for 1880 to 1903, opposite pp. 3976, 3978. For a good discussion of the competitive forces which exerted a controlling influence on the trade relation between the Middle West and the Atlantic ports of Boston, New York, Philadelphia, and Baltimore, see the *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1876, pp. 67-91.

the seventies as a grain and flour market.⁶⁶ Baltimore came in for a large share of this traffic, securing 13.3 per cent of the total receipts in 1873 and gradually increasing its share until 1890 when it secured 24.4 per cent of the total receipts.⁶⁷ However, New York City easily retained the lead over its rivals as the foremost flour and grain market on the Atlantic seaboard⁶⁸—a position which it has maintained to the present, though threatened in more recent years by its competitors on the Atlantic and Gulf seaboard. With these facts in mind attention will now be given to a brief consideration of the southbound flour and grain traffic and the relative importance of New Orleans as a flour and grain market during this period.

It has already been shown that New Orleans had by 1860 lost its importance as an export trade center for western flour and grain.⁶⁹ Formerly, the cereals of the surplus pro-

⁶⁶ For a consideration of the transportation lines and commercial movements of Philadelphia, see *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1880, Appendix, No. 10. See also references under note 67 below.

⁶⁷ For a consideration of the transportation lines and commercial interests of Baltimore, see *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1876, Appendix, No. 7, 1879, Appendix, No. 16, 1880, Appendix, No. 5, 1885, Appendix, No. 71.

⁶⁸ For a consideration of the transportation lines and commercial movements of New York City, see *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1876, Appendix, No. 2, 1879, Appendix, Nos. 1, 2. The volumes of the *Annual Report of the New York Produce Exchange* for this period contain a great deal of valuable historical information, both descriptive and statistical, bearing on the commercial movements of New York City. These reports are also useful for a study of the commercial movements of the other eastern ports of Montreal, Boston, Philadelphia, and Baltimore, the Gulf ports of New Orleans and Galveston, and the primary markets of the Middle West. The reports of the Statistician in the annual reports of the Commissioner of Agriculture may also be consulted to advantage in a review of the flour and grain movements of this period. See for example the *Annual Report of the Commissioner of Agriculture*, 1876, pp. 164-209.

⁶⁹ See Schmidt's *The Internal Grain Trade of the United States, 1850-1860*, in THE IOWA JOURNAL OF HISTORY AND POLITICS, Vol. XVIII, pp. 94-124.

ducing areas of the Middle West destined for the consuming sections of the East and the countries of western Europe were sent down the Mississippi River to New Orleans and thence shipped by the coastwise route to the Atlantic ports or exported to Europe. The opening of the water routes and the trunk line railroads between the Middle West and the Atlantic seaboard effected a rapid diversion of this traffic from the southern to the eastern routes and the consequent decline of New Orleans as a flour and grain exporting center. In 1860 New Orleans exported only 80,500 barrels of flour, 2000 bushels of wheat and 224,000 bushels of corn; while the oat and rye shipments were of negligible importance.⁷⁰ The Civil War completed the destruction of the New Orleans flour and grain export trade which this city was thereafter unable to recover. This is shown by the fact that in 1873 New Orleans exported less than two and one-half per cent of the entire corn exports of the country and less than one-half of one per cent of the total wheat exports.⁷¹

But while the competitive struggle between the eastern and southern routes for the western flour and grain destined for the eastern and European markets resulted in a victory of the former, the southern States continued to provide a market for large quantities of breadstuffs, including meat and dairy products, which the Middle West was able to furnish. These commodities were shipped southward by river and rail routes to St. Louis, Cincinnati, Louisville, Memphis, Nashville, New Orleans, and other interior points and seaports which served as distributing centers. There was, in short, a considerable southward movement for western grain and flour not intended for

⁷⁰ *Eighth Census of the United States*, 1860, Agriculture, p. clvi.

⁷¹ *Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Treasury Department), January, 1900, p. 1979.

export but destined for consumption in the south Atlantic and Gulf States. This is to be explained in part as follows:

The Lancashire cotton famine, caused by our Civil War, had left its mark in the very high prices for cotton which were obtained during the beginning of the decade. Prices ranged from 30 to 100 and even 200 per cent above those of the antebellum period. The result was the going over of the Southern States to the one crop system and the cultivation of cotton to the exclusion of cereals. The South was hailed as the market for the surplus crops of the West, and it was held that it was better to transport grain from the center of the grain belt, a distance of 800 miles to the center of the cotton belt, than to transport it 4,500 miles to Liverpool, especially as it was generally believed that by creating an American demand sufficient to absorb the whole crop, the prices of American grain would be independent of the fluctuations of the British markets. This enhanced grain movement to the South was a consummation the more devoutly to be wished as transportation charges entered far more largely into the price of grain than into that of cotton; the freight to Europe forming only 5 per cent of the Liverpool price for cotton, while for wheat the proportion was 29 and for corn 50 per cent. The vigor with which this policy of sending corn and corn products to the south, and cotton to England, was prosecuted is partially reflected, however, in the extremely low prices of cotton which now prevail.⁷²

The Select Committee on Transportation Routes to the Seaboard ascertained from statistics submitted by chambers of commerce and railroad companies that the east-bound shipments of grain from the Middle West in 1872 amounted to 178,000,000 bushels; while the southbound shipments amounted to 35,000,000 bushels.⁷³ The southbound shipments therefore amounted to about one-fifth of

⁷² *Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Treasury Department), January, 1900, p. 1979. See also *Report of the Select Committee on Transportation Routes to the Seaboard* (Washington, 1874), Vol. I, pp. 43-45.

⁷³ *Report of the Select Committee on Transportation Routes to the Seaboard* (Washington, 1874), Vol. I, p. 43.

the eastbound shipments, a considerable portion of which, as already pointed out, was destined for exportation to foreign countries; while the southbound shipments were destined for consumption in the United States. Of the southbound traffic 15,750,000 bushels were shipped from St. Louis, 5,356,000 bushels were shipped from Nashville, 4,965,000 bushels were shipped from Cairo, and 2,784,000 bushels were shipped from Cincinnati, and 6,145,000 bushels were shipped from other points. That is to say, 45 per cent of the total southbound flour and grain traffic in 1872 was shipped from St. Louis, 15 per cent from Nashville, 14 per cent from Cairo, 8 per cent from Cincinnati, and the remaining 12 per cent from shipping points of minor importance. The major part of this traffic was still carried by river, the shipments from Cincinnati being made chiefly by water; while 70 per cent of the shipments from St. Louis and 77 per cent of the shipments from Cairo were made by that route.⁷⁴ Thus the southern route for the southbound flour and grain traffic in 1872 still corresponded to a considerable extent with the old Ohio-Mississippi River route of the ante-bellum period.

St. Louis was the most important shipping point on the Ohio-Mississippi-Missouri River system for the surplus flour and grain of the Middle West destined for the southern States.⁷⁵ Situated in the heart of the great agricultural empire of the Mississippi Valley and at the junction of the Mississippi and Missouri rivers, it occupied a strategic position in the development of the intra-valley trade. It

⁷⁴ *Report of the Select Committee on Transportation Routes to the Seaboard* (Washington, 1874), Vol. I, pp. 42, 43.

⁷⁵ For a consideration of the transportation lines and commercial movements of St. Louis, see the *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1876, Appendix, No. 13, 1879, pp. 14-35 and Appendix, Nos. 6, 7, 8, 1880, pp. 123-145 and Appendix, No. 2, 1882, pp. 19-54 and Appendix, Nos. 1, 24.

was the gate city through which passed the great bulk of the western flour and grain which was shipped to the consuming States of the south; though Cincinnati,⁷⁶ and Louisville⁷⁷ on the Ohio River and Cairo⁷⁸ at the junction of the Ohio and Mississippi Rivers came in for a considerable share of this traffic. St. Louis became, moreover, an important railroad center, and the chief competitor of Chicago for the flour and grain traffic of the Middle West during this period.⁷⁹ Although St. Louis had become a thriving commercial city before Chicago had achieved any importance, the diversion of the great bulk of the grain traffic from the southern to the eastern routes gave Chicago the unquestioned lead over its rival. Even so, however, St. Louis held second place among the primary flour and grain markets of the Middle West. In 1880 its receipts came from Ohio, Indiana, Illinois, Missouri, Iowa, Minnesota, Nebraska, Kansas, Texas, Tennessee, Kentucky, and California.⁸⁰ It supplied most of the grain consumed in the southern States, both east and west of the Mississippi River. It be-

⁷⁶ For a consideration of the transportation lines and commercial movements of Cincinnati, see the *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1876, Appendix, No. 8, 1880, pp. 72-101 and Appendix, No. 3, 1882, Appendix, No. 7.

⁷⁷ For a consideration of the transportation lines and commercial movements of Louisville, see the *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1876, Appendix, Nos. 1, 16, 1879, Appendix, No. 14, 1880, Appendix, No. 7, 1882, Appendix, No. 5.

⁷⁸ *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1891, p. 80.

⁷⁹ For a consideration of the competitive struggle between St. Louis and Chicago for the western flour and grain traffic, see the *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1876, Appendix, No. 5, 1879, pp. 54-67 and Appendix, Nos. 4, 5, 10, 17.

⁸⁰ *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1882, p. 32 and Appendix, p. 15.

came an important shipping center after 1856 — the year in which rail connections were first established with the Atlantic seaboard — for large quantities of flour and grain which were sent eastward via the trunk line railroads to Baltimore, Philadelphia, and New York City.⁸¹ The construction of the jetties at the mouth of the Mississippi River in 1879⁸² further increased the importance of St. Louis as an exporting center for wheat and corn which found its way southward via New Orleans to the western countries of Europe.⁸³ In addition to these considerations, St. Louis also became a great flour milling center.⁸⁴

The growth of St. Louis as a distributing point is shown by Table VIII giving the flour and grain shipments from this city by all routes from 1865 to 1890. This shows that while the shipments of flour and grain fluctuated more or less there was a steady increase in the total volume distributed. From 1878 to 1880, the average annual shipments amounted to 37,144,000 bushels; from 1881 to 1885, the average annual shipments were increased to 39,749,000 bushels, and from 1886 to 1890 the average annual shipments were further increased to 44,697,000 bushels.

The shipment of flour and grain by the southern and eastern routes is of special interest and importance as showing the general course of the intra-valley flour and grain trade and the conditions governing its movement. These two movements may be illustrated by the flour and

⁸¹ *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1882, Appendix, p. 15.

⁸² *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1882, pp. 54-56, 1887, pp. 254-256.

⁸³ *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1882, Appendix, p. 15.

⁸⁴ *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1882, Appendix, pp. 15, 17, 18, 245-246.

TABLE VIII

ST. LOUIS FLOUR AND GRAIN SHIPMENTS BY ALL ROUTES FROM 1865 TO 1890⁸⁵

| YEAR | FLOUR (BARRELS) | WHEAT (BUSHELS) | CORN (BUSHELS) | OATS (BUSHELS) | BARLEY (BUSHELS) | RYE (BUSHELS) | TOTAL GRAIN, INCLUDING FLOUR REDUCED TO BUSHELS |
|------|--------------------|--------------------|-------------------|-------------------|---------------------|------------------|---|
| 1865 | 1,521,465 | 67,710 | 2,591,155 | 3,083,864 | 50,000 | 32,445 | 13,427,052 |
| 1866 | 1,700,740 | 635,818 | 6,757,199 | 2,624,044 | 89,750 | 225,460 | 18,835,969 |
| 1867 | 1,450,475 | 321,888 | 4,318,937 | 2,244,756 | 55,720 | 56,076 | 14,249,752 |
| 1868 | 1,499,337 | 542,231 | 1,611,618 | 1,925,579 | 64,426 | 192,553 | 11,860,097 |
| 1869 | 2,172,761 | 1,715,005 | 1,298,863 | 2,903,002 | 57,134 | 110,947 | 16,148,756 |
| 1870 | 1,790,739 | 636,562 | 3,637,060 | 3,144,744 | 70,451 | 100,254 | 21,039,776 |
| 1871 | 2,676,525 | 1,048,532 | 4,469,849 | 2,484,582 | 62,843 | 138,756 | 21,587,187 |
| 1872 | 2,247,040 | 918,477 | 8,079,739 | 3,467,594 | 87,566 | 150,208 | 23,885,784 |
| 1873 | 2,506,215 | 1,210,286 | 5,260,916 | 3,215,206 | 125,604 | 206,652 | 22,549,739 |
| 1874 | 2,981,760 | 1,938,841 | 4,148,556 | 3,027,663 | 227,418 | 166,133 | 24,417,411 |
| 1875 | 2,480,877 | 1,562,453 | 3,523,974 | 2,877,035 | 146,330 | 134,960 | 20,649,147 |
| 1876 | 2,217,578 | 2,630,007 | 12,728,849 | 1,932,983 | 223,680 | 304,192 | 28,907,601 |
| 1877 | 2,295,657 | 2,410,190 | 9,309,014 | 1,550,665 | 188,251 | 397,183 | 25,333,588 |
| 1878 | 2,670,740 | 6,900,802 | 6,382,712 | 1,792,801 | 244,799 | 757,621 | 29,432,435 |
| 1879 | 3,045,035 | 7,302,076 | 8,311,005 | 2,154,026 | 260,422 | 423,720 | 33,676,424 |
| 1880 | 3,292,803 | 11,313,879 | 17,571,322 | 2,541,613 | 155,113 | 276,041 | 48,321,983 |
| 1881 | 2,696,245 | 6,921,630 | 15,390,180 | 3,222,858 | 187,064 | 304,761 | 39,509,218 |
| 1882 | 3,305,765 | 12,446,060 | 9,376,975 | 4,410,011 | 86,245 | 344,870 | 41,540,103 |
| 1883 | 2,751,182 | 6,430,765 | 15,199,849 | 3,047,559 | 180,900 | 393,557 | 37,632,949 |
| 1884 | 3,014,105 | 7,177,982 | 16,533,259 | 3,082,360 | 169,781 | 700,526 | 41,227,380 |
| 1885 | 2,551,499 | 2,332,609 | 20,491,416 | 3,680,829 | 210,340 | 636,640 | 38,833,580 |
| 1886 | 2,243,361 | 2,429,462 | 11,848,995 | 2,764,922 | 215,377 | 337,018 | 27,690,878 |
| 1887 | 2,594,881 | 6,238,268 | 13,841,172 | 3,780,729 | 291,337 | 175,352 | 36,003,822 |
| 1888 | 2,682,405 | 4,412,506 | 15,904,759 | 5,414,764 | 324,083 | 275,233 | 38,402,167 |
| 1889 | 2,859,389 | 5,351,141 | 30,049,187 | 6,803,877 | 352,173 | 809,072 | 56,232,700 |
| 1890 | 2,880,324 | 3,688,015 | 40,616,333 | 7,191,868 | 230,155 | 467,360 | 65,155,187 |

⁸⁵ The statistics in Table VIII are taken from tables in the *Annual Statement of the Trade and Commerce of St. Louis, 1883*, pp. 85, 86; *1896*, pp. 149,

grain shipments for the year 1878. In that year the flour shipments south amounted to 1,018,000 barrels which represented 38.9 per cent of the total shipments. Of this amount, 452,000 barrels were sent by rail; while 566,000 barrels were sent by river. The flour shipments east amounted to 1,601,000 barrels, which represented 61.1 per cent of the total. Of this amount 1,579,000 barrels were sent by rail and 22,000 barrels were sent by river. The wheat shipments south amounted to 2,126,000 bushels, or 31.5 per cent of the total. Of this amount the railroads carried 228,000 bushels; while the river handled 1,898,000 bushels. The shipments east amounted to 4,625,000 bushels, or 68.5 per cent of the entire shipments, and of this amount the railroads carried 4,610,000 bushels and the river carried 15,000 bushels. The corn shipments south amounted to 3,747,000 bushels, or 58.8 per cent of the total shipments, of which the railroads carried but 363,000 bushels, while the river handled 3,384,000 bushels. The shipments east amounted to 2,628,000 bushels, or 41.2 per cent of the entire shipments, of which the railroads carried 2,604,000 bushels, while the river carried but 24,000 bushels. The entire flour and grain movement (including wheat, corn, oats, barley, rye, and flour reduced to bushels) south amounted to 13,373,000 bushels which represented 46.13 per cent of the entire shipments, of which the railroads transported 3,314,000 bushels, while the river carried 10,059,000 bushels. The shipments east amounted to 15,614,000 bushels, which represented 53.9 per cent of the entire shipments, of which amount the rail-

150; the *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1880, Appendix, p. 39; the *Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Treasury Department), January, 1900, pp. 2006, 2007. The writer is indebted to Mr. Eugene Smith, Secretary of the Merchants Exchange of St. Louis, for assistance in the preparation of this table.

roads carried 15,456,000 bushels; while the river carried but 158,000 bushels.⁸⁶

These statistics show: first, the relative importance of the eastward and southward flour and grain movements; and, second, the relative importance of the rail and water routes in the transportation of these commodities. It will be noted that the establishment of trunk line connections between St. Louis and the Atlantic seaboard effected a diversion of a considerable amount of traffic from the southern to the eastern routes, thus making St. Louis a competitor of New Orleans whereas formerly the commercial interests of these two cities were identical. The building of the southern trunk line railroads in the seventies effected a further diversion of traffic from the Mississippi River. While it is impossible owing to the lack of statistical data, to show the relative importance of the river and rail routes in the transportation of flour and grain to New Orleans it is clearly evident that the railroads in the eighties began a rapid absorption of this traffic.⁸⁷ Great quantities of breadstuffs were also shipped by rail directly into the southern States from St. Louis, Cairo, Memphis, Vicksburg, Louisville, and Cincinnati. At the same time the construction of the north and south railroads west of the Mississippi River brought Galveston into prominence during the latter part of this period as a flour and grain market.

The relative importance of the Atlantic and Gulf ports in the competitive struggle for the surplus flour and grain traffic of the Middle West may now be summarized.

In 1866 (Table IX) New York easily held first place with 59,470,000 bushels of grain. New Orleans ranked second

⁸⁶ *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1879, pp. 25, 26, 1880, pp. 52-59, 135, 136.

⁸⁷ See *Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Treasury Department), January, 1900, p. 1981.

TABLE IX

| FLOUR AND GRAIN RECEIPTS OF THE SIX PRINCIPAL SEABOARD CITIES FOR THE YEAR 1866 ⁸⁸ | | | | |
|---|-----------------|-----------------|----------------|--|
| SEABOARD MARKETS | FLOUR (BARRELS) | WHEAT (BUSHELS) | CORN (BUSHELS) | |
| MONTREAL | 740,750 | 951,597 | 2,122,873 | |
| NEW YORK | 2,721,657 | 5,766,664 | 22,218,519 | |
| BOSTON | 1,504,253 | 16,537 | 2,157,292 | |
| PHILADELPHIA | 537,512 | 1,219,670 | 1,503,394 | |
| BALTIMORE | 179,298 | 1,359,605 | 4,479,030 | |
| NEW ORLEANS | 993,331 | 1,431 | 6,009,528 | |

| SEABOARD MARKETS | OATS (BUSHELS) | BARLEY (BUSHELS) | RYE (BUSHELS) | TOTAL GRAIN, INCLUDING FLOUR REDUCED TO BUSHELS |
|------------------|----------------|------------------|---------------|---|
| MONTREAL | 2,069,747 | 173,872 | 336,390 | 10,394,454 |
| NEW YORK | 8,703,220 | 5,076,203 | 1,277,701 | 59,469,684 |
| BOSTON | 1,219,717 | 190,658 | 37,864 | 7,521,265 |
| PHILADELPHIA | 1,570,218 | | 279,673 | 7,260,515 |
| BALTIMORE | 1,333,515 | 73,490 | | 8,197,130 |
| NEW ORLEANS | 1,285,728 | | | 12,288,590 |

with 12,289,000 bushels. Montreal was third with 10,394,000 bushels. Baltimore stood fourth with 8,197,000 bushels. Boston was fifth with 7,521,000 bushels. Philadelphia stood sixth with 7,261,000 bushels.

In 1870 (Table X) New York held first place with 70,520,000 bushels of grain. Philadelphia advanced from sixth to second place with 15,307,000 bushels. New Orleans was reduced from second to third place with 14,602,000 bushels.

⁸⁸ The statistics used in Table IX are taken from tables in the *Annual Report of the New York Produce Exchange*, 1872-1873, p. 338, 1873-1874, pp. 282, 347, 348, 350, 354. The total grain receipts of these ports as listed in the last column include the following items not given in Table IX: Montreal, 1,036,000 bushels of peas; New York, 418,000 barrels of corn meal, 553,000 bushels of peas, and 594,000 bushels of malt; Boston, 26,000 bushels of corn meal; Baltimore, 55,000 bushels of peas; and New Orleans, 25,000 bushels of beans.

TABLE X

| FLOUR AND GRAIN RECEIPTS OF THE SIX PRINCIPAL SEABOARD CITIES FOR THE YEAR 1870 ⁸⁹ | | | | |
|---|-----------------|-----------------|----------------|--|
| SEABOARD MARKETS | FLOUR (BARRELS) | WHEAT (BUSHELS) | CORN (BUSHELS) | |
| MONTREAL | 1,032,091 | 6,153,392 | 82,713 | |
| NEW YORK | 4,120,941 | 23,913,748 | 9,230,340 | |
| BOSTON | 1,562,579 | 213,471 | 2,420,942 | |
| PHILADELPHIA | 1,015,127 | 3,294,400 | 3,080,250 | |
| BALTIMORE | 1,117,314 | 3,039,357 | 3,831,676 | |
| NEW ORLEANS | 1,541,281 | 13,765 | 4,886,460 | |

| SEABOARD MARKETS | OATS (BUSHELS) | BARLEY (BUSHELS) | RYE (BUSHELS) | TOTAL GRAIN, INCLUDING FLOUR REDUCED TO BUSHELS |
|------------------|----------------|------------------|---------------|---|
| MONTREAL | 48,371 | 17,629 | 34,634 | 12,230,093 |
| NEW YORK | 9,621,946 | 3,907,822 | 563,184 | 70,520,445 |
| BOSTON | 2,166,603 | 390,514 | 34,480 | 13,102,703 |
| PHILADELPHIA | 2,360,543 | 775,850 | 720,333 | 15,307,011 |
| BALTIMORE | 1,243,720 | | 77,778 | 13,819,101 |
| NEW ORLEANS | 1,970,928 | | | 14,601,922 |

Baltimore still held fourth place with 13,819,000 bushels. Boston still held fifth place with 13,103,000 bushels. Montreal was reduced from third to sixth place with 12,230,000 bushels.

In 1880 (Table XI) New York held first place with 169,042,000 bushels. Baltimore advanced from fourth to second place with 60,631,000 bushels. Philadelphia dropped from second to third place with 49,255,000 bushels. Boston ad-

⁸⁹ The statistics used in Table X are taken from tables in the *Annual Report of the New York Produce Exchange*, 1872-1873, p. 338, 1873-1874, pp. 282, 347, 348, 350, 354. The total grain receipts of these ports as listed in the last column include the following items not given in Table X: Montreal, 833,000 bushels of peas; New York, 827,000 bushels of corn meal, 199,000 bushels of peas, and 1,054,000 bushels of malt; Boston, 35,000 bushels of corn meal; Baltimore, 40,000 bushels of peas; and New Orleans, 24,000 bushels of beans.

TABLE XI

| FLOUR AND GRAIN RECEIPTS OF THE SIX PRINCIPAL SEABOARD CITIES FOR THE YEAR 1880 ⁹⁰ | | | | | |
|---|-----------------|-----------------|---------------|--|--|
| SEABOARD MARKETS | FLOUR (BARRELS) | WHEAT (BUSHEL) | CORN (BUSHEL) | | |
| MONTREAL | 735,596 | 9,637,124 | 7,772,549 | | |
| NEW YORK | 5,422,353 | 59,492,246 | 61,076,810 | | |
| BOSTON | 2,730,715 | 3,920,317 | 16,161,419 | | |
| PHILADELPHIA | 933,944 | 15,123,330 | 24,950,750 | | |
| BALTIMORE | 1,313,012 | 36,414,393 | 16,590,291 | | |
| NEW ORLEANS | 642,460 | 6,707,982 | 11,508,685 | | |
| SEABOARD MARKETS | OATS (BUSHEL) | BARLEY (BUSHEL) | RYE (BUSHEL) | TOTAL GRAIN, INCLUDING FLOUR REDUCED TO BUSHEL | |
| MONTREAL | 1,191,531 | 443,528 | 357,176 | 25,329,746 | |
| NEW YORK | 13,997,960 | 3,929,517 | 2,045,758 | 169,042,362 | |
| BOSTON | 3,559,392 | 422,165 | 31,070 | 37,091,005 | |
| PHILADELPHIA | 3,638,760 | 1,049,600 | 117,000 | 49,255,163 | |
| BALTIMORE | 1,172,487 | 321,125 | 224,506 | 60,631,426 | |
| NEW ORLEANS | 1,598,180 | | 45,208 | 22,754,957 | |

vanced from fifth to fourth place with 37,091,000 bushels. Montreal advanced from sixth to fifth place with 25,330,000 bushels. New Orleans dropped from third to sixth place with 22,755,000 bushels.

In 1890 (Table XII) New York held first place with 122,014,000 bushels. Baltimore continued to hold second place with 46,435,000 bushels. Philadelphia still held third place with 35,215,000 bushels. Boston continued to hold fourth

⁹⁰ The statistics used in Table XI are taken from the *Annual Report of the New York Produce Exchange*, 1881, pp. 402-407. The total grain receipts of these ports as listed in the last column include the following items not given in Table XI: Montreal, 2,618,000 bushels of peas; New York, 991,000 bushels of corn meal, 291,000 bushels of peas, and 2,820,000 bushels of malt; Boston, 708,000 bushels of corn meal; Philadelphia, 173,000 bushels of malt; and New Orleans, 4,000 bushels of beans.

TABLE XII

| FLOUR AND GRAIN RECEIPTS OF THE SIX PRINCIPAL SEABOARD CITIES FOR THE YEAR 1890 ⁹¹ | | | | |
|---|-----------------|-----------------|----------------|--|
| SEABOARD MARKETS | FLOUR (BARRELS) | WHEAT (BUSHELS) | CORN (BUSHELS) | |
| MONTREAL | 978,843 | 4,155,970 | 5,302,057 | |
| NEW YORK | 5,635,384 | 15,794,857 | 34,261,466 | |
| BOSTON | 2,494,671 | 526,965 | 9,659,010 | |
| PHILADELPHIA | 2,164,422 | 1,644,582 | 17,949,350 | |
| BALTIMORE | 3,369,759 | 6,378,638 | 21,093,894 | |
| NEW ORLEANS | 640,373 | 1,593,275 | 13,780,264 | |

| SEABOARD MARKETS | OATS (BUSHELS) | BARLEY (BUSHELS) | RYE (BUSHELS) | TOTAL GRAIN, INCLUDING FLOUR REDUCED TO BUSHELS |
|------------------|----------------|------------------|---------------|---|
| MONTREAL | 1,648,193 | 167,996 | 282,014 | 17,444,966 |
| NEW YORK | 33,744,000 | 4,295,640 | 1,228,393 | 122,013,670 |
| BOSTON | 7,636,618 | 396,863 | 119,715 | 30,815,742 |
| PHILADELPHIA | 4,522,670 | 1,056,300 | 98,425 | 35,214,826 |
| BALTIMORE | 2,556,630 | 288,036 | 469,880 | 46,435,135 |
| NEW ORLEANS | 3,320,225 | | | 21,575,442 |

place with 30,816,000 bushels. New Orleans forged ahead again from sixth to fifth place with 21,575,000 bushels, thus replacing Montreal which dropped from fifth to sixth place with 17,445,000 bushels.

In concluding this study of the internal grain trade of the United States during the period from 1860 to 1890 it should be borne in mind that the movement of flour and grain from the Middle West to the Atlantic and Gulf seaboards may be

⁹¹ The statistics used in Table XII are taken from tables in the *Annual Report of the New York Produce Exchange*, 1890-1891, pp. 25-28. The total grain receipts of these ports as listed in the last column include the following items not given in Table XII: Montreal, 1,484,000 bushels of peas; New York, 619,000 bushels of peas, 5,027,000 bushels of malt, and 1,685,000 bushels of corn meal; Boston, 1,251,000 bushels of corn meal; Philadelphia, 204,000 bushels of malt; and Baltimore, 484,000 bushels of malt.

divided into the following classes of shipments which were subject to varying degrees of competition:

1. Direct shipments from the Middle West to interior points in the States of the Atlantic seaboard. This traffic was for consumption at these points. It was less affected by the competition of rival lines and of rival seaports. It was in some cases confined to one of the trunk lines and consequently formed a part of its local traffic. In other cases two or three trunk lines might compete for this traffic, but it was excluded from the direct competition of all the trunk lines by certain well defined geographic limitations.

2. Shipments from the Middle West to the Atlantic and Gulf ports. This traffic was destined either for local consumption, or for distribution coast-wise or to interior parts in the United States, or for exportation to foreign countries. It was also competitive but not to such a great extent as direct shipments from interior parts of the Middle West to the markets of Europe. The movement of grain and flour from the Middle West to the seaport markets involved not only the question of transportation routes and facilities but also the question of relative advantages afforded by the several markets, the relative magnitude of the home and foreign demand, and the facilities for storage and for interior, coast-wise, or foreign shipments at each port.

3. Direct shipments from interior points of the Middle West to Europe. This traffic was in the highest sense competitive, since the trunk line railroads from such interior points connected directly with ocean-steamship lines to Europe at Boston, New York, Philadelphia, and Baltimore.⁹²

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⁹² *Annual Report on the Internal Commerce of the United States* (Bureau of Statistics, Treasury Department), 1876, pp. 69-78.