THE INTERNAL GRAIN TRADE OF THE UNITED STATES 1860–1890[1]

II

The principal transportation routes connecting the surplus grain States of the North Central region with the consuming States of the East and South before the Civil War were the two interior waterways of the country: the Mississippi River with its navigable tributaries to New Orleans; and the Great Lakes with their eastern connections, the Erie Canal and the Hudson River to New York City and the Welland Canal and the St. Lawrence River to Montreal. These two great waterways were the most important highways of inland commerce for the transportation of western grain and flour to the Atlantic and Gulf seaboards; although the extension of railroads into the Middle West during the decade of the fifties introduced a new agency which was destined after 1860 to revolutionize the whole course and conditions of the internal grain trade of the United States. It is, therefore, this aspect of the problem that will next be considered.[2]

[1] The first article on the internal grain trade of the United States during the period from 1860 to 1890 appeared in THE IOWA JOURNAL OF HISTORY AND POLITICS, Vol. XIX, pp. 196–245. It was originally planned to complete the study in two installments but it has been found advisable to divide the series into three parts, this being the second. The third and concluding article of this series will appear in a subsequent number of the JOURNAL. For a brief study of the internal grain trade of the United States before the Civil War, 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.

[2] For a brief historical survey of internal trade and transportation in the United States during the period from 1860 to the end of the century, see Ripley's *Railroads: Rates and Regulation,* Ch. I; Johnson's *History of Do-*

PRINCIPAL TRANSPORTATION ROUTES CONNECTING THE MIDDLE WEST WITH THE ATLANTIC AND GULF SEABOARDS

The Mississippi River traffic constitutes an interesting and picturesque chapter in western commercial history. Before the Civil War, steamboats laden with grain formed a steady procession down the river. The profits of one trip often paid half the cost of a new boat and enormous fortunes were amassed in a single season. The blockade of the river by the Confederacy during the early period of the war suddenly interrupted this traffic. "The river became the center of war, not of commerce, and the boats that sailed upon it were men-of-war and gun-boats, instead of peaceful steamers and barges".[3] After the war the river traffic was rapidly revived by the introduction of more economical carriers — the grain barges. These barges were huge wooden vessels, towed along by the steamboats, and although the weight of the vessels necessarily slackened the speed of the packets, they saved considerable time in the loading and unloading of grain. Soon many barges were attached to one steamboat, so that a string of barges would carry as much as 60,000 bushels of grain. During the seventies small but powerful craft were substituted for the expensive steamboats, and it became customary for one fleet of barges to transport 100,000 bushels of grain at a time.

mestic and Foreign Commerce of the United States, Vol. I, Ch. XVI; and Sparks's *National Development* (*The American Nation Series,* Vol. XXIII), Ch. XVII. See also Tunell's *Lake Commerce* in *House Miscellaneous Documents,* 55th Congress, 2nd Session, Vol. LI, Doc. No. 277, and 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, June, 1897, pp. 340–375. The attention of the reader is also called to *The Grain Trade of the United States* in the *Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Treasury Department), January, 1900, pp. 1957–2075. This is a statistical study of the grain trade of the United States including tables on the world's wheat supply and trade.

[3] *Annual Report on the Internal Commerce of the United States,* 1887, p. 223.

The introduction of the barge tow-boat system revolutionized the river traffic which for a time gave promise of turning the tide of western trade — hitherto diverted in ever increasing volume to the eastward — back towards the Gulf of Mexico. This statement is supported by contemporary discussions of the advantages of the barge system in the transportation of western grain and of the probable effect of this system on the movement of grain from the surplus cereal producing regions to the seaboard.[4]

The Merchants' Magazine and Commercial Review for September, 1868, in an editorial on *The Barge System on the Western Rivers* presented the following typical review of the period:

> The inadequacy of the present means of outlet for Western produce to the seaboard, other than the channel of the Mississippi, is universally acknowledged. For the sake of cheapness, vast quantities of produce must take the river and gulf route, or not go to market at all. Notwithstanding the objections which exist, and are universally entertained, to that route, its trade is rapidly increasing from the very necessity of the case. Within the last three years it has received so great an impetus, that improvements in the facilities for transferring produce from vessel to vessel, and for towing it upon the water, have become indispensable. The barge system has accordingly been substituted for the old one of placing the produce on large steamboats. Steam tugs of immense strength are employed. They carry no freight. They are simply the motive power. They save delay by taking fuel for the round trip. Landing only at the large cities, they stop barely long enough to attach a loaded barge. By this economy of time and steady movement, they equal the speed of steamboats. The Mohawk made its first trip from St. Louis to New Orleans in six days, with ten barges in tow. The management of the barges is precisely like that of freight cars. The barges are loaded in the absence of the steam tug. The tug arrives, leaves a train of barges, takes another and proceeds. The tug itself

[4] Merk's *Economic History of Wisconsin during the Civil War Decade*, p. 351. This is Volume I of the *Studies* published by the State Historical Society of Wisconsin.

is always at work. It does not lie at the levees while the barges are unloading. Its largest stoppage is made for fuel. The power of these boats is enormous. The tugs plying on the Minnesota River sometimes tow 30,000 bushels of wheat apiece. The freight of a single trip would fill 85 railroad cars. Steamboats are obliged to remain in port two or three days for the shipment of freight. The heavy expense which this delay and the necessity of large crews involve, is a grave objection to the old system of transportation. The service of the steam tug requires but few men, and the cost of running is relatively low. . . .

The Mississippi Valley Transportation Company has 5 tow-boats and 37 barges. They are crowded with business. They handle as much as 11,000 tons of freight in a week. The business is rapidly and largely developing. The barge system will soon supersede all other methods of transportation on western waters. An indispensable adjunct of it is the steam elevator for transferring grain from vessel to vessel in bulk. The St. Louis elevator cost $450,000 and has a capacity of 1,250,000 bushels. It is able to handle 100,000 bushels a day. It began to receive grain in October 1865. Before the 1st of January, 1866, its receipts amounted to 600,000 bushels, 200,000 of which were brought directly from Chicago. The local receipts at the elevator in 1866 were 1,376,700 bushels. Grain can now be shipped by way of St. Louis and New Orleans to New York and Europe 20 cents a bushel cheaper than it can be carried to the Atlantic by the other existing routes.[5]

The *Annual Report of the New York Produce Exchange* for 1872–1873 further recognized and emphasized the possibilities of the barge system in the transportation of western grain in the following terms:

> It is claimed by the city of New Orleans that the Mississippi river is the great natural water highway for the products of the West and Northwest to seaboard and foreign markets. This claim is also sustained by St. Louis and other cities on that river. To regain the trade of the Northwest lost to that route during the war, New Orleans is cooperating with St. Louis to turn the tide of Western

[5] *The Merchants' Magazine and Commercial Review,* Vol. LIX, September, 1868, pp. 172–174.

trade back again towards the Gulf of Mexico. In the furtherance of this object, grain elevators have been erected at St. Louis and New Orleans for handling grain in bulk, which has for a long period heretofore been altogether in sacks, and is in part handled in sacks at the present time. The system of barge transportation has also come into practical use on that river. . . .

These barges have unmistakable advantages over steamboats. In case of fire they can be cut adrift from each other, and the fire confined to the narrowest limits. Their greater safety secures a lower rate of insurance. The barges are strong and staunchily built, and have water-tight compartments for the carriage of bulk grain. The transportation of grain from St. Paul to New Orleans by the barges, two thousand miles, costs no more than the freightage by rail from that place to Chicago or Milwaukee. Grain at St. Paul placed on board of barges, is not handled again till it reaches New Orleans, when it will be transferred by steam to the vessel which is to convey it to New York or Europe.

This . . . . new method of transportation, bids fair to revolutionize the carrying trade on the Western rivers. It will greatly diminish the cost, and will have a tendency to largely augment the commerce of the Mississippi river, by its probable reduction in the cost of transportation. It is claimed that this improvement will turn the tide of the trade of the North Western States to New Orleans and the Gulf of Mexico. A part of the plan includes the construction of iron barges, which will give greater carrying capacity, and in fresh water, if kept well painted, will last for a century.[6]

Companies were formed to carry on an organized competition with the railroads, the ultimate outcome of which, however, was the triumph of the railroads. The packets soon carried the grain only to the railway terminals instead of the entire distance to New Orleans — a practice which had been inaugurated by the blockade of the Mississippi during the war. Finally, in the seventies, even the local trade of the boats was won by their rivals; while the barges

[6] *Annual Report of the New York Produce Exchange*, 1872–1873, pp. 250–252.

and their service to the grain trade declined. Although the river continued to exert an indirect influence on this trade by acting as a threatening regulator of rates, its disadvantages, among which may be mentioned the uncertainty of river navigation during the summer months, the speedy and safe transportation afforded by the eastern railroads, and the superiority of New York as an exporting and importing center, were too fundamental to enable it to withstand the comparative advantages of the railroads.[7]

The Great Lakes constituted a natural inland water route for the transportation of western grain and flour from the upper to the lower lake ports. The lake marine consisted of sailing and steam-driven vessels. The sailing vessels included schooners and other common types classified according to their rigging, as barks, brigs, or sloops. They were used in the transportation of exceptionally bulky freight such as lumber, corn, wheat, ore, and salt. By the close of the century, these vessels had disappeared almost entirely from the lakes, being superseded by steam-driven vessels which meanwhile had made their rapid entry and soon dominated the lake traffic. The steam-driven vessels included three distinct types: tugs, side-wheel steamers, and propellers. Tugs were employed, as they are at the present time, chiefly for canal and harbor traffic. The side-wheel steamers were the passenger carriers of the Great Lakes, though like the Mississippi River steamboats, they also carried freight, particularly wheat, flour, and merchandise. Propellers gradually took the place of the side-wheel steamers in the development of the lake marine. They were built primarily for the transportation of freight. A specialized form of propeller was the steam barge which

[7] For a review of the Mississippi River trade and shipping during this period, see the *Annual Report on the Internal Commerce of the United States*, 1887, pp. 223–300, 1891, pp. xlv–lxi, and Appendix No. 2.

was used exclusively for freight traffic. Significant also in the growth of the lake marine was the rapid increase in the number and carrying capacity of these vessels. In 1856, the largest vessel afloat on the Great Lakes had a grain capacity of not to exceed 33,000 bushels. In 1873, steam barges frequently left Chicago and Milwaukee with from 55,000 to 60,000 bushels of wheat in their holds and like amounts in the holds of one or two tows.[8] The introduction of the iron steam vessel on the lakes in the sixties and seventies and the rapid increase in the number of these vessels in the eighties to supplement the earlier or wooden type was accompanied by an increase in carrying capacity, some idea of which may be gained from the fact that the iron steam propeller, the *E. C. Pope,* in 1891 transported from Chicago to Buffalo 125,990 bushels of corn — the largest cargo of grain that had been carried on the lakes up to this time.[9] The movement of grain on the lakes, as shown by the receipts of the various lake ports, amounted in 1890 to 26,930,000 bushels of wheat, 922,000 barrels of flour, 59,858,000 bushels of corn, 18,873,000 bushels of oats, and 5,775,000 bushels of barley.[10] Finally, it should be mentioned that many of the leading lines of steamers which composed a considerable portion of the Great Lakes[11] fleet were operated in connection with leading railroad lines. These railroads had extensive wharves and warehouses at many of the prominent lake ports. In this manner were

[8] Merk's *Economic History of Wisconsin during the Civil War Decade,* pp. 374–378. This is Vol. I of the *Studies* published by the State Historical Society of Wisconsin.

[9] *Annual Report of the Internal Commerce of the United States,* 1891, p. xviii.

[10] *Annual Report on the Internal Commerce of the United States,* 1891, p. xxvi.

[11] For a review of the commerce and shipping of the Great Lakes during this period, see Tunell's *Lake Commerce* in *House Miscellaneous Documents,*

combined the advantages of cheap transportation, rapid transit, and ready movement of large volumes of freight.

Buffalo was the leading terminus for the western grain and flour shipped eastward via the lake route for the eastern markets.[12] At this point there was the choice of three routes to the seaboard: (1) the Erie Canal and the Hudson River to New York City; (2) the Welland Canal and the St. Lawrence to Montreal; and (3) the New York Central Railroad to New York and Boston and the Erie Railroad to New York. The average lake and canal rates were always from three to five cents a bushel cheaper than the average lake and rail rates.[13]

Other canals tributary to the Great Lakes commercial highway which should be mentioned were the Ohio and Erie Canal from Portsmouth on the Ohio River to Cleveland on Lake Erie; the Wabash and Erie Canal connecting the Wabash River with Toledo on Lake Erie; the Miami and Erie Canal from Cincinnati to the Wabash and Erie Canal; the Illinois and Michigan Canal from the Illinois River to Chicago on Lake Michigan; and the Wisconsin and Fox Rivers Improvement from the Mississippi River to Green Bay, Wisconsin, on Lake Michigan.[14]

In 1860 there were 30,635 miles of railroads in the United States. This mileage was distributed about equally among the three great sections of the Union: the East, the South,

55th Congress, 2nd Session, Vol. LI, Doc. No. 277. See also *Annual Report on the Internal Commerce of the United States*, 1891, pp. v–xlv and Appendix No. 1. See also map showing freight traffic on the Great Lakes for the year 1890.

[12] See the *Annual Report on the Internal Commerce of the United States*, 1891, p. xxvi.

[13] *Annual Report of the New York Produce Exchange*, 1890–1891, p. 72.

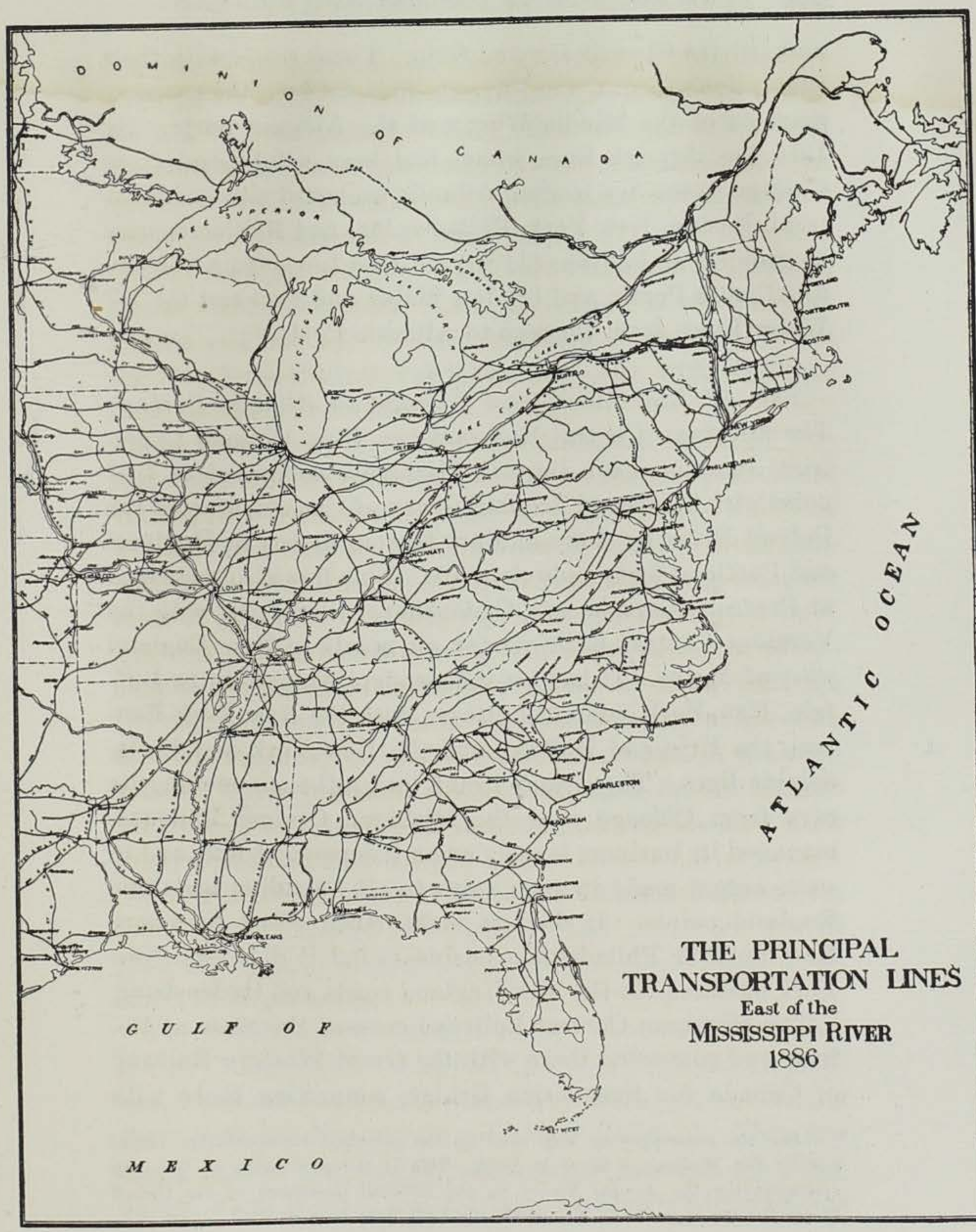
[14] For map showing canals and canalized rivers in the United States, see Meyer's *History of Transportation in the United States before 1860*, Plate 2, opposite page 654.

and the Middle West. The rate of construction progressed slowly during the war period, declining from 1837 miles in 1860 to 651 miles in 1861, then fluctuating until 1865 when railroad expansion was well under way again. The Burlington Railroad expanded from 168 miles in 1861 to over 400 miles in 1865. The Chicago and Northwestern bridged the Mississippi River in 1865. In 1869 the first transcontinental railroad, the Union Pacific, was completed. This was followed by the Southern Pacific in 1881, the Northern Pacific in 1884, and the Great Northern in 1893. Railway construction throughout the country was hastened at such a rapid rate that it was practically doubled every ten years, amounting in 1870 to 52,914 miles and in 1880 to 93,671 miles, and in 1890 to 166,706.[15] During this period the great trunk line railroads of to-day were formed, and the "fast-freight" lines were organized to handle the through freight business. They carried grain over the trunk line railroads in their own cars, marked by a distinctive color or emblem to designate the owning company. Sometimes one company would also own ships, docks, and elevators.[16]

The principal trunk line railroads connecting the North Central States with the Atlantic seaboard were: (1) the Canadian Grand Trunk; (2) the New York Central; (3) the Erie; (4) the Pennsylvania; (5) the Baltimore and Ohio;

[15] *Statistical Abstract of the United States,* 1893, pp. 272, 273; Ripley's *Railroads: Rates and Regulation,* pp. 16, 28; Fite's *Social and Industrial Conditions in the North during the Civil War,* p. 68, note 2.

[16] The Empire Transportation Company in 1876 owned 4500 cars and had contracts with 5793 miles of railroad for furnishing cars and engaging in the transportation of freight. Arrangements were also made by which the cars of this company were allowed to run over 18,575 miles of roads with which they had no special contract. This company also owned and operated 18 large steamers and sailing vessels on the lakes, plying between Erie, Pennsylvania, and western ports. In Erie it had two large grain elevators and extensive docks. In New York and Philadelphia it had ample accommodations for receiving and distributing freight.— See *Annual Report on the Internal Commerce of the United States,* 1876, pp. 15–19.



THE PRINCIPAL TRANSPORTATION LINES

East of the

MISSISSIPPI RIVER

1886

and (6) the Chesapeake and Ohio. These roads with their connections formed the through lines between the primary markets of the Middle West and the Atlantic ports. By 1876 the through lines which had been established from Chicago to the five leading Atlantic seaboard cities of Montreal, Boston, New York, Philadelphia, and Baltimore may be grouped as follows: (1) the All Rail Lines from Chicago to Atlantic Ports; and (2) the Water and Rail and the All Water Lines from Chicago to Atlantic Ports.[17]

The All Rail Lines from Chicago to Atlantic Ports.— The Michigan Central Railroad ran from Chicago to Detroit Junction near Detroit, Michigan, connected at that point with the Grand Trunk Railway of Canada, crossed the Detroit River by ferry at Port Huron, thence to Montreal and Portland by an unbroken line. This line also connected at Prescott, Canada, and Ogdensburg, New York, with the Vermont Central Railroad for all points in New England west of Maine. It had an independent connection to Buffalo, New York, connecting there with the New York Central, the Erie and Buffalo, and the New York and Philadelphia lines. The Grand Trunk line, although running its cars from Chicago over the Michigan Central Railroad, managed its business largely as an independent line, and to some extent made its own rates to all Canadian and New England points. It did not make much effort to secure New York or Philadelphia business; but it did some New York business via the New England roads and Ogdensburg.

The Michigan Central Railroad crossed the river at Detroit and connected there with the Great Western Railway of Canada for Suspension Bridge, connecting there with

[17] See the accompanying map showing the principal transportation routes east of the Mississippi River in 1886. This is a reproduction of the map accompanying the *Annual Report on the Internal Commerce of the United States* for the year 1886. The steamship lines have been omitted.

the New York Central for New England points and New York and with the Erie Railroad for New York and Philadelphia via the Lehigh Valley Railroad from Waverly. This line carried a large amount of western traffic to Boston and New England, and a considerable amount also for New York and Philadelphia.

The Michigan Central Railroad extended to Detroit, thence via Amherstburg to the Canada Southern Railway and by this line to Buffalo, connecting there mainly with the New York Central, but incidentally also with the other lines centering at Buffalo.

The Lake Shore and Michigan Southern Railroad furnished transportation from Chicago to Buffalo and thence via the New York Central and its connections. This line was operated largely in the interest of the New York Central; but it made through connections and through rates via other roads connecting with this line as follows: at Detroit, with the Grand Trunk line; at Cleveland, with the Cleveland and Pittsburgh and other roads; at Erie, with the Philadelphia and Erie; and at Dunkirk and Buffalo with the Erie Railway. A special freight line was also operated between Chicago and New England points via the Hoosac Tunnel and the Fitchburgh Railroad, leaving the New York Central at Troy, New York.

The Pittsburgh, Fort Wayne, and Chicago Railroad extended from Chicago to Pittsburgh and thence by way of the Pennsylvania Central to Philadelphia, New York, Baltimore, or Washington.

The Pittsburgh, Cincinnati, and St. Louis Railway connected Chicago with Columbus, Ohio, via Logansport, Indiana, and was continued thence to Pittsburgh, connecting there with the Pennsylvania Central Railroad. This line was a part of the Pennsylvania system to which the Pittsburgh, Fort Wayne, and Chicago belonged; although the

business of these two lines was handled separately. It carried a considerable amount of traffic to New York by way of the Erie and Pacific Dispatch fast-freight line over the Atlantic and Great Western and the Erie railroads.

The Baltimore and Ohio Railroad from Chicago to Baltimore and Washington connected at Baltimore with the Philadelphia, Wilmington, and Baltimore Railroad for Philadelphia and thence to New York by the Pennsylvania Railroad. This road was the only line having a continuous and unbroken management between Chicago and the seaboard. It also had a more direct route to New York, operated on the Erie and Chicago line, connecting at Shelby Junction, Ohio, with the Cleveland, Columbus, Cincinnati, and Indianapolis Railway, and thence via Cleveland and the Atlantic and Great Western Railway to Salamanca, connecting there with the Erie Railway for New York.

The Water and Rail and the All Water Lines from Chicago to Atlantic Ports.— The Northern Transportation Company operated a steam propeller from Chicago to Ogdensburg, thence by the Vermont Railroad to all New England points, making through rates usually a little lower than the rates by all rail transportation to the same points.

The Chicago, Sarnia, and Grand Trunk Line furnished steam propellers from Chicago to Port Sarnia, Canada, thence by the Grand Trunk Railway to all points in Canada and New England, and also via Buffalo to New York. This line also connected at Prescott and Ogdensburg with the Vermont Central and other New England roads and by the main line reached Portland direct.

The Western Transportation Company operated steam propellers from Chicago to Buffalo, thence by the New York Central Railroad to New England via Albany, and to New York direct.

The Union Steamboat Company ran steam propellers from Chicago to Buffalo, thence by the Erie Railway to New York, and via Waverly and the Lehigh Valley Railroad to Philadelphia.

The Anchor Line furnished steam propellers to Erie, Pennsylvania, thence by the Philadelphia and Erie and the Pennsylvania Central to Philadelphia, and to Baltimore via Harrisburg with some traffic for New York via Philadelphia.

Sailing vessels and steam propellers frequently towed from one to three large barges from Chicago to all points on the lakes and to Montreal via the Welland Canal and the St. Lawrence River. Connections were made at Collingwood, Goderich, and Port Sarnia, Canada, and at Erie, Pennsylvania, Buffalo and Ogdensburg, New York, with railway lines for all eastern points. In some cases through rates were made, but as a general rule freight rates were made only to the eastern terminus of the lake route. Vessels also connected at Buffalo and Oswego, New York, with the Erie Canal, and at Kingston, Canada, with lines of barges via the St. Lawrence River for Montreal, and thence by steamers and sailing vessels for Europe.[18]

The principal railroads from St. Louis to the East were: (1) the Chicago and Alton main line from St. Louis to Chicago; (2) the eastern division of the Wabash, St. Louis, and Pacific from St. Louis to Toledo; (3) the Indianapolis and St. Louis from St. Louis to Indianapolis; (4) the St. Louis, Vandalia, Terre Haute, and Indianapolis from St. Louis to Terre Haute; and (5) the Ohio and Mississippi from St. Louis to Cincinnati. These lines made connections

[18] This description of the principal transportation routes between Chicago and the five leading Atlantic ports is taken from the *Annual Report on the Internal Commerce of the United States,* 1876, Appendix No. 4, pp. 83–85. See also maps 1 to 7 inclusive, showing the trunk line railroads and connections between the Middle West and the Atlantic Coast.

with all the great eastern roads to Boston, New York, Philadelphia, and Baltimore.[19]

The principal trunk line railroads connecting the North Central States with the Gulf ports were: (1) the St. Louis, Iron Mountain, and Southern Railroad, with its connecting lines from St. Louis to Houston and Galveston; (2) the Missouri, Kansas, and Texas Railroad, with its connecting lines from Hannibal and St. Louis to Dallas, Houston, and Galveston; (3) the Chicago, St. Louis, and New Orleans Railroad from Cairo, Illinois, to New Orleans; (4) the Mobile and Ohio Railroad from Columbus, Kentucky, to Mobile; (5) the Louisville and Nashville Railroad from Louisville to Nashville, with its various branches and connecting roads to Southern Atlantic and Gulf ports; and (6) the Cincinnati and Southern Railroad from Cincinnati to Chattanooga, making connections at that point by way of Atlanta with Charleston and Savannah and by way of Birmingham with New Orleans and Mobile.[20]

The rapid development of the trunk line railroads with their connecting lines which characterized the period from 1860 to 1890 was accompanied by great improvements in rail transportation among which may be mentioned: (1) the reduction of grades and curves; (2) improved drainage and ballasting; (3) better bridges; (4) the introduction of steel rails; (5) the improvement of rolling stock; (6) the adoption of uniform gauges; (7) the consolidation of connecting roads into through lines; (8) the construction of terminal facilities, including tracks, elevators, and ware-

[19] *Annual Report on the Internal Commerce of the United States,* 1876, Appendix No. 13, pp. 149, 152, 153.

[20] *Annual Report on the Internal Commerce of the United States,* 1876, p. 13. See also maps 8 to 13 inclusive. The Cincinnati and Southern Railroad was completed in 1880. For a brief discussion of the construction and advantages of this road, see the *Annual Report on the Internal Commerce of the United States,* 1876, Appendix, pp. 123–126, 1880, pp. 91–96.

houses; and (9) scientific rate-making. These improvements, in addition to the advantages afforded by rapid transit and reduced risks, tended to accentuate the importance of the railroads as the chief agencies for the transportation of the surplus grain and flour from the primary markets of the Middle West to the Atlantic and Gulf seaports.[21] With these fundamental considerations in mind, attention will now be given to the development of the primary grain markets of the Middle West.

THE PRIMARY GRAIN MARKETS OF THE MIDDLE WEST

The history of the internal grain trade of the United States is centered largely in the great primary grain markets of the Middle West. "The primary grain markets are those railway centers into which the grain of the surplus State is concentrated in the first stage of its movement after leaving the producer."[22] In 1860 the principal primary grain markets were Chicago, Milwaukee, Toledo, St. Louis, and Cincinnati. The westward movement of the center of cereal production and the rapid increase in the volume of production brought other cities into prominence as market centers for the distribution of western grain. Foremost among these cities were Minneapolis, Duluth-Superior, Kansas City, Peoria, and Detroit. By 1890 there were ten great primary grain markets[23] which served as the concentrating and distributing centers for the great bulk of the surplus western grain and flour which were shipped to domestic markets in the East and South for home consump-

[21] *Eighth Census of the United States*, 1860, Agriculture, pp. clxiv–clxix. This gives a summary of the influence of the railroads on the agricultural development of the Middle West.

[22] *Distribution of Farm Products*, p. 45, in *Report of the Industrial Commission*, Vol. VI.

[23] In 1880, the total eastern and southern shipments of grain and flour amounted to 400,000,000 bushels. Of this amount 320,000,000 or eighty per

tion and to the seaports for exportation to foreign countries.

Several factors of fundamental significance should be emphasized in a study of the development of the primary grain markets. These are: (1) the geographic location of these markets; (2) the relation of the railway system to the area of surplus production; and (3) the trunk-line railroads and water routes with their connections between the primary markets and the Atlantic and Gulf cities.

Chicago, Milwaukee, Duluth-Superior, Toledo, and Detroit are located on the western heads of the Great Lakes. Cincinnati, St. Louis, Minneapolis, and Kansas City are located on the Ohio-Mississippi-Missouri River system. Peoria is the only city in the list not situated on one of the great interior waterways. The ten leading primary grain markets taken together are located on the circumference of an irregular circle enclosing the greatest cereal kingdom in the world. Inside this circle there are thousands of shipping points from which the grain is gathered into those centers of concentration and distribution.

From each of these great centers into which the crop is first collected there radiates a fan-shaped network of railroads with the primary market at the apex or hinge of the fan. These railroads all reach out into three general directions — westward, southward, and northward. The whole movement of grain from the farm to the primary market follows these general lines of concentration from the West, the North, and the South, within the area of the twelve surplus grain States which constitute the North Central region.

cent was marketed at the seven primary grain centers of Chicago, Milwaukee, Duluth, St. Louis, Toledo, Detroit, and Peoria; while only 80,000,000 bushels or twenty per cent was shipped direct from the surplus grain States to the Atlantic and Gulf seaboards.— *Annual Report on the Internal Commerce of the United States,* 1880, p. 41.

These primary markets are the strategic points through which the distributive interests on the Atlantic Coast, on the Gulf of Mexico, on the Great Lakes, and on the St. Lawrence River, compete for the grain traffic which for many years has amounted to hundreds of millions of bushels a year. The struggle for the control of the grain trade by the eastern roads has been all the more active within the circle of the primary markets because of the fact that the control of this traffic by one road or the other determines the direction by which the grain reaches the seaboard and thence the markets of Europe.[24]

These factors all combined to make Chicago the foremost primary grain market in the United States — a distinction which this city had already achieved by 1860 and which it has since continued to hold. Chicago occupied a position of strategic commercial importance on the lower end of Lake Michigan and it enjoyed the advantage of being the greatest railway center in the world. It was the converging point of the great network of railroads which was spread so rapidly over the Middle West during this period. These railroads radiated out from Chicago in all directions — eastward, southward, westward, and northward. The principal lines extending to the westward, northwestward, and southwestward into the great surplus grain areas were: (1) the Chicago, Milwaukee, and St. Paul Railroad, extending into Wisconsin, Northern Michigan, Minnesota, Iowa, and into the Territory of Dakota; (2) the Chicago and Northwestern Railroad, with its various connections, extending into Wisconsin, Northern Michigan, Minnesota, and Iowa, and into the Territory of Dakota; (3) the Chicago, Rock Island, and Pacific Railroad, with its lines extending through the States of Illinois and Iowa and into the State of Missouri; (4) the

[24] *Distribution of Farm Products*, pp. 45, 46, in *Report of the Industrial Commission*, Vol. VI.

Chicago, Burlington, and Quincy Railroad, with its lines extending through the States of Illinois and Iowa and into the States of Missouri and Nebraska; (5) the Chicago and Alton Railroad, with its lines extending across the States of Illinois and Missouri; and (6) the Wabash, St. Louis, and Pacific Railroad, with its lines extending through the States of Illinois and Missouri and into the States of Iowa and Nebraska.[25]

The geographical range of Chicago as a primary grain market included the States of Illinois, Wisconsin, Northern Michigan, Iowa, Northern Missouri, Kansas, Nebraska, Colorado, the Territory of Dakota, and the other Territories as far west as the States of California and Oregon. Within this territory, however, Chicago came into competition with other primary grain markets. Milwaukee was a competing rival for the grain trade of Minnesota, Wisconsin, and Northern Michigan; while St. Louis was a competitor for the grain trade of Southern Iowa, Northern Missouri, Southern Nebraska, Kansas, Indian Territory, Colorado, and New Mexico. New York and other Atlantic

[25] *Annual Report on the Internal Commerce of the United States,* 1880, p. 104. Some of these roads also formed connections with the Union and Central Pacific railroads and with the Atchison, Topeka, and Santa Fe Railroad. The latter road established connections with the Southern Pacific Railroad, thus forming another transcontinental line to the Pacific Coast and passing through the rich but undeveloped grazing, arable, and mining regions of Colorado, New Mexico, Arizona, and Southern California. With the completion of the Northern Pacific Railroad, the more northerly lines tributary to Chicago formed direct connections over that road with the Territories of Montana, Idaho, and Washington, and the State of Oregon, as well as with the provinces of Manitoba and British Columbia.— *Annual Report on the Internal Commerce of the United States,* 1880, pp. 104, 105. In order to develop the trade with the trans-Mississippi Middle West and the region beyond, thirteen railroad bridges had been constructed over the Mississippi River between St. Paul and St. Louis over each one of which there was carried a traffic which was many times greater both in value and volume than that which was floated on the river below them.— *Annual Report on the Internal Commerce of the United States,* 1887, pp. 19–29.

ports, New Orleans, and San Francisco were also direct competitors of Chicago for the surplus grain of the Middle West.[26] But Chicago nevertheless possessed the natural and acquired advantages[27] which enabled it to secure and maintain the ascendency over rival commercial centers as the leading primary market for the grain and flour which was shipped in from an immensely extended tributary territory.

The Chicago primary grain market was developed with marvellous rapidity. This is shown by a review of the flour and grain receipts of this city by ten-year periods from 1860 to 1890 as shown in Tables I to IV. In 1860 the total grain and flour receipts amounted to 37,235,000 bushels, consisting of 713,000 barrels of flour, 14,927,000 bushels of wheat, 15,862,000 bushels of corn, 2,199,000 bushels of oats, 618,000 bushels of barley, and 319,000 bushels of rye. In 1870, the total grain and flour receipts were increased to 61,316,000 bushels, consisting of 1,766,000 barrels of flour, 17,394,000 bushels of wheat, 20,190,000 bushels of corn, 10,472,000 bushels of oats, 3,336,000 bushels of barley, and 1,093,000 bushels of rye. In 1880, the total grain and flour

[26] *Annual Report on the Internal Commerce of the United States*, 1880, p. 105. See also map showing territorial competition among primary markets for the surplus grain of the North Central States west of Chicago in the late nineties in *Distribution of Agricultural Products*, opposite page 47, in *Report of the Industrial Commission*, Vol. VI. Explanations of the map are given on page 47 of this report.

[27] Among the natural and acquired advantages which determine the relative importance of the leading commercial centers of the country may be mentioned "geographical position, accessibility to the products of the soil, the forest, and of the mine, the facilities for transportation afforded both on natural and on artificial highways of commerce, climatic influence, the amount of capital available in commercial enterprises, the habits and tastes of the people who sustain to its commercial activities the relationship of customers, the combined energy, tact, and enterprise of its merchants and other business men, and the extent to which they are able to unite their efforts in enterprises conducive to the general prosperity."—*Annual Report on the Internal Commerce of the United States*, 1880, p. 70.

receipts were further increased to 165,855,000 bushels, consisting of 3,215,000 barrels of flour, 23,542,000 bushels of wheat, 97,273,000 bushels of corn, 23,491,000 bushels of oats, 5,212,000 bushels of barley, and 1,869,000 bushels of rye. In 1890 the total grain and flour receipts amounted to 223,320,000 bushels, or nearly six times the receipts of 1860. The flour receipts amounted to 4,358,000 barrels, or more than six times the receipts of 1860. The wheat receipts amounted to 14,249,000 bushels, or a little less than the receipts of 1860; although the receipts for some of the intervening five-year periods had risen to nearly double the receipts of 1860. The decline in wheat receipts after 1880 was due to the northwestward movement of the surplus production area and the rising importance of Minneapolis and Duluth-Superior as primary wheat and flour markets. The corn receipts amounted to 91,388,000 bushels, or nearly six times the receipts of 1860. The oat receipts amounted to 75,150,000 bushels, which represented thirty-five times the receipts of 1860 and double the receipts of 1885. The barley receipts amounted to 19,401,000 bushels, or over thirty times the receipts of 1860. The rye receipts amounted to 3,521,000 bushels, which represented eleven times the receipts for 1860.[28]

The pouring of such a great volume of grain into Chicago made necessary the building of adequate terminal facilities:

[28] *Annual Report of the Trade and Commerce of Chicago,* 1910, pp. 18, 19; *Annual Report of the New York Produce Exchange,* 1890–1891, pp. 21–23. A barrel of flour made by the "old process" was estimated to be equivalent to five bushels of wheat; while a barrel of flour manufactured by the "new" or "roller process" which was introduced in the late seventies and early eighties was estimated to be equivalent to four and one-half bushels of wheat. The New York Produce Exchange adopted the change in its annual report for 1879. Other commercial bodies adopted the change soon after.—See the *Annual Report on the Internal Commerce of the United States,* 1882, Appendix No. 13, p. 210. Also the *Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Treasury Department), January, 1900, p. 2006, note.

tracks, bridges, docks, elevators, and warehouses, which the commercial interests of this city were ready to provide. The rise of the modern grain elevator system is one of the characteristic features of the internal grain trade of this period.

The following interesting description of this system for handling and storing grain in Chicago and other primary market centers is given by a contemporary:

> Elevators, as now constructed, belong to two classes: those which are simply for transferring and weighing grain ("elevating"), and may be fixed upon land or are more often floating, and elevators which store as well as transfer grain. . . . The transfer elevators, as their name signifies, are for the mere transfer of grain from vessel to vessel, from cars to vessel, or from vessel to cars, weighing the grain as well as moving it. Many of these are floating elevators, which is the only kind used at New Orleans, where, from the methods of shipment, the fluctuations in the river level, and other causes, they are most convenient; but at most places of shipment, where large quantities of grain are often stored for considerable periods, as at Chicago, Detroit, Buffalo, and the seaports, they are usually situated on the shore, and do their work with marvelous rapidity and efficiency. The grain is automatically taken from the hold of the vessel, or from the car, as the case may be, is weighed automatically with such precision that when weighing 100 bushels at a time the scales readily turn to a single pound and in practice weigh to within two pounds, and is then transferred by spouts to other vessels or cars. By a system of steam shovels, worked by an ingenious arrangement of ropes and pulleys, the grain in the hold of the vessel or car being unloaded is hauled to the mouth of the elevator by steam-power.
>
> The more common form of elevator is calculated to store as well as transfer grain. They frequently have a storage capacity of over a half a million bushels, some over a million, and a few have a reported capacity of two millions or over. The larger are enormous buildings, a hundred or more feet wide, three hundred or more feet long, and one hundred and fifty or more feet high, and are the most striking structures which greet the traveler's eye in approach-

ing the greater grain marts of the country. The building is divided into bins, ten to twenty feet square, and fifty feet or more deep, of various capacities, made of stout lumber, and strengthened with transverse iron rods. All the larger elevators are each built to accommodate a train of cars at a time, or several vessels, if they have to do with vessels. At the larger establishments, such as are seen at Chicago, New York, and Baltimore, large steam-engines are used, sometimes as high as six or seven hundred horse-power, which, by means of suitable machinery, "elevate" the grain to the upper stories, where it is weighed, and is then distributed to the bins. Huge steam shovels, worked by ropes and pulleys and manipulated by a man in the car (if they are unloading cars), are so effective that in the more complete establishments a train of cars is run in and the grain removed and elevated at the rate of a car-load per minute for the actual unloading. Such great rapidity, however, is exceptional, but two hundred and fifty to three hundred cars, carrying 100,000 to 120,000 bushels of grain, are sometimes unloaded in a single day, and steamers, with convenient hatches, will reach the elevator, receive on board a freight of 80,000 to 90,000 bushels, and leave the same day. A suitable vessel on the lakes is loaded with 60,000 or 80,000 bushels in eight hours, and canal-boats at Buffalo of 8,000 bushels' capacity are sometimes loaded in an hour or less time. It is only by means of such appliances that such enormous shipments of grain take place in short periods as sometimes happens under particular conditions of the market, as, for instance, when 13,600,000 bushels of grain were shipped from a single port for Europe in the month of August, 1880.

The cost of this handling or transfer varies with the season of the year and with the condition of the markets. It may be half a cent per bushel, or even less, including ten days' storage; it generally is less than one cent per bushel, but it may run up to two cents, or even more, under special conditions of the market.

At various points, particularly at Buffalo and Chicago, some of the elevators are provided with arrangements for rapidly drying grain that arrives in too moist a condition, and this frequently is the means of saving from injury large amounts that have been shipped in an unsuitable condition.[29]

[29] Brewer's *Report on the Cereal Production of the United States*, pp. 154, 155, in the *Tenth Census of the United States*, 1880, Vol. III. See also *Annual Report of the New York Produce Exchange*, 1873–1874, p. 508.

Two advantages were afforded by the trade interests of Chicago to the farmers of the Middle West in the marketing of grain — capital and storage facilities, and price uniformity.

A large part of the grain crop of the Middle West was marketed soon after it was harvested. This was due in part to the necessity of realizing the proceeds of such crops as soon as possible, and in part to the fact that, during the autumn months, farmers had the leisure for hauling their surplus products to the railroad depots, the wagon roads at that season of the year being usually in a good condition. The movement of the crop from the points of production towards the points of concentration and distribution was therefore quite irregular; hence there arose the necessity for the offices of capital and for the great trade reservoirs at which grain might be held in order to meet the demands for consumption throughout the year. The capital, the granaries, and the warehouses of Chicago supplied these needs.

In the competitive struggle between operators, prices were determined by the possible future relations between supply and demand, rather than by the supply in the market at any given time. Thus the legitimate speculative elements of a great trade center tended toward securing uniformity in prices, while at the same time serving the interests of those engaged in agricultural production. Chicago further afforded this advantage to the farmer.[30]

St. Louis also occupied a strategic position in the competitive struggle for the western grain traffic. Situated in the midst of the greatest agricultural empire in the world and at the junction of the two great river systems — the Mississippi and the Missouri — this city was destined to

[30] *Annual Report on the Internal Commerce of the United States,* 1879, p. 42.

become a great primary flour and grain market. Before the introduction of railway transportation, St. Louis grain and flour receipts were brought in chiefly by way of the Mississippi, Missouri, and Illinois rivers; while the shipments of these commodities were sent out largely by way of the Mississippi River to local river points for consumption in the southern States and to New Orleans for trans-shipment to the Atlantic seaboard for consumption in the eastern States or for export to the western countries of Europe. In 1856 St. Louis was connected by rail with the Atlantic seaboard and a new era in the commercial history of this city was opened. The St. Louis trade in grain and flour was still for a time carried on largely by way of the Mississippi River; while the railroads were regarded merely as tributaries to the rivers. The rapid extension of the railroads into the Central West and the construction of adequate terminal facilities for the handling of grain effected a revolution in the commercial development of St. Louis which now became a railroad center surpassed only by Chicago and Toledo among the commercial centers of the Middle West. By 1882, nineteen railroads entered St. Louis: eight lines entering the city from the territory west of the Mississippi and eleven lines from the territory east of the river. The geographical range of St. Louis became widely extended, as shown by the fact that in 1882 the grain receipts were reported as coming from Texas, Arkansas, Indian Territory, Tennessee, Kentucky, Ohio, Indiana, Illinois, Minnesota, Iowa, Kansas, Nebraska, and Missouri. The grain receipts came chiefly, however, from the States of Missouri, Kansas, Nebraska, Iowa, and Illinois.[31]

The rapid growth of the St. Louis primary grain and flour market is shown by a review of the flour and grain

31 *Annual Report on the Internal Commerce of the United States,* 1882, pp. 32, 42, and Appendix No. 1.

receipts of this city by ten-year periods from 1860 to 1890. In 1860 the total flour and grain receipts of St. Louis amounted to 12,221,000 bushels consisting of 443,000 barrels of flour, 3,556,000 bushels of wheat, 4,210,000 bushels of corn, 1,789,000 bushels of oats, 291,000 bushels of barley, and 159,000 bushels of rye. In 1870 the total grain and flour receipts amounted to 24,314,000 bushels, consisting of 1,492,000 barrels of flour, 6,618,000 bushels of wheat, 4,709,000 bushels of corn, 4,520,000 bushels of oats, 799,000 bushels of barley, and 211,000 bushels of rye. In 1880, the total grain and flour receipts amounted to 59,626,000 bushels, consisting of 1,704,000 barrels of flour, 21,022,000 bushels of wheat, 22,298,000 bushels of corn, 5,607,000 bushels of oats, 2,562,000 bushels of barley, and 469,000 bushels of rye. In 1890, the total grain and flour receipts had been increased to 77,795,000 bushels, or more than six times the total receipts of 1860. The flour receipts amounted to 1,230,000 barrels or nearly three times the receipts of 1860. The wheat receipts amounted to 11,731,000 bushels, which represented more than three times the receipts of 1860. The corn receipts amounted to 45,004,000 bushels, or nearly eleven times the receipts of 1860. The oat receipts amounted to 12,230,000 bushels or seven times the receipts of 1860. The barley receipts amounted to 2,795,000 bushels or nearly ten times the receipts of 1860. The rye receipts amounted to 501,000 bushels or more than three times the receipts of 1860.[32]

It was not until 1865 that St. Louis adopted the two agencies essential to her success as a primary grain market

[32] These statistics are taken from tables in the *Eighth Census of the United States*, 1860, Agriculture, p. clvi; *Annual Report on the Internal Commerce of the United States*, 1882, Appendix, p. 253; and the *Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Treasury Department), January, 1900, pp. 2006, 2007; *Annual Report of the New York Produce Exchange*, 1873–1874, pp. 346–352, 1881, pp. 400–403.

—the elevator warehouses for the receipt, storage, and shipment of grain in bulk and the transportation of grain in bulk from St. Louis to New Orleans by the barge tow-boat system, which latter agency was accompanied by the establishment at New Orleans of a floating elevator for the transfer of grain from barges to sea-going vessels and the establishment of an elevator warehouse in 1868. St. Louis developed her elevator facilities rapidly in order to accommodate the growing volume of grain which was brought into the city. In 1882 St. Louis had eleven elevators with a storage capacity of 9,650,000 bushels of grain.[33]

The rise of Minneapolis as a great primary grain market constitutes one of the most significant features of this period. The northwestward movement of the spring wheat area brought this city into direct line as the gate city between the Minnesota and Dakota wheat fields and the markets of the Atlantic Coast and of Western Europe. This position gave Minneapolis a strategic advantage as a grain market which was further strengthened by its immense milling facilities, due originally to the possession of cheap water power. By 1880, Minneapolis had achieved sufficient importance to be listed among the leading primary grain markets of the Middle West. In that year, the total grain and flour receipts amounted to 10,879,000 bushels, consisting of 103,000 barrels of flour and 10,264,000 bushels of wheat. In 1885, the grain and flour receipts were increased to 34,168,000 bushels, consisting of 21,000 barrels of flour, 32,901,000 bushels of wheat, 389,000 bushels of corn, and 782,000 bushels of oats. Barley and rye receipts were too small to be reported. By 1890, the grain and flour receipts had been increased to 53,192,000 bushels, consisting of 70,000 barrels of flour, 45,272,000 bushels of wheat, 3,482,000

[33] *Annual Report on the Internal Commerce of the United States*, 1882, p. 38, Appendix No. 1, p. 16.

bushels of corn, 3,569,000 bushels of oats, 477,000 bushels of barley, and 76,000 bushels of rye.[34]

Minneapolis had now achieved the distinction of being the foremost primary wheat market in the world. As a corn market, however, this city was of minor importance for the reason that while the surplus spring wheat area had moved northwestward into Minnesota and the Dakotas the surplus corn area had moved directly westward and included the States of Ohio, Indiana, Illinois, Iowa, Missouri, Kansas, and Nebraska. The surplus corn was therefore more advantageously marketed at the primary grain centers located in this section of the Middle West.

Of fundamental importance in the development of Minneapolis as a primary grain market was the building of the Minneapolis, St. Paul, and Sault Ste. Marie Railway, commonly known as the "Soo" route. The advantages of this route were several. In the first place, it shortened the water route to the Atlantic ports by the whole length of Lake Michigan. Moreover, it avoided the frequent delays due to a congestion of the flour traffic at Chicago. Finally, it made favorable connections with the Canadian Pacific and other lines. These advantages were determining factors in favor of the adoption of the new route. In 1888, the year in which this railroad was completed, it transported 932,000 barrels of flour. In 1890, the flour shipments over the Soo route amounted to 1,157,000 barrels.[35]

Chicago, St. Louis, and Minneapolis have been selected as representative primary grain markets of three great sections of the Middle West. The limits of this study will permit but a brief consideration of the other seven grain

[34] *Annual Report of the New York Produce Exchange*, 1881, p. 406, 1890–1891, p. 21.

[35] *Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Treasury Department), January, 1900, p. 2010.

markets of Milwaukee, Toledo, Cincinnati, Kansas City, Duluth-Superior, Peoria, and Detroit.

Milwaukee was the chief competitor of Chicago for the grain trade of Wisconsin, Northern Iowa, and Minnesota. Situated about eighty-five miles north of Chicago on the western shore of Lake Michigan, this commercial center occupied a strategic position as a wheat market. Five railroads entered the city from the surplus grain territory west of Lake Michigan. These roads brought in a large and growing volume of wheat and flour which was shipped to the Atlantic seaboard by three routes: (1) an all-rail route eastward around the lower end of Lake Michigan via Chicago; (2) transit-lines across the lake to Grand Haven and thence eastward or southernbound by rail; and (3) the lake route which had the advantage of being nearer to the Atlantic seaboard than Chicago. The advantages of locality and transportation facilities, in short, enabled Milwaukee to enter the competitive struggle for the western grain and flour traffic, with the result that by 1860 this city had achieved the distinction of being one of the great primary grain markets of the Middle West.[36]

The Milwaukee grain and flour market showed a steady growth during the period under consideration. In 1860 the total grain and flour receipts of this city amounted to 11,102,000 bushels consisting of 305,000 barrels of flour, 9,108,000 bushels of wheat, 126,000 bushels of corn, 179,000 bushels of oats, 52,000 bushels of rye, and 110,000 bushels of barley. In 1870, the total grain and flour receipts amounted to 24,858,000 bushels, consisting of 825,000 barrels of flour, 18,884,000 bushels of wheat, 435,000 bushels of corn, 638,000 bushels of oats, 586,000 bushels of barley, and 191,000 bush-

[36] *Annual Report on the Internal Commerce of the United States*, 1882, Appendix No. 10. For a brief account of Milwaukee as a wheat market, see Thompson's *Rise and Decline of the Wheat Growing Industry in Wisconsin* (Bulletin of the University of Wisconsin, Economics and Political Science Series, Vol. V, 1909), Ch. VII.

els of rye. In 1880 the total grain and flour receipts amounted to 29,883,000 bushels, consisting of 2,392,000 barrels of flour, 10,920,000 bushels of wheat, 2,149,000 bushels of corn, 2,032,000 bushels of oats, 3,239,000 bushels of barley, and 779,000 bushels of rye. By 1890 the total grain and flour receipts had been increased to 35,739,000 bushels, or over three times the receipts of 1860. The flour receipts amounted to 2,401,000 barrels, or nearly eight times the receipts of 1860. The wheat receipts amounted to 8,046,000 bushels, or only a little less than the receipts of 1860. This represents a marked decline below the receipts of 1870 and 1880 which is to be explained by the rise of Minneapolis and Duluth as the great primary wheat and flour markets of the Northwest. The corn receipts amounted to 844,000 bushels, or nearly seven times the receipts of 1860. The oat receipts amounted to 3,905,000 bushels or nearly twenty-two times the receipts of 1860. The barley receipts amounted to 10,825,000 bushels, or nearly a hundred times the receipts of 1860. The rye receipts amounted to 1,312,000 bushels, or twenty-five times the receipts of 1860.[37]

East of Chicago was Toledo which held a strategic position in the competitive struggle for the surplus grain and flour traffic of the Middle West. Located at the western end of Lake Erie it enjoyed the advantage of shorter water and rail connections with the Atlantic seaboard than Chicago or Milwaukee or even Detroit. It was, moreover, an important railroad center. No less than twelve lines with their connections entered Toledo from the surplus grain areas; while fifteen competing roads connected the market with the Atlantic seaboard cities.[38]

[37] These statistics are taken from tables in the *Eighth Census of the United States,* 1860, Agriculture, p. cl; *Annual Report of the New York Produce Exchange,* 1873–1874, p. 348, 1881, p. 400, 1890–1891, p. 21; *Annual Report of the Milwaukee Chamber of Commerce,* 1920–1921, pp. 83, 88.

[38] *Annual Report on the Internal Commerce of the United States,* 1882, Appendix No. 12.

A review of the Toledo primary grain market during this period shows that in 1860 the total grain and flour receipts amounted to 14,505,000 bushels, consisting of 721,000 barrels of flour, 5,273,000 bushels of wheat, 5,334,000 bushels of corn, 138,000 bushels of oats, 36,000 bushels of rye, and 122,000 bushels of barley. In 1870, Toledo's grain and flour receipts were nearly doubled, amounting to 23,715,000 bushels and consisting of 1,296,000 barrels of flour, 6,881,000 bushels of wheat, 6,294,000 bushels of corn, 4,103,000 bushels of oats, 160,000 bushels of barley, and 94,000 bushels of rye. In 1880, the total grain and flour receipts were more than doubled, amounting to 59,070,000 bushels, and consisting of 803,000 barrels of flour, 28,970,000 bushels of wheat, 21,826,000 bushels of corn, 4,241,000 bushels of oats, 255,000 bushels of barley, and 167,000 bushels of rye. In 1890 Toledo's total grain and flour receipts were reduced by more than half to 27,690,000 bushels which, however, represented nearly two times the receipts of 1860. The flour receipts amounted to 950,000 barrels. The wheat receipts amounted to 5,776,000 bushels, which represented practically the same amount reported for 1860. The corn receipts amounted to 16,558,000 bushels, or three times the receipts of 1860. The oat receipts amounted to 870,000 bushels or five times the receipts for 1860. The barley receipts amounted to 48,000 bushels, or less than one-half the receipts of 1860. The rye receipts amounted to 163,000 bushels, or nearly five times the receipts of 1860. The territory from which Toledo drew her grain and flour receipts included the States of Ohio, Indiana, Illinois, Michigan, Iowa, Missouri, Kansas, and Nebraska.[39]

Cincinnati had by 1860 become the principal market for

[39] These statistics are taken from the *Eighth Census of the United States*, 1860, Agriculture, p. cxlix; *Annual Report of the New York Produce Exchange*, 1873–1874, p. 346, 1881, p. 400, 1890–1891, p. 23.

the surplus grain and flour of the Ohio Valley; although Louisville farther down became a keen competitor for this traffic. The growth of Cincinnati was slow, however, for while it established good connections with the eastern and southern trunk line railroads, the westward movement of the areas of surplus production brought other primary grain markets into prominence, with the result that the Cincinnati market declined in relative importance during the period under consideration. Even so, however, the Cincinnati market showed a consistent development, its chief reliance being the corn trade.[40]

A review of the Cincinnati primary grain market during this period shows that in 1860 the total grain and flour receipts amounted to 6,368,000 bushels, consisting of 517,000 barrels of flour, 1,057,000 bushels of wheat, 1,346,000 bushels of corn, 895,000 bushels of oats, 131,000 bushels of rye, and 353,000 bushels of barley. In 1870, the total grain and flour receipts amounted to 8,770,000 bushels, consisting of 706,000 barrels of flour, 866,000 bushels of wheat, 2,069,000 bushels of corn, 1,216,000 bushels of oats, 801,000 bushels of barley, and 290,000 bushels of rye. In 1880, the total grain and flour receipts were more than doubled, amounting to 18,661,000 bushels and consisting of 853,000 barrels of flour, 2,909,000 bushels of wheat, 7,006,000 bushels of corn, 2,244,000 bushels of oats, 1,877,000 bushels of barley, and 787,000 bushels of rye. In 1890, the total grain and flour receipts of Cincinnati amounted to 22,035,000 bushels. This represents a little more than three times the receipts of 1860 and consisted of 1,423,000 barrels of flour, 1,128,000 bushels of wheat, 6,896,000 bushels of corn, 4,820,000 bushels of oats, 2,201,000 bushels of barley, and 586,000 bushels of rye.[41]

[40] See the *Annual Report on the Internal Commerce of the United States*, 1880, pp. 72–101.

[41] These statistics are taken from tables in the *Eighth Census of the United*

West of St. Louis, situated on the lower bend of the Missouri River, was Kansas City which came into prominence as a primary grain market in the seventies, as the result of the westward movement of the surplus grain area and the extension of railroads into the region beyond the Mississippi River. By 1882 twelve railroads entered Kansas City: two from the West, two from the North, two from the South, and six from the East. These roads with their many branches and connecting lines brought into the Kansas City market the grain of Kansas, Southern Nebraska, and Western Iowa.[42]

The rapid growth of the Kansas City grain and flour market dates from about 1880. In that year the total grain and flour receipts amounted to 9,137,000 bushels, consisting of 24,000 barrels of flour, 4,094,000 bushels of wheat, 4,422,000 bushels of corn, 366,000 bushels of oats, 83,000 bushels of barley, and 65,000 bushels of rye. In 1890, the total grain and flour receipts were increased to 31,055,000 bushels or more than three times the total receipts of 1880, consisting of 475,000 barrels of flour, 5,795,000 bushels of wheat, 18,035,000 bushels of corn, 4,739,000 bushels of oats, and 351,000 bushels of rye. Barley receipts were not reported.[43] In 1882, Kansas City had seven grain elevators in operation with a storage capacity of 1,560,000 bushels, and a daily transfer capacity of 590,000 bushels.[44]

North of Minneapolis at the head of Lake Superior was

States, 1860, Agriculture, p. clv; *Annual Report of the New York Produce Exchange,* 1875–1876, p. 259, 1881, p. 401, 1890–1891, p. 22.

[42] *Annual Report on the Internal Commerce of the United States,* 1879, Appendix No. 87, 1882, Appendix, p. 50. This gives a description of the railroads tributary to the commercial interests of St. Louis.

[43] These statistics are taken from the *Annual Report of the New York Produce Exchange,* 1881, p. 401, 1890–1891, p. 22.

[44] *Annual Report on the Internal Commerce of the United States,* 1880, Appendix, p. 216.

Duluth. The rapid ascendancy of this city as a primary grain and flour market was due to the northwestward movement of the surplus spring wheat area and the strategic position of Duluth as a shipping port. Duluth was nearer by lake to Buffalo than Chicago, while the St. Paul and Duluth-Superior Railroad gave Duluth and Superior a distinct advantage over Chicago and Milwaukee in the competitive struggle for the wheat and flour trade of the northwest, with the result that a considerable portion of this trade was diverted to these two cities. In 1880 the total grain and flour receipts of Duluth and Superior amounted to 7,288,000 bushels, consisting of 513,000 barrels of flour, 2,988,000 bushels of wheat, and 1,991,000 bushels of corn. No oats, barley, or rye receipts were reported. In 1890, the total grain and flour receipts of these two cities amounted to 28,756,000 or about four times the total receipts of 1880. These receipts consisted of 2,368,000 barrels of flour, 15,341,000 bushels of wheat, 1,360,000 bushels of corn, 1,289,000 bushels of oats, 105,000 bushels of barley, and 3000 bushels of rye. Duluth and Superior also had the advantage of being nearer to Buffalo by water than Chicago.[45]

The shifting of the wheat and flour trade from Chicago and Milwaukee to Duluth and Superior was equivalent to a shifting of this traffic from Lake Michigan to Lake Superior. A fairly accurate description of the grain trade on Lake Superior is furnished by the statistics of the flour, wheat, and other grain passing through St. Marys Falls Canal, now commonly known as the "Soo Canal". This statement is based on the fact that there was but very little local grain traffic on Lake Superior, most of it being shipped to the lower lake ports, and that all the grain and flour shipped from Lake Superior had to pass through this canal.

[45] *Annual Report of the New York Produce Exchange,* 1881, p. 405, 1890–1891, p. 21.

It is therefore interesting to note that from 1855 to 1870, the flour traffic through St. Marys Falls Canal fluctuated between 10,000 and 50,000 barrels a year. After 1870 the flour trade was rapidly increased to 24,000 barrels in 1880, and finally reached 3,239,000 barrels in 1890. The wheat traffic was increased from 50,000 bushels in 1870 to 2,106,000 bushels in 1880 and finally reached 16,217,000 bushels in 1890. The trade in other grain passing through St. Marys Falls Canal fluctuated greatly but at no time during this period did it attain a volume greater than 2,547,000 bushels, the usual shipments amounting as a matter of fact to considerably less than 1,000,000 bushels a year.[46]

North of Toledo was Detroit drawing its grain receipts largely from the States of Michigan, Illinois, and Ohio. Detroit became an important grain and flour market after the Civil War, when it established good rail connections with the West, the South, and the East.[47] In 1870, the total grain and flour receipts amounted to 14,046,000 bushels, consisting of 1,305,000 barrels of flour, 2,602,000 bushels of wheat, 3,263,000 bushels of corn, 1,399,000 bushels of oats, 489,000 bushels of barley, and 5000 bushels of rye. By 1880, however, Detroit had suffered a slight decline in both absolute and relative importance, the total grain and flour receipts for that year amounting to but 12,614,000 bushels. These receipts consisted of 341,000 barrels of flour, 9,835,000 bushels of wheat, 428,000 bushels of corn, 508,000 bushels of oats, 300,000 bushels of barley, and 8000 bushels of rye. By 1890, Detroit had suffered a still further decline as a grain and flour market, the total receipts for that year amounting to 10,840,000 bushels, consisting of 163,000 barrels of flour,

[46] *Monthly Summary of Commerce and Finance of the United States* (Bureau of Statistics, Treasury Department), January, 1900, pp. 1989, 1990.

[47] See the *Annual Report on the Internal Commerce of the United States*, 1882, Appendix No. 8.

4,767,000 bushels of wheat, 1,508,000 bushels of corn, 2,036,000 bushels of oats, 1,626,000 bushels of barley, and 170,000 bushels of rye.[48] Detroit's decline as a grain and flour market was due largely to the westward movement of the surplus wheat areas and the competition of the primary markets of Toledo, Chicago, Milwaukee, Minneapolis, and Duluth-Superior for this traffic.

TABLE I

FLOUR AND GRAIN RECEIPTS OF THE FIVE LEADING PRIMARY MARKETS OF THE MIDDLE WEST FOR THE YEAR 1860[49]

PRIMARY MARKET	FLOUR (BARRELS)	WHEAT (BUSHELS)	CORN (BUSHELS)
CHICAGO	713,348	14,927,083	15,862,394
TOLEDO	720,517	5,272,690	5,333,751
ST. LOUIS	443,196	3,555,878	4,209,794
MILWAUKEE	305,208	9,108,458	126,404
CINCINNATI	517,229	1,057,118	1,346,208

PRIMARY MARKET	OATS (BUSHELS)	BARLEY (BUSHELS)	RYE (BUSHELS)	TOTAL GRAIN, INCLUDING FLOUR REDUCED TO BUSHELS
CHICAGO	2,198,889	617,619	318,976	37,235,027
TOLEDO	137,538	122,382	35,957	14,504,903
ST. LOUIS	1,789,234	291,130	158,974	12,220,990
MILWAUKEE	178,963	109,795	52,382	11,102,042
CINCINNATI	894,515	352,829	131,487	6,368,302

[48] These statistics are taken from tables in the *Annual Report of the New York Produce Exchange,* 1873–1874, p. 352, 1880, p. 403, 1890–1891, p. 23.

[49] The statistics used in Table I showing the relative importance of the five leading primary grain markets of the Middle West in 1860 are taken from tables in the *Eighth Census of the United States,* 1860, Agriculture, pp. cxlix, cl, clv, clvi; and the *Annual Report of the Trade and Commerce of Chicago,* 1910, p. 18; *Annual Report of the Milwaukee Chamber of Commerce,* 1920–1921, pp. 83, 88.

This period witnessed the entrance, finally, of Peoria into the list of the great primary grain markets of the Middle West. Peoria was an important railroad center located in the heart of the grain belt about half way between Chicago and St. Louis. Five rail lines entered the city from the West and six from the East. These lines with their connections, by affording the lowest possible freight rates, enabled Peoria to enter the competitive struggle for the western grain and flour traffic, with the result that by 1880 this city had risen to fifth place as a primary grain and flour market. The geographical range of the Peoria grain market included the States of Illinois, Iowa, Nebraska, Kansas, and Northern Missouri, which contributed the great bulk of the flour, wheat, corn, oats, and rye receipts; while the barley receipts came principally from the States of Minnesota and Wisconsin. The principal competitors of Peoria for the surplus grain and flour trade of these States were Chicago, St. Louis, Toledo, and Indianapolis.[50]

The rapid growth of the Peoria grain market dates from about 1874. In that year the total grain and flour receipts amounted to 10,495,000 bushels, consisting of 45,000 barrels of flour, 631,000 bushels of wheat, 5,100,000 bushels of corn, 3,534,000 bushels of oats, 397,000 bushels of barley, and 610,000 bushels of rye. In 1880, the total grain and flour receipts amounted to 24,959,000 bushels, consisting of 197,000 barrels of flour, 560,000 bushels of wheat, 13,551,000 bushels of corn, 8,152,000 bushels of oats, 685,000 bushels of barley, and 1,124,000 bushels of rye. By 1890, the total grain and flour receipts of Peoria amounted to 32,624,000 bushels, or three times the receipts of 1874. The flour receipts amounted to 124,000 barrels, or nearly three times the receipts of 1874; and the wheat receipts amounted to

50 *Annual Report on the Internal Commerce of the United States*, 1882, Appendix No. 5.

952,000 barrels, or nearly one-half more than the receipts of 1874. The corn receipts amounted to 12,912,000 bushels or more than two times the receipts of 1874. The oat receipts amounted to 16,432,000 bushels, or nearly five times the receipts of 1874. The barley receipts amounted to 1,462,000 bushels, or nearly five times the receipts of 1874. The rye receipts amounted to 309,000 bushels or a little more than one-half the receipts reported for 1860.[51]

TABLE II

FLOUR AND GRAIN RECEIPTS OF THE SIX LEADING PRIMARY MARKETS OF THE MIDDLE WEST FOR THE YEAR 1870[52]

PRIMARY MARKET	FLOUR (BARRELS)	WHEAT (BUSHELS)	CORN (BUSHELS)
CHICAGO	1,766,037	17,394,409	20,189,775
MILWAUKEE	824,799	18,883,837	435,318
ST. LOUIS	1,491,626	6,618,253	4,708,838
TOLEDO	1,296,260	6,881,471	6,294,032
DETROIT	1,305,418	2,602,118	3,263,215
CINCINNATI	705,579	866,459	2,068,900

PRIMARY MARKET	OATS (BUSHELS)	BARLEY (BUSHELS)	RYE (BUSHELS)	TOTAL GRAIN, INCLUDING FLOUR REDUCED TO BUSHELS
CHICAGO	10,472,078	3,335,653	1,093,493	61,315,593
MILWAUKEE	638,231	585,897	190,593	24,857,871
ST. LOUIS	4,519,510	798,518	210,542	24,313,791
TOLEDO	4,103,139	160,397	94,171	23,714,510
DETROIT	1,398,672	489,055	5,118	14,045,868
CINCINNATI	1,215,794	800,988	289,775	8,769,811

[51] These statistics are taken from tables in the *Annual Report of the New York Produce Exchange,* 1875–1876, p. 259, 1890–1891, p. 22; *Annual Report on the Internal Commerce of the United States,* 1881, p. 401.

[52] The statistics used in this table showing the relative importance of the six leading primary grain markets of the Middle West in 1870 are taken from

The rapid growth and relative importance of the principal primary grain markets as competitive centers for the concentration and distribution of the surplus cereals of the

TABLE III

FLOUR AND GRAIN RECEIPTS OF THE TEN LEADING PRIMARY MARKETS OF THE MIDDLE WEST FOR THE YEAR 1880[53]

PRIMARY MARKET	FLOUR (BARRELS)	WHEAT (BUSHELS)	CORN (BUSHELS)
CHICAGO	3,215,389	23,541,607	97,272,844
ST. LOUIS	1,703,874	21,022,275	22,298,077
TOLEDO	802,816	28,969,983	21,825,928
MILWAUKEE	2,392,147	10,919,954	2,148,857
PEORIA	197,427	559,620	13,550,650
CINCINNATI	852,955	2,908,675	7,005,535
DETROIT	341,334	9,835,164	427,976
MINNEAPOLIS	103,000	10,264,100	
DULUTH-SUPERIOR	513,348	2,987,629	1,990,732
KANSAS CITY	23,894	4,093,528	4,421,760

PRIMARY MARKET	OATS (BUSHELS)	BARLEY (BUSHELS)	RYE (BUSHELS)	TOTAL GRAIN, INCLUDING FLOUR REDUCED TO BUSHELS
CHICAGO	23,490,915	5,211,536	1,869,218	165,855,371
ST. LOUIS	5,607,078	2,561,992	468,755	59,625,580
TOLEDO	4,240,679	254,583	166,641	59,070,486
MILWAUKEE	2,031,878	3,238,684	779,211	29,883,246
PEORIA	8,152,205	684,880	1,123,625	24,959,402
CINCINNATI	2,243,874	1,877,163	787,015	18,660,559
DETROIT	507,797	300,017	7,536	12,614,433
MINNEAPOLIS				10,879,100
DULUTH-SUPERIOR				7,288,427
KANSAS CITY	366,486	82,894	65,267	9,137,458

tables in the *Annual Report of the New York Produce Exchange,* 1873–1874, pp. 346, 349, 352, 1875–1876, p. 259.

[53] The statistics used in this table showing the relative importance of the ten leading primary grain markets of the Middle West are taken from tables in the *Annual Report of the New York Produce Exchange,* 1881, pp. 400–403, 405, 406.

Middle West during this period may now be summarized. It will be seen by reference to the accompanying tables that in 1860 Chicago already held first place in total grain and flour receipts, amounting to 37,235,000 bushels; Toledo held second place with 14,505,000 bushels; St. Louis held third

TABLE IV

FLOUR AND GRAIN RECEIPTS OF THE TEN LEADING PRIMARY MARKETS OF THE MIDDLE WEST FOR THE YEAR 1890[54]

PRIMARY MARKET	FLOUR (BARRELS)	WHEAT (BUSHELS)	CORN (BUSHELS)
CHICAGO	4,358,058	14,248,770	91,387,754
ST. LOUIS	1,229,975	11,730,774	45,003,681
MINNEAPOLIS	70,303	45,271,910	3,482,310
MILWAUKEE	2,401,235	8,046,461	844,200
PEORIA	123,842	951,950	12,911,900
KANSAS CITY	474,480	5,795,400	18,034,700
DULUTH-SUPERIOR	2,368,277	15,341,462	1,360,376
TOLEDO	949,681	5,776,033	16,558,288
CINCINNATI	1,423,080	1,127,770	6,896,326
DETROIT	162,912	4,767,085	1,507,932

PRIMARY MARKET	OATS (BUSHELS)	BARLEY (BUSHELS)	RYE (BUSHELS)	TOTAL GRAIN, INCLUDING FLOUR REDUCED TO BUSHELS
CHICAGO	75,150,249	19,401,489	3,520,508	223,320,031
ST. LOUIS	12,229,955	2,794,880	501,054	77,795,232
MINNEAPOLIS	3,568,600	477,000	76,200	53,192,383
MILWAUKEE	3,904,855	10,825,391	1,312,471	35,738,935
PEORIA	16,432,000	1,462,250	308,550	32,623,939
KANSAS CITY	4,739,000		351,000	31,055,260
DULUTH-SUPERIOR	1,289,388	104,746	3,111	28,756,330
TOLEDO	869,953	48,302	163,475	27,689,615
CINCINNATI	4,820,346	2,200,915	585,559	22,034,776
DETROIT	2,035,808	1,625,998	170,270	10,840,197

[54] The statistics used in this table showing the receipts of the ten great primary grain markets of the Middle West in 1890 are taken from the *Annual Report of the New York Produce Exchange*, 1890–1891, pp. 21–23.

place with 12,221,000 bushels; Milwaukee held fourth place with receipts amounting to 11,102,000 bushels; and Cincinnati held fifth place with receipts amounting to 6,368,000 bushels.

In 1870, Chicago retained the lead in total grain and flour receipts amounting to 61,316,000 bushels; Milwaukee forged ahead from fourth to second place with 24,858,000 bushels; St. Louis retained third place with 24,314,000 bushels; Toledo dropped from second to fourth place with 23,715,000 bushels; Detroit entered the list with 14,046,000 bushels; and Cincinnati was reduced from fifth to sixth place with 8,770,000 bushels.

In 1880, Chicago retained first place in total grain and flour receipts amounting to 166,000,000 bushels; St. Louis advanced from third to second place with 59,626,000 bushels; Toledo rose from fourth to third place with 59,070,000 bushels; Milwaukee dropped from second to fourth place with 29,883,000 bushels; Peoria entered the list as fifth with 24,959,000 bushels; Cincinnati retained sixth place with 18,661,000 bushels; Detroit dropped from fifth to seventh place with 12,614,000 bushels; Minneapolis entered the list as eighth with 10,879,000 bushels; Duluth-Superior entered the list as ninth with 7,288,000 bushels; and Kansas City entered the list as tenth with 9,137,000 bushels.

In 1890, Chicago continued to hold first place in total grain and flour receipts which were now increased to 223,320,000 bushels; St. Louis retained second place with 77,795,000 bushels; Minneapolis forged ahead from eighth to third place with 53,192,000 bushels; Milwaukee retained fourth place with 35,739,000 bushels; Peoria retained fifth place with 32,624,000 bushels; Kansas City advanced from tenth to sixth place with 31,055,000 bushels; Duluth-Superior advanced from ninth to seventh place with 28,756,000 bushels; Toledo dropped from third to eighth place

with 27,690,000 bushels; Cincinnati dropped from sixth to ninth place with 22,035,000 bushels; and Detroit dropped from seventh to tenth place with 10,840,000 bushels.

These ten primary grain markets were, in short, the chief concentrating and distributing centers for the great bulk of the surplus grain and flour of the Middle West which was destined for the consuming States of the East and South and the deficit countries of Western Europe. This surplus found its way eastward and southward via the great interior waterways and trunk line railroads which have been described in this article; and contributed to the development of the seaboard cities which became active competitors for the western grain trade. The movement of grain and flour from the primary markets to the Atlantic and Gulf ports constitutes, therefore, the next phase of this study which will be presented in the concluding article.

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