Chapter 2

THE STEAMBOAT AGE ON THE UPPER MISSISSIPPI

The history of transportation on the Upper Mississippi during the 19th century is primarily the story of the rapid rise, short success, gradual decline, and virtual cessation of steamboat traffic--indeed, of all traffic--between St. Louis and St. Paul. At its peak, the steamboat determined the economy and the politics of the Midwest. Steamboat traffic determined the location and growth of towns along the river. By 1915, however, steam transportation had ceased to be a competitive--or even very important--part of inland transportation in the United States.

A second distinctive feature of transportation north of the Ohio River in the 19th century is the dramatic shifts in cargo carried by the steamboats. The fur trade decreased quickly after the steamboat trade began, to be replaced by lead and military supplies. As these in turn diminished in the 1840s, immigrants arrived to settle the farms of Iowa and Minnesota, creating a brisk passenger traffic that turned St. Paul from a small port into a commercial center. Then came the grain and other produce from these new farms, followed, when the grain shifted to the railroads, by logs and lumber. Lumber was by far the single most important commodity shipped down the Mississippi from the 1870s until 1915. When the logs disappeared, so did the steamboat.

The steamboat made its debut on the western rivers in 1812, when the New Orleans, built in Pittsburgh and designed by Robert Fulton and Robert Livingston for Nicholas Roosevelt, arrived at New Orleans after a 3½ month journey. Although Fulton and Livingston had obtained a monopoly for their route between New Orleans and Natchez from the governor of New Orleans, they were soon challenged by competitors. One of these was Henry Shreve, who began his long series of contributions to Mississippi River transportation by developing a high pressure, horizontal steam engine and installing it in a vessel more along the lines of a keelboat. This boat, the Washington, revealed the true potential of the steamboat by steaming up the Ohio to Louisville and back.

Steamboat traffic on the Lower Mississippi advanced quickly, but the draft of these early boats was still too deep, and the engines too under-powered, for the river above the mouth of the Ohio. The New Orleans, for example, though it was small, 148 feet long with a 32-foot beam, needed a 12-foot draft to handle the upright steam engine.

Not until 1817 did a steamboat venture north of Cairo. In that year the Zebulon M. Pike cautiously pulled up to the waterfront at St. Louis,

met by citizens who had eagerly awaited her arrival.[1] The _Pike_ was a small boat, little more than a barge with an engine. At 31.76 tons, she was the second smallest steamboat documented on the Mississippi. With an under-powered engine, she had to be helped against the current by her crew, who poled her, keelboat-style. The _Pike_ took six weeks to come up from Louisville.[2]

It was a beginning. That same fall another boat, the _Constitution_, reached St. Louis, and by 1818, the steamboat had ceased to be a novelty for residents.[3] During the 1919 season, five boats had arrived by May, including the _Maid of Orleans_ which had sailed from Philadelphia and come up from New Orleans.[4] By 1822, six small steamboats were operating above the Des Moines Rapids in the Galena lead trade, though their cargo had to be transferred to keelboats from the rapids down to St. Louis.[5]

The first steamboat to go above St. Louis was a government boat, the _Western Engineer_, designed and commanded by Major Stephen Long. Long had taken the boat up the Missouri in 1819. In 1820, the boat steamed up the Mississippi to Keokuk at the foot of the Des Moines Rapids before turning back.

Until 1823, most rivermen assumed that no steamboat would ever get past the Des Moines Rapids. That year they were proven wrong by the _Virginia_, under government contract, on a trial basis, to carry military supplies to Fort St. Anthony. The _Virginia_ left St. Louis on May 2, got across both rapids, and reached Fort St. Anthony safely. She returned in time to make a second trip in June. In size and design, the _Virginia_ was little more than a glorified keelboat. She was 112 feet long with a 22-foot beam and displaced 110 tons. Her boxy cabin had no pilot house, the pilot steering the boat from a tiller in the stern. Her first cargo of military supplies included salt, pork, beans, soap, candles, vinegar, and whisky, as well as powder and shot. She also carried an assortment of passengers, including a missionary lady, an Indian chief, Lawrence Taliaferro, the Indian agent at Fort St. Anthony, and Count Giacomo Beltrami, the Italian traveler and explorer whose account make this voyage famous.[6]

Steamboat traffic on the Upper Mississippi grew steadily but slowly for the 20 years following the voyage of the _Virginia_. Most of the 230 steamboats on the Mississippi by 1834 operated below St. Louis where the channel was deeper and the settlements more populous. By the mid-1820s, St. Louis sent only 9% of its traffic to the Upper Mississippi, the rest going to Ohio or Lower Mississippi.[7] North of St. Louis a few boats were engaged in the Galena lead trade. In 1827, for example, 7 million pounds of lead reached St. Louis from Galena, some of it by steamboat,

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much of it by keelboat. Some of the steamboats on the upper river were hired by the American Fur Company to handle what was left of the fur trade. Most of the rest were chartered by the government to deliver supplies to the string of forts north of St. Louis. The country above St. Louis was still too sparsely settled to support regular steamboat traffic. As Indian treaties proliferated, due to the influx of settlers into the Midwest, the transportation of Indian annuities also became an important livelihood for steamboats. Boats delivered axes and farm tools, lard, tobacco, flour, blankets, and other goods to tribal sites all along the river. Steamboats even did a small business transporting Indian tribes to treaty sites.[8] As late as 1853, steamboats carried an estimated $390,000 worth of trade in general merchandise to St. Paul, while bringing in $400,000 worth of government trade.[9]

As steamboat traffic developed on the Upper Mississippi, the boats themselves adapted to the conditions of the channel. On the Lower Mississippi the steamboat evolved rather quickly into the grand sidewheelers which became the stereotype of the Mississippi steamboat. Those two and three-story gingerbread palaces, however, could seldom go above the mouth of the Ohio and certainly not above St. Louis. Although smaller versions of the sidewheelers did traffic on the Upper Mississippi, the standard boat for the upper river soon came to be a relatively modest sternwheeler of between 200 and 300 tons.[10] While the sidewheeler had more power and was easier to steer, location astern protected the wheel from sandbars, shallow water, and rocks, a necessity above St. Louis.

Boats also grew lighter and less bulky as builders learned to build them by experience. Improvements came quickly because the average life of a western-rivers boat was about five years; replacements were constantly needed. The ratio of tonnage measurement to cargo capacity on the early boats such as Shreve's Washington was 2:1; by 1825 the ratio had reached 1:1; it had risen to 1:1½ and to 1:2 by the late 1840s.[11] The draft decreased, too, to more nearly match the shallow channel--under four feet in many places--of the Upper Mississippi. The first boats on the river carried 300 tons in eight feet of water; the same eight feet could carry 2,000 tons by the 1860s,[12] although boats that large could not operate above St. Louis. The sternwheelers on the upper river eventually operated with drafts as little as two feet--a few even less.

Beginning about 1840, both steamboat traffic and the population of the region began to boom. Illinois had been admitted as a state in 1818 and Missouri in 1821, the result of an influx of settlers between 1810 and 1820. Now the same thing began to happen further north. Between 1840 and 1860, Iowa's population went from 43,112 to 674,913, while that of Illinois grew from 476,183 to 1,711,951 as settlers moved into the northern

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section of that state. These increases in population resulted in an immediate increase in steamboat traffic. Arrivals of steamers at St. Louis from the Upper Mississippi jumped from 143 in 1841 to 663 by 1846 (see Table 2-1). By comparison, in 1846, 395 boats arrived at St. Louis from New Orleans, 420 from the Ohio River, 446 from the Illinois River, and 256 from the Missouri River (see Table 2-2).[13] Keelboat traffic from

TABLE 2-1. ANNUAL ARRIVALS AT ST. LOUIS FROM THE UPPER MISSISSIPPI

Year	Steamboats	Keelboats
1841	143	108
1842	195	88
1843	244	55
1844	not reported	not reported
1845	547	not reported
1846	663	not reported

Source: Hartsough, From Canoe to Steel Barge on the Upper Mississippi, p. 67.

the north declined in numbers as steamboat traffic took over. The keelboat never did die out completely, however. Steamboats began to use keelboats--towing them behind or lashed alongside--to increase their cargo capacity. In this way, the keelboat helped river traffic evolve into the towboat and barge so common on the river today.[14]

The Growth of River Ports

Nothing shows the economic power of steamboat transportation on the Upper Mississippi more than the settlements which sprang up to serve that traffic after 1817. There were virtually no settlements along the river north of St. Louis in 1817; by 1850 there were 100 towns and a few young cities between St. Louis and St. Paul. The size and success of the towns depended on the needs of river traffic more often than on other advantages of their locations. This economic power can be seen by contrasting a river port which lasted with one which failed: St. Louis and Galena.

St. Louis

St. Louis was founded in 1764 by Pierre Laclede, a partner in Maxent, Laclede and Company, which had earlier enjoyed exclusive fur trading privileges with the Indians along the Missouri River by the French

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government in North America. Laclede chose the location because it was
the first elevated spot south of the junctions of the Illinois and
Missouri rivers with the Mississippi. It was protected from floods, but
it had access to all the northern tributaries from which furs came.
St. Louis' location proved to be important in both respects. Older and
larger towns such as Ste. Genevieve and Kaskaskia nearby soon ran into
serious flooding problems--in the case of Kaskaskia, sinking it permanently
beneath the Mississippi.

For fifty years St. Louis remained a small fur trading post. The
settlement around the post contained many houses elevated on scaffolds
to protect the inhabitants from wild animals and Indian attacks.[15] By
1780 the population had reached 800, mostly French and Spanish. By 1810
St. Louis had 1,400 residents and was still essentially a trading post.
Seven years later the first steamboat arrived, and in 1822 the first wagon
train set out from St. Louis for the Santa Fe Trail, followed by at least
one a year from then on.

The effect was immediate. St. Louis, which had just opened its first
bank and its first public school, and built a courthouse in 1817,[16]
jumped in population to 9,732 by 1821, the year Missouri was admitted to
statehood. By 1835 several regular packet boats were operating between
St. Louis and New Orleans, and St. Louis and Louisville. Commercial
success spilled over into manufacturing as St. Louis built sawmills,
flour mills, meat packing plants, facilities for iron working and for
processing fur and hides. By the mid-1830s, the population had risen
to 15,000, and George Catlin, the American painter and traveler wrote
that the city was "destined to be the greatest inland town in America."[17]
The next decade seemed to confirm that. Between 1845 and 1849, the
population of St. Louis doubled, almost all from new immigrants to
America.

St. Louis' great asset was its location. Not only was it located
just below the mouths of the Illinois and Missouri rivers, it stood at
a point where the channel of the Upper Mississippi deepened, permitting
larger boats below than above. Because the larger boats were more economi-
cal, it was less expensive to transfer cargo to smaller boats at St. Louis
for the trip north than to use boats small enough to travel the entire
waterway. The same economics operated for boats coming down from upriver.
The small boats necessary to cross the Des Moines Rapids transferred cargo
to large boats as soon as possible, in other words, at St. Louis. Because
of this, St. Louis became the terminus of nearly all boats and all cargo
coming up and down the river. Table 2-2 shows how active the port of St.
Louis was from 1845 through 1852 compared with traffic to the north.

TABLE 2-2. STEAMBOAT ARRIVALS AT ST. LOUIS, 1845-1852

Year	Upper Miss.	Illinois River	Missouri River	Cairo	Ohio River	New Orleans	Other Points	Total
1845	547	298	249	----	406	205	167	1,872
1846	663	446	256	----	420	395	232	2,412
1847	717	658	314	146	430	502	204	2,971
1848	697	690	327	194	429	446	396	3,179
1849	806	686	355	122	406	313	217	2,905
1850	635	788	390	75	493	301	215	2,897
1851	639	634	301	119	457	300	175	2,625
1852	705	858	317	223	520	330	231	3,184

Source: Hunter, Steamboats on the Western Rivers, An Economic and Technological History, p. 49.

From the mid-1830s to the mid-1840s, St. Louis held her own in the number of arrivals with the ports of New Orleans, Pittsburgh, and Louisville, exceeding one or more of those ports on several occasions.[18]

The two commodities which contributed most to the success of St. Louis as a river port until the 1850s were furs and lead, both of which arrived in larger amounts at St. Louis than anywhere on the Mississippi. St. Louis had early established itself as a leading fur center, and when lead from Dubuque and Galena began replacing fur as the main river cargo in the 1830s, St. Louis' position 29 miles above Herculaneum, Missouri, where most of the lead shot in the United States was made, gave St. Louis an advantage in that trade too. The location of Jefferson Barracks 12 miles below St. Louis brought the city much of the military supply business on the upper river, including the lucrative Indian annuities trade.[19] In addition, St. Louis shipped her own active manufactures and farm produce from the surrounding territory to every major port on the inland waterways. St. Louis was a city confident of her future.

Galena and the Lead Trade

Although furs continued to be an important factor in the economy of St. Louis, Prairie du Chien, and other posts along the upper river through the 1840s, it was soon overtaken the the traffic in lead. By 1850 only St. Paul and Prairie du Chien remained as important fur posts, and the lead traffic occupied more than half of the steamboats operating north of St. Louis. The headquarters of this trade was Galena in northwest Illinois, located on the Fever River seven miles from the Mississippi.

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From a small settlement of miners in 1823, Galena grew in 20 years to rival St. Louis as a commercial center.

Small amounts of lead had been mined by Indian and white miners at several points along the Upper Mississippi as early as 1717.[20] In 1788 Julien Dubuque opened a mine near the Iowa town that bears his name. When Pike visited Dubuque during the 1805 explorations, he found the Frenchman smelting between 20,000 and 40,000 pounds of lead annually. By 1810 Fox Indians were melting 400,000 pounds of lead in the Fever River region. That year, a young Henry Shreve, just beginning his career as a Mississippi riverman, made a handsome profit by becoming the first American to take a load of this lead down to New Orleans in a keelboat.[21]

Galena (a name change in 1827 avoided the unpleasant connotations of its original name, Fevre) grew rapidly after the United States granted the first leases in 1822, and mines began producing more and more lead. In 1825 there were 100 mines in the region; a year later there were 453. Since the government retained control of the land, anyone was free to claim and mine it. "Every farmer was also a miner," a visitor reported, and thousands of acres were randomly torn up.[22] The lead ore contained 80% lead and 5% silver, by far the largest and richest deposit so far discovered in the United States.

From 1823 to 1826, steamboats took only a small percentage of Galena lead downriver, the majority going by keelboat. Then in 1827 a stampede of prospectors brought the steamboat into the lead trade for good. More steamboats made trips on the river north of St. Louis in 1827 than the total number for the previous four years.[23] By the close of the season in 1828, 100 boats had departed from Galena with 13 million pounds of lead. Galena—five years before Chicago became a town—already had a newspaper, The Miner's Journal, as well as 42 stores and warehouses, 22 porter cellars and groceries, lawyers, doctors, mechanics, and 700 residents.

Both lead production and steamboat traffic continued rapid growth. In 1835, 176 steamboats arrived, replacing nearly all keelboats, and Galena became dependent on this new transportation. Between 1835 and 1848, lead production rose from 11 million to 55 million pounds annually. By 1848, Galena lead had outstripped furs as a factor in St. Louis economy. That year, St. Louis did $300,000 worth of business in fur receipts and $500,000 in business associated with the Santa Fe Trail, compared with an 1847 traffic in lead worth $1,654,077.[24]

Between 1840 and 1860, Galena produced 80% of the nation's lead. Such prosperity made Galena a commercial center whose influence extended far beyond the lead trade. By the 1850s she had become the most important wholesale center north of St. Louis.[25] Her use of gold and silver as currency brought her into contact with Chicago, where such currency was available.[26] Just as St. Louis had earlier become the dividing point between upper and lower river, so Galena now became a dividing point for traffic between St. Louis and St. Paul. So much traffic developed between Galena and St. Paul that in 1853 a highway was built to connect the two, with regular stage service. Of the steamboat arrivals at St. Paul in 1857, 213 were from Galena, compared with 156 from St. Louis.[27]

Lead traffic continued to dominate upper river commerce. Of the 365 boats which had made their way above the Des Moines Rapids between 1823 and 1848, 200 were primarily in the lead trade. In 1848, 30 boats were exclusively in that trade.[28] But many of the 300 arrivals and departures at Galena by the late 1840s carried other goods as well, in and out of Galena's wholesale warehouses. Increasing numbers of boats began to make Galena their home port, until by the mid-1850s, Galena commercial interests owned and controlled a large share of the steamboat business on the Upper Mississippi. Residents such as Captain Smith Harris were the first to organize boat traffic into regular packet lines, and Galena boats made daily trips to warehouses at St. Paul, Dubuque, Rock Island, and even St. Louis.[29]

The port of Galena enjoyed prosperity until the 1850s. Then, as rapidly as it had grown, the steamboat traffic disappeared. Some lead had always gone east from Galena to markets there. The Wisconsin River-Fox River route to Green Bay had proved too costly because of the portages necessary, but by 1840 lead was regularly going overland to Milwaukee, reaching eastern markets more cheaply than via the Mississippi.[30] Such diversion eastward made little dent in river traffic, however, until 1854, when the Galena and Chicago Railroad tracks reached Galena. Shipments of lead by river immediately fell to their lowest point in 15 years and within 5 years had almost disappeared.[31]

Galena herself might have survived the shifting transportation patterns had not the railroad the following year gone on to Dunlieth on the east bank of the Mississippi across from Dubuque, leaving Galena with only lead to depend on, lead that was giving out. When it did, so did Galena. By 1860, Dubuque had passed Galena in size and population, and the Fevre River had begun to silt in. By 1870, Galena was inaccessible by steamboat. Her population dwindled from a peak of more than 9,000 to less than 4,000 as the commercial "emporium of the Northwest"[32] lost contact with the Mississippi River.

THE GOLDEN AGE OF STEAMBOAT TRANSPORTATION: 1850-1865

St. Louis, meanwhile, continued to improve her standing as an inland port. Steamboats were crowding her waterfront by the late 1840s. Visitors to St. Louis reported as many as 100 steamboats lined up along the levee, many firing up for departure. On May 17, 1849, the inevitable happened. A spark from a smokestack ignited a boat, and when it was over, the Great Fire, as it came to be known in St. Louis folklore, had destroyed 22 boats and 15 city blocks.[33] Although this was more spectacular than the average steamboat accident, it did not affect traffic. From 1852 until 1860, St. Louis never had less than 3,000 steamboat arrivals annually. In 1853, 529 more boats stopped at St. Louis than at New Orleans.[34] The 3,449 arrivals in 1855 surpassed arrivals at Pittsburgh (1,987), Cincinnati (2,845), Louisville (2,427), and New Orleans (2,763).[35] In 1856, a watchman reported being able to walk from deck to deck for 20 city blocks along the St. Louis levee without touching land.[36] By 1860, although many of the steamboats arriving at St. Louis were smaller than those touching at other ports, the St. Louis river trade averaged 200 million dollars annually.[37]

Even smaller ports along the Upper Mississippi were busy in the 1850. Burlington, Iowa, recorded 500 steamboat arrivals per year.[38] Similar statistics were being compiled for Davenport, Rock Island, and Dubuque. Even this early, traffic on the Upper Mississippi showed a preference for short haul rather than long haul or through traffic, an aspect that remains true today. In 1857, for example, steamboat arrivals at St. Paul originated all along the river, almost as many from Prairie du Chien (138) and Dubuque (123) as from St. Louis (156).[39] The entire upper river was so busy that the demand far outstripped the supply of boats, and the increased rates made it possible for a boat to pay for itself in two years.[40]

PASSENGER TRAFFIC

Just as fur and then lead had earlier provided the bulk of shipments for steamboats on the Upper Mississippi, passenger traffic dominated river economy from 1850 until the Civil War. By 1850, receipts from passenger traffic exceeded freight receipts, and did so until the mid-1860s.[41] Passenger traffic came from two sources. A small but steady number of passengers were excursionists who came from the east to take the popular "fashionable tour" of the Mississippi. Arriving at St. Louis (generally from the Ohio), passengers would travel by steamboat to Rock Island, Galena, Dubuque, Prairie du Chien, Lake Pepin, to the head of navigation at Fort Snelling and the Falls of St. Anthony. The tour included a return trip to Prairie du Chien, then up the Wisconsin River to

Fort Winnebago, Green Bay, Mackinaw City, Sault Ste. Marie, Detroit, Buffalo, Niagara, and home.[42] In 1854 the small settlement of St. Paul, then six years old, hosted 1,200 of these visitors.[43] That same year the excursion became even more popular as the railroad reached the Mississippi at Rock Island, making access to the river easier for easterners. Despite the rise of tourism, however, the overwhelming number of passengers who crowded the Mississippi steamboats during this period were the immigrants who arrived in the Midwest during the first great wave of immigration, 1848-1860. Nearly every immigrant had to make all or part of his trip by steamboat.

St. Louis, its population already doubled from immigration between 1845 and 1849, increased even more rapidly after 1850. By 1860, St. Louis had 61,390 American-born residents and 98,086 foreign-born.[44] Far more immigrants, however, arriving at St. Louis from Pittsburgh or New Orleans, went north by steamboat into newly opened territory in Iowa and Minnesota. Iowa's population rose from 43,000 in 1840 to 192,000 in 1850, and to 674,000 in 1860. By that year, 1860, the 2,028,948 residents of Minnesota, Iowa and Missouri exceeded by 400,000 the combined populations of Arkansas, Texas, New Mexico, California, Oregon, Washington, Nevada, Utah, and Colorado.[45] Communities all along the Upper Mississippi Valley repeated the pattern of Lansing, Iowa, which went from one cabin on the river bank in 1850 to 400 residents by 1854. From steamboat landings at Guttenberg, Lansing, La Crosse, in fact all along the river, settlers fanned out toward rich Midwest farmlands, and in the process, brought the steamboat on the upper river its moment of glory.

The Port of St. Paul

Fur had created St. Louis, and lead, Galena. Passenger traffic now took a small settlement known as Pig's Eye by squatters who settled there in 1838 after being kicked off of Fort Snelling reservation land, and turned it into a thriving commercial center with the more respectable name of St. Paul. The settlement had only 642 residents in 1849 when it was chosen the capitol of the new Territory of Minnesota. When it was incorporated as a city five years later, it had grown to 10,000.

The creation of the Territory of Minnesota brought about the golden age of steamboating on the Upper Mississippi. The number of immigrants boarding boats at St. Louis and traveling upriver to St. Paul dwarfed the 1849 gold rush to California and Oregon.[46] Minnesota's 6,077 population in 1850 swelled to 172,023 in the next ten years. In 1856-1857 alone, 90,000 new residents arrived. St. Paul, which had had some steamboat arrivals each year since 1823, began regular packet service in 1847. From 1850-1858, as Table 2-3 shows, steamboat arrivals at St. Paul

increased more than tenfold. Arrivals dropped slightly during the Civil War, and, in spite of immigration into Minnesota through the 1870s, declined even more after the first railroad arrived in 1867.

TABLE 2-3.   STEAMBOAT ARRIVALS AT ST. PAUL: 1844-1862

Year	Arrivals	Year	Arrivals
1844	41	1854	256
1845	48	1855	560
1846	24	1856	837
1847	47	1857	1,026
1848	63	1858	1,090
1849	95	1859	802
1850	104	1860	776
1851	119	1861	772
1852	171	1862	846
1853	200		

Source: Hartsough, From Canoe to Steel Barge on the
Upper Mississippi, p. 100.

St. Paul's location at the head of navigation on the Mississippi was a distinct advantage. Small boats could continue up the St. Croix River for a short distance or up the Minnesota River as far as Mankato, but seven miles beyond St. Paul the Falls of St. Anthony stopped all navigation. Even those seven miles were so shallow that navigation was restricted to the highest water stage. This, and the fact that St. Paul was a respectable distance from St. Louis, helped the city survive the decline of passenger traffic and go on to become a major Midwest commercial center. By 1870, St. Paul merchants were doing 10 million dollars worth of jobbing business annually, trading with St. Louis, Chicago, and most eastern cities. This business grew to 46 million by 1881 and to 81 million by 1885,[47] by which time St. Paul's population had reached 100,000.

Packet Service

The shift from freight to passenger traffic in the late 1840s led to a major improvement of steam transportation on the Upper Mississippi: the organization of individual boats and their owners into packet lines with regular schedules. Prior to 1840, steamboats, built and owned by single individuals or small groups of men, were operated as individual enterprises. Every boat competed against every other boat for the available freight. Further, boats kept to no schedule as to either time or place.

Size might limit a boat to a particular stretch of river, but aside from that, an owner went where he felt the business was.

Such a system operated quite well for freight, but passengers soon grew annoyed by delays of up to several days as a captain waited at a waterfront until he had enough passengers and freight to make the trip profitable. Both passengers and freight shippers were annoyed further by the lack of uniform rates and through service. Because short haul was more frequent than long haul, a passenger might have to take a boat from St. Louis to Keokuk, another from Keokuk to Rock Island, a third from there to Galena, and a fourth boat to get to his destination at St. Paul. At each stop, he would have to wait for a boat going his way and buy another ticket, at a different rate.

Operating agreements were initiated in 1830 when Joseph Throckmorton arranged with another owner to transport goods above the Des Moines Rapids. Throckmorton's boat ran above the rapids, the other boat below, with keelboats transferring the freight across the rapids. This experiment in guaranteeing through passage on one ticket proved successful,[48] but it led to no other similar arrangements until 1842, when the St. Louis and Keokuk Packet Line began operations. The company began with one boat operating on a regular schedule between St. Louis and the rapids. By 1852, it had expanded to three boats and ran a separate line to Quincy, Illinois.

Packet service above the rapids began in 1847 when the Minnesota Packet Company, organized by Captain M. W. Lodwick with a single boat, began a St. Paul-to-Galena route. Such packet boats, differing from the transient boats, kept to a single route and schedule and rapidly developed into "lines" with multiple owners and several boats. The Minnesota Packet Company, for instance, merged with a rival packet company in 1853 to become the Galena and Minnesota Packet Company, owned by Galena interests. The Galena company began with four boats, including the War Eagle, one of the famous Upper Mississippi boats. As was the case with nearly every packet line until the last packet boat disappeared, the history of this line was one of constant alteration and merger. In 1855 the company added a boat to make connections with the newly completed Illinois Central Railroad at Dunlieth, and became the Galena, Minnesota and Dunlieth Packet Company. This, in turn, absorbed a rival, the Dubuque and Minnesota Packet Company in 1857 and became the Galena, Dubuque, Dunlieth and Minnesota Packet Company. In 1863, William F. Davidson, who had formed the La Crosse and St. Paul Packet Company in 1860, gained control of the Galena Company and merged both companies into the White Collar Line. This soon competed with a line formed by minority stockholders from the old Galena Line, until Davidson gained control and

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merged the two into the Northwestern Union Packet Lines in 1886, controlling 30 boats and barges and a shipyard, and dominating shipping on the upper section of the river.[49] Davidson extended operations down to St. Louis, where he ran into competition from the Northern Line of St. Louis. These two lines and a third, under Davidson, merged in 1873 as the Keokuk and Northern Line Packet Company, the "tightest monopoly in the history of western steamboating."[50]

A year later, Davidson's line was bankrupt. It was reorganized and consolidated, eventually ending up being absorbed into the Diamond Jo Line of Dubuque, run by Captain Joseph Reynolds, Davidson's equal in fame and power on the Upper Mississippi. The Diamond Jo Line was the last company to operate packet service between St. Louis and St. Paul. In 1909 it ran only 4 boats in this trade, compared to the 30 boats on the Davidson combine in 1875. These last Diamond Jo boats were sold to the Streckfus Line in 1911, which ran them until 1917, when they were converted into excursion boats for day trips, effectively ending packet service on the river.

THE CIVIL WAR

The golden age of steamboating--especially for St. Louis--came to an abrupt end in 1860 with the beginning of the Civil War. The war closed southern ports and sent Upper Mississippi steamboat traffic even further into the short haul trade. While traffic was aided to some degree by troop transport and other federal business, the St. Louis-to-New Orleans trade never fully recovered. In 1860, before the war, St. Louis sent 472 boats to New Orleans; in 1880 she sent only 157.[51] St. Louis was further hurt on December 10, 1861, when the Union placed her entire river commerce under military surveillance and control. The trade restrictions imposed by the federal government hurried the eastward movement of freight which had begun in the mid-1850s. Recovery was also hindered by close identification with the South. Commercial interests on the upper river had always perceived St. Louis as Southern and Chicago, tremendously helped by the war, as Northern.

THE DECLINE OF STEAMBOATING: 1860-1915

On September 8, 1866, 36 steamboats--one for each state--and a 37th representing Washington, D.C., left the St. Louis levee in a grand parade up the river. At Alton, Illinois, the steamboat Andy Johnson picked up her namesake, President Johnson, as well as Admiral David Farragut, General Ulysses S. Grant, and a party of other distinguished visitors. The armada steamed back to St. Louis, made a trip to Jefferson Barracks, and returned to St. Louis. The Mississippi River represented an opportunity to reunite North and South by restoring river commerce, and this trip was to inaugurate a new and more glorious era in that commerce.[52]

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The mood among rivermen themselves was more gloomy. They watched the railroad tracks, which had arrived at the Mississippi in 1854 and begun to cross it in 1856, begin to parallel the river. They knew that the railroads had captured much of the passenger service and high class freight, and many were already predicting the end. Then Mark Twain returned to the Mississippi in 1882 for a nostalgic trip from New Orleans to St. Paul, he noticed how few boats were on the river. Passing the St. Louis waterfront, he was saddened by the "half a dozen sound-asleep steamboats where I used to see a solid mile of wide-awake ones." He pronounced Mississippi steamboating dead.[53]

The assessment of the rivermen eventually proved correct, but it was a gradual process, masked by a boom in lumber and logging that made the period from 1870 to 1910 the busiest the Upper Mississippi had ever experienced. It was also complicated by changing transportation habits. A towboat and its barges in 1890, for example, equaled the freight capacity of several packetboats of the 1850s. Yet a decline there was, as became painfully evident in 1915 following the end of the logging traffic. By that time, the fleet assembled by the Rock Island District, Corps of Engineers, to work on a channel project was by far the largest operation on the upper river.[54]

Measured by steamboat arrivals at St. Louis, river traffic remained relatively constant throughout the last half of the 19th century. Average annual steamboat arrivals at St. Louis (Table 2-4) and estimates of commercial tonnage carried on the Mississippi between the Missouri and Ohio rivers (Appendix A) show variations more due to yearly differences in river conditions than to declining traffic. In fact, total tonnage on the western rivers doubled between 1860, when Twain was pilot on the river, and 1882 when he returned and discovered a "dead" river.[55] The number of boats passing measurement points on the Upper Mississippi continued to increase slightly until 1892, when a peak of 5,468 boats passed the Winona, Minnesota, bridge, in addition to about 1,000 barges and 2,000 log and lumber rafts.[56] Much of this traffic was short haul, so that the Quincy and Hannibal bridges recorded only half as many boats as Winona; but river traffic was far from dead.

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TABLE 2-4. AVERAGE ANNUAL STEAMBOAT ARRIVALS AT ST. LOUIS: 1866-1895

Years	From Lower Miss.	From Upper Miss.	From Mo. River	From Ill. River	From Ohio River	Total
1866-1870	712	947	335	370	252	2,675
1871-1875	805	922	139	268	177	2,354
1876-1880	863	909	141	262	191	2,365
1881-1885	786	894	104	188	143	2,226
1886-1890	767	909	145	160	152	2,114
1891-1894	864	796	97	147	105	2,009

Source: Dobney, River Engineers on the Middle Mississippi, p. 44.

River traffic, however, was in trouble. By 1880, the steamboats were left with little but low class freight, which they primarily moved from port to port along the river.[57] Much of it, in fact, was sand, gravel, and other supplies being transported by the Corps of Engineers to various improvement projects. Each trip from a gravel quarry along the river to an improvement site--perhaps only a few miles--counted as one boat trip if it passed under a bridge, through a lock, or past another data collection site. Logs and lumber rafts were also counted in tonnage figures. In 1889, for example, the cargo transported on the Upper Mississippi system was slightly less than 7,000,000 tons, a figure somewhat less impressive when one removes the 4,500,000 tons of lumber and forest products (lath and shingles) included in the total.[58] Finally, it is important to note that while steamboat traffic remained fairly constant until the 20th century, both the railroads and the economy of the Upper Mississippi Valley increased rapidly, so that to remain level was actually to decline. Table 2-5, traffic passing through the Des Moines Rapids Canal from 1891 to 1903, shows how lumber inflated the figures. The total freight tonnage for 1903 also includes, for the first time, government rock and gravel and other maintenance items.

TABLE 2-5. DES MOINES RAPIDS CANAL TRAFFIC: 1891-1903

	1891	1895	1899	1903
Steamboats	577	760	882	713
Barges	191	272	381	158
Passengers	10,260	21,778	27,489	47,893
General Merchandise, tons	12,228	40,365	25,105	15,838

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	1891	1895	1899	1903
Grain	63,210 tons	54,345 tons	6,902 bu.	1,278 bu.
Lumber, feet	140,654,084	101,649,575	78,857,657	9,500,000
Logs, feet	24,514,000	13,616,000	32,142,560	3,400,000
Shingles	61,141,137	28,866,520	24,564,721	3,200,000
Lath	39,476,926	28,834,228	18,502,200	900,000
Total freight	4,200,000	2,250,000	2,900,000	4,545,129

(Source: Merritt, Creativity, Conflict and Controversy, p. 162.)

Grain Trade: The Shift to Towboat and Barge

The thousands of immigrants who had come up the river by steamboat in the 1850s should soon have been sending their grain and surplus produce back down the river from the rich Midwest farmlands and giving the steamboat its next important commodity. It did not happen, an early sign of serious trouble for Upper Mississippi transportation. The farms were producing--grain harvests in the north central states rose from 95 million bushels in 1859 to 321 million bushels in 1889--but only a small percentage made it down river to St. Louis. An even smaller percentage--a peak of 16 million bushels--made it all the way to New Orleans for shipment east or overseas.[59] In 1866, 15 million bushels of grain were shipped on the river above Rock Island; only 1 million bushels reached St. Louis.[60] None of the 318,000 hogs shipped from above Rock Island that year made it to St. Louis.[61]

It was unfortunate for steamboat interests that grain became an important commodity at the time the railroads reached and crossed the Mississippi and the Civil War sealed off the water route south. Shippers got into the habit of moving their grain by rail to Chicago and retained that habit following the war, in spite of cheaper water rates. There was never much contest. In 1875, 10 years after St. Louis began shipping grain east by rail, 77,996 tons of grain reached St. Louis by river. Grain shipped that year over the 13 railroad bridges that crossed the Mississippi between St. Louis and St. Paul, destined for Chicago, totaled 1,659,673 tons.[62] Table 2-6 shows how flour and grain shipments to Chicago jumped in 1854, when the railroad reached Rock Island, and again in 1860 as a result of the Civil War.

TABLE 2-6. SHIPMENTS OF FLOUR AND GRAIN EAST FROM CHICAGO,
1838-1863

Year	Bushels	Year	Bushels
1838	78	1849	2,895,959
1839	3,678	1850	1,858,928
1840	10,000	1851	4,646,591
1841	40,000	1852	5,873,141
1842	586,907	1853	6,422,181
1843	688,907	1854	12,902,320
1844	923,494	1855	16,633,645
1845	1,024,620	1856	21,583,221
1846	1,599,819	1857	18,032,678
1847	2,243,201	1860	31,109,059
1848	3,001,740	1863	54,741,839

Source: Dixon, A Traffic History of the Mississippi, p. 35.

River traffic's response to this loss of the grain trade to the railroads was the development of the barge and the towboat. Barges were already in common use on the Ohio, where coal was an important commodity, and on the Lower Mississippi, where the deeper channel permitted greater tonnage and larger, more powerful boats. The use of barges on the Upper Mississippi did not develop until the 1840s, and, until the Civil War, such use consisted primarily of attaching loaded keelboats alongside a standard steamboat. Such traffic was never extensive. Insurance was unavailable for such arrangements until 1852, and then only at twice the rate for regular steamboat traffic.[63] By the end of the Civil War, however, flat-bottomed, shallow-draft barges had emerged in large numbers. In 1866, 180 barges were employed in the St. Paul trade, with a combined tonnage triple that of all steamboats entering the port.[64]

In addition to tremendously increased cargo capacity, barges offered the same ease of loading and flexibility as railroad cars. Grain did not have to be sacked as it did when carried on boats, and, like rail cars, barges could be picked up and dropped off as needed on the way up or down the river. These improvements brought water rates down well below rail rates for the shipment of grain and other bulk goods. Barge rates were typically one-fifth the steamboat rates, falling as low as four cents a bushel from St. Louis to New Orleans.[65] From 1887 to 1903, the average rate per bushel by water from St. Louis via New Orleans to Liverpool was five to nine cents cheaper than via rail to New York to Liverpool.[66]

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An especially busy barge traffic developed between St. Louis and New Orleans in the 1870s as these ports attempted to recapture the grain trade. In 1875 the Mississippi Valley Barge Line, with 4 towboats and 30 barges, was organized specifically to compete with railroads for the grain trade. By 1887, four barge lines were running 16 towboats and 120 barges, all in the grain trade, with a capacity of more than 3 million bushels of grain a month. By 1889 these lines had consolidated into the St. Louis and Mississippi Valley Transportation Company and with specially designed towboats provided long haul service from St. Paul (and even the Minnesota River) to New Orleans. That year it did its largest business: 549,464 tons of freight.[67]

In order to handle barges on the Upper Mississippi, the steamboat had to evolve into the towboat. The early keelboat-barges were often towed behind the steamboat, permitting only one per boat and making for difficult control in the river currents of the upper river. The practice of pushing barges ahead of the boat began in the 1840s and 1850s, and became standard after the Civil War. In order to control the five or six large barges pushed ahead in this way--enough to fill more than 100 rail cars--steamboats soon lost their gingerbread and unnecessary decks and developed exceptionally strong engines and multiple rudders. These "balance rudders" extended both fore and aft of the paddlewheel and permitted the wheel to draw water through the rudders for the added control needed to control the tow. The boats themselves grew smaller and more compact. They soon began to carry only fuel and crew, all the cargo going to the barges.

As can be seen by Table 2-5, however, the towboat and barge never did come to dominate traffic in the 19th century on the Upper Mississippi. By lowering rates as dramatically as they did, they competed with the steamboat lines even more seriously than with the railroads, and perhaps hastened the decline of river traffic. Even with significantly lower rates than railroads, the barge lines were unable to attract grain and other freight back to the river. Shippers believed that the heat and humidity via the New Orleans route somehow harmed the grain, and that it was safer, if more expensive, to ship by rail to Chicago. Shipments of grain between St. Louis and New Orleans declined after 1896, and stopped temporarily after 1903.[68]

THE RAFTING INDUSTRY

Although steamboats continued to be an active presence on the Upper Mississippi during the last half of the 19th century, the most characteristic sight on that stretch of river from 1866 to 1910 was the raft. Composed of logs or finished lumber, typically an island 600 feet long

and 270 feet wide, it was steered by a crew who lived on its surface. It carried more tonnage down the river for fifty years than did all other vessels put together. The largest of these rafts reached 1,500 feet long, as much as ten million board feet of lumber.[69] Bridges built during this period needed raft spans in addition to steamboat spans. By 1915 these rafts had brought nearly all the white pine in Minnesota and Wisconsin downriver to sawmills between St. Paul and St. Louis. The economy of nearly every town along the river north of St. Louis was dominated by the lumber industry. Those communities which did not have sawmills for the log rafts had retail yards supplied by lumber rafts sent down from Minneapolis and other locations on the upper part of the river.

Logs had been floated down the river to sawmills as early as 1839; the modest amounts of local lumber available along the Mississippi had already given out. White pine from the St. Croix and other Wisconsin tributaries was an ideal replacement, strong, straight trees 120 to 160 feet long and 3 feet in diameter. Immigration during the 1850s increased the demand for lumber, a demand which continued to increase long after the Minnesota and Wisconsin forests were gone. By 1873, 680 log and lumber rafts were passing under the Government Bridge at Rock Island each year, and by 1884 that number was 1,056,[70] in spite of the fact that most of the major sawmills were above that location and had already taken their share. In 1886, 1,315,120,020 board feet of lumber was floated on the Upper Mississippi.[71] The peak year for the logging industry came in 1892, when 632,350,670 board feet of logs came out of the Chippewa River alone.[72] Because the river transported the logs, Table 2-7 gives some indication of the size of the rafting business during its busiest years.

TABLE 2-7. LUMBER MANUFACTURE ON THE MISSISSIPPI
FROM ST. PAUL TO ST. LOUIS: 1886-1894

Year	Lumber	Shingles	Laths
	Feet	Number	Number
1886	934,735,854	274,581,750	267,888,340
1887	988,361,094	363,239,750	----
1888	1,048,951,386	423,655,050	----
1889	1,044,555,298	463,132,700	----
1890	1,231,678,960	508,986,705	----
1891	814,228,707	332,666,750	207,722,350
1892	931,806,305	356,014,775	228,042,910
1893	811,576,588	285,897,000	190,394,000
1894	673,572,000	204,198,000	158,586,000

Source: Merritt, "The Development of the Lock and Dam System on the Upper Mississippi," p. 132.

As rafting became an increasingly important part of river traffic, it grew into an art. Early rafts were loose booms of logs floating down the river and often breaking apart, much to the annoyance of steamboats using the channel. These rafts soon became more sophisticated structures composed of individual units, or brails, tied together into larger rafts, tight enough to hang together but loose enough to bend around curves and twists in the channel. After the Civil War, assembling these rafts became big business at the mouths of all the Wisconsin tributaries. The largest such operation, the Beef Slough Boom and Improvement Company, began operations at the mouth of the Chippewa River in 1867. Logs coming down the Chippewa River from the several logging companies had to be separated by their brands (put there by each company to identify its own logs), and made into rafts. The Beef Slough operation provided work for up to 1,500 men during the busy season.

Even though such rafts were superior to free floating logs, they were hard to navigate, especially at broadened river stretches such as Lake Pepin, where wind and storm-generated waves frequently tore rafts apart, and where the lack of current made navigation difficult even in calm weather. As early as the 1850s, steamboats were used to assist rafts through Lake Pepin. Several experiments at using boats on other stretches of the river took place in the 1860s, but the boats used lacked the power to control the huge rafts. The first boat built specifically for rafting was the Le Claire, built in 1866 at Le Claire, Iowa, but it also proved too underpowered. Three years later, the first successful raftboat, the J. W. Van Sant, was launched at Le Claire. The Van Sant was a small, 100-foot by 20-foot, sternwheel boat. In 1870, she took a raft of lumber to Rock Island for the Weyerhauser and Denkman Lumber Company, lowering her hinged chimneys so that she could pass underneath the Rock Island Bridge through the wide raftspan rather than through the draw.

Within 20 years, 100 raftboats were at work on the Upper Mississippi. By 1893 rafts were also using smaller boats, known as bow boats, lashed sideways to the front of the raft, to provide additional steering control, especially when passing bridges. But the lumber industry was already moving west. After 1893 only four new raftboats were built, although some old ones were rebuilt (a common practice on the upper river).[73] The end of the rafting business was a topic of much conversation among rivermen, who knew it was coming. It came in the summer of 1915, when the Ottumwa Belle under Captain Walter L. Hunter took a last load of lumber down the river.[74] People along the river turned out to watch.

The Port of Minneapolis

When Minneapolis and St. Paul were both small settlements, it seemed that St. Paul, at the head of navigation, would become Minnesota's great commercial center, while Minneapolis, surrounding the Falls of St. Anthony and its tremendous water power potential, would become the manufacturing center. Until the 1870s, that was how the two cities developed. Even before Minneapolis began, St. Paul had been a trade center. Minneapolis soon attracted several productive flour mills to the falls. In the 1870s, the mill owners developed better ways of milling Minnesota's spring wheat and flour production rose, from 200,000 barrels a year to 7,000,000 by 1890. Minneapolis became the world's leading wheat market.[75]

Little of this flour left Minneapolis by river. The falls and seven miles of shallow, very swift water separated the mills from the head of navigation at St. Paul. Of the 1,000 or more boats visiting St. Paul annually by the 1850s, only about 50 made it up to Minneapolis.[76] In addition, by 1880, Minneapolis was connected to the Great Lakes and the eastern markets by the Milwaukee and St. Paul Railroad. The city also depended on railroads to reach out to northern and western Minnesota, and soon became the hub of an important rail network. Minneapolis passed St. Paul in population in 1880 and went on to become by far the larger of the two cities.

Logging operations in northern Minnesota eventually brought Minneapolis into competition with St. Paul as a river port. The first logs came down the Mississippi from Fort Ripley in 1848 to a sawmill at the falls. That first season, 500,000 to 700,000 board feet of lumber were cut.[77] Sawmill operations at the falls grew rapidly after the Civil War, until by the 1890s Minneapolis had become the nation's leading sawmill as well as flour milling center. Table 2-8 compares the sawmill output at Minneapolis with the other Upper Mississippi sawmills. In 1899, Minneapolis sawmills reached a peak of 594,373,000 board feet before gradually declining. Production had fallen to 64,798,000 feet by 1915, and in 1921 the last Minneapolis sawmill closed.[78] By then the government had begun to improve the channel below the falls, so Minneapolis was able to anticipate a future return of river traffic to replace its lumber shipments.

TABLE 2-8. SAWMILL OUTPUT FROM MINNEAPOLIS TO ST. LOUIS, 1894

Locality	Lumber (Feet)	Locality	Lumber (Feet)
Minneapolis	491,256,793	Clinton	101,662,000
Hastings	2,750,000	Fulton	14,120,000
Red Wing	8,059,000	Moline	28,188,000
Alma	900,000	Davenport	50,500,000
Winona	119,500,000	Rock Island	84,500,000
Lansing	15,000,000	Muscatine	56,000,000
Prairie du Chien	12,500,000	Burlington	27,000,000
Guttenberg	14,000,000	Fort Madison	16,000,000
Cassville	1,000,000	Keokuk	10,000,000
Dubuque	51,650,000	Canton	4,700,000
Bellevue	2,037,000	Quincy	21,500,000
Lyons	12,006,000	Hannibal	20,000,000

Source: Merritt, Creativity, Conflict and Controversy, p. 164.

THE DECLINE OF RIVER TRAFFIC

Almost every one of the many river improvement conventions which met along the Upper Mississippi after the Civil War had someone or something to blame for the decline of river traffic, and some solution which would turn the industry around again. Congress was to blame; the Corps of Engineers was to blame--for doing nothing, for doing the wrong thing, for doing it the wrong way. Strangely, many of the conventions left unnamed one important culprit, but rivermen were quick to single out the railroad as the villain. The rivermen, in turn, were reluctant to assume their share of the blame. Hindsight makes it easier to discern the causes for the decline.

River Conditions

From 1823 until the 1870s, steamboatmen worked hard designing boats increasingly adapted to the conditions of the Upper Mississippi. They achieved amazing results in increasing cargo capacity on shallower drafts, but eventually the state of the art reached its apex. The steamboat had become as light, powerful, and maneuverable as it could.

About that time, in 1866, the Corps of Engineers arrived, on a permanent basis, to begin a series of navigation improvements. Beginning with the worst stretches, the Rock Island and Des Moines Rapids, eventually expanding to the entire river between Minneapolis and St. Louis, the

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Corps slowly deepened the channel. Nevertheless, as the channel improved, traffic continued to decline; and natural conditions over which neither steamboatmen nor Engineers had any control were contributors.

Midwest winters were determining contributors to the decline. While St. Louis could depend on being ice free for nearly the entire year, St. Paul at the northern end of navigation was closed by ice for an average of 143 days each year. This became a critical factor for river traffic when the goods shipped changed from furs and lead--which could wait for the spring thaw--to grain and farm produce--which needed to get to market when the price was right.

In nearly every year, a low water season of up to several months further limited the shipping season. Low water was undependable, too. It could come in June and again in October. To add to the problem, seasons of exceptionally low water tended to come for several years at a time, followed by several years of floods and high water. There were several years in the 19th century when boats could not get within 100 miles of St. Paul. In 1863-64, when the low water mark was reached, becoming the basis of all future measurements, no boats made it above La Crosse, Wisconsin, for the entire season.[79] By making navigation difficult, the low water season increased freight rates by as much as 50%, driving even more freight to the railroads.[80]

Low water made steamboat service impossible at times, unpredictable at other times. Shallow water on long stretches of the river, even as improved by the Engineers, kept the Upper Mississippi boats smaller than their more economical big sisters down south, but another problem no amount of water could help: the Mississippi pointed in the wrong direction. The Midwest's ties to the East were both emotional and commercial. The East was the market for nearly all the produce and raw materials of the Upper Mississippi Valley, and the supplier of manufactured goods. Small settlements along the river imagined themselves as future "Lowells of the Mississippi" rather than future Mobiles. Especially following the Civil War, residents of the river valley came to resent both St. Louis and New Orleans for their strategic locations on the river which gave them control over all goods shipped by water. Chicago and other Great Lakes ports fed on this resentment; the railroads, too, used it to advantage.

The Lack of Steamboat Organization

Natural obstacles were givens, and had to be endured, but for the lack of organization and cooperation which characterized the steamboat

industry throughout its history, steamboatmen themselves must take
responsibility. The ease of entry into the boat business contributed
to that lack. The public character of the inland waterways—open and
free to all without expense and maintenance—allowed almost any group
or individual with a small amount of capital to build a boat and enter
the trade, where clearly there was money to be made. Henry Shreve's
exploits with the Washington in 1817 whetted more than a few appetites.
Even that primitive boat, in two round trips between New Orleans and
Louisville, paid its running expenses, the original cost of the boat,
and returned a profit of $1,700 to her owners.[81] In 1818 the Fulton-
Livingston boat Vesuvius on a single trip to Louisville earned $47,000
in freight charges—half of it profit.[82]

The result of these temptations was that new boats would flood a
lucrative trade route and lower rates through competition until they
were lower than expenses. For example, shipping lead from Galena to St.
Louis cost 92¢ per hundred pounds in 1841, but competition had driven it
to 8¢ by 1844, and it eventually fell to 3¢.[83] When enough competitors
went bankrupt at this rate and dropped out, rates rose once again.
Boat owners were always on the verge of making a killing or losing
their shirts.

Not even the organization of boats into packet lines after the Civil
War helped much. These lines, however large, were seldom more than loose
arrangements between owners of separate boats; at the most they were
partnerships or associations. They were also underfinanced, so that the
slightest dip in the economy forced reorganization or consolidation.
Even at the height of the packet business, the lines ran into competition
from wild boats which could charge what they wanted and go where they
wanted, undercutting the lines. Unlike railroads which arrived in the
Midwest with boards of directors and eastern capital, steamboating remained
a world of fiercely independent operators, reluctant to organize, make
agreements, or set rules which would make river traffic better business,
but less free. The steamboat industry resisted attempts to regulate boats,
create safety standards, and mandate regular inspections. Not until 1852
was there any kind of government regulation of boats, and then only to
limit boiler pressure, define passing rules, and provide escape routes on
the boats.[84]

The independence of steamboat owners and operators also made transfer
of goods from one route to another difficult. Boat owners seldom cooperated
on rates or permitted through shipping via more than one boat or line, even
though such cooperation would have kept them more competitive with railroads.
Terminal facilities were another problem caused in part by such independence.
There were none. Steamboatmen expected the communities on their route to

provide warehouse and terminal facilities; the towns, in turn, expected the companies to build them. Until 1865, for example, St. Louis had not a single grain elevator to store grain for shipment down river. There were no docks or wharves, no unloading machinery, no credit or banking facilities for the boat traffic. Most stops along the river did not even have enclosed warehouses or provisions for shipping goods inland from the port. Goods unloaded by steamboats sat in the open, subject to theft and bad weather, until the owner came to pick them up.[85]

While the steamboat grew more sophisticated, steamboat operations did not. What worked satisfactorily in the river economy of the 1820s worked less well as commerce in the Upper Mississippi Valley grew more complex. While their cargo capacity was increased, the boats were not modified to handle specialized freight as were railroad cars from the beginning. Boats continued to carry both passengers and freight, and to carry all kinds of freight together. There were no passenger boats, until the excursion traffic of the early 20th century.

Railroad Competition

On February 22, 1854, the tracks of the Chicago and Rock Island Railroad reached the Mississippi River at Rock Island. That spring to celebrate the occasion, the contractors invited the press and a number of distinguished citizens on a joint rail-water tour to the Falls of St. Anthony. Early in June, the guests assembled at the Tremont House in Chicago. They included President Millard Fillmore, Samuel J. Tilden, George Bancroft--already a national historian--and other prominent social and political figures. Nearly every important eastern newspaper was represented.

On June 5, the party left Chicago in 2 trains of 9 coaches each. They were met at each stop by bands, fireworks, and military parades. At Rock Island, 1,200 of the guests boarded 7 boats of the Minnesota Packet Company for the trip to St. Paul and the falls. With cows on the lower deck for milk and boats often lashed together for visits and dancing, this Grand Excursion, as it came to be called, turned into "the most brilliant event of its kind ever witnessed in the west."[86]

This cooperation between rail and water traffic was continued for several years as other railroads reached the river. Steamboat traffic even increased from the extra passenger and freight brought by the railroads. At first, the railroads in the Midwest were short lines connecting two waterways, as was the case with Chicago and Rock Island. By 1856, however, the Chicago and Rock Island Railroad had crossed the Mississippi over a bridge located in such a way as to make it hard for boats to fight

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the current through the drawspan; a boat had already hit a pier, caught fire and sunk; and it was this symbol of competition rather than cooperation that came to represent the two transportation systems. As most rivermen knew, the railroad was the chief single reason for the decline of river traffic.

Railroads easily and rapidly attracted traffic away from the river. Within a year after Chicago and Rock Island were linked by rail, tracks had reached the Mississippi at three other locations: at East Burlington; at Dunlieth, opposite Dubuque; and at Fulton, opposite Clinton, Iowa. In 1856 the Burlington Railroad reached Quincy, and by 1858 Milwaukee had rail lines to both Prairie du Chien and La Crosse. At the same time, only three rail lines had reached the Mississippi south of Quincy, at St. Louis, Cairo, and Memphis. River traffic therefore declined much sooner on the Upper Mississippi. By 1880, 13 railroad bridges crossed the river between St. Paul and St. Louis. When Mark Twain visited Minneapolis on his 1882 visit, he found that 16 separate rail lines met there, with 65 arrivals and departures of passenger trains daily.[87] Railroads not only began crossing the river, they began paralleling it. By 1880, St. Paul and St. Louis were linked by rail, taking away even the short haul business that had been left to the steamboats.

The effect on river traffic was immediate and drastic. Corn shipped to Chicago rose from 2,991,011 bushels in 1852 to 7,490,753 bushels in 1854 when the rail route to Rock Island was completed.[88] Each railroad reaching the river siphoned off more traffic. By 1879, over 85% of the surplus produce of the trans-Mississippi states went east by rail and the Great Lakes, and only the remainder went south by water.[89] By 1890 the total rail business out of St. Louis was 12 times the river traffic; by 1900 it was 32 times; by 1906 it was 100 times.[90]

The railroads were able to make such inroads easily for several reasons apart from the lack or organization among their competitors. Rail routes were invariably shorter than water routes between the same two points. St. Paul and St. Louis were 683 miles apart by water, but only 585 miles apart by rail. Railroads were also relatively free to go where they wanted to go, including across country to rural and urban centers inaccessible by boat. Especially, they could go east and west. Wherever they went, each railroad had a virtual monopoly on its own routes, unlike the steamboat which had competition at every port. Trains could go more rapidly than boats. They could go daily with as many or as few cars as needed. And, they could go all year round, on time. The railroads also had public sentiment on their side for the above reasons and because the railroads stimulated local economies in a way boats did not.

In addition to these advantages, the railroad companies were highly aggressive. They quickly improved their own services by such things as more comfortable passenger cars and specialized freight cars. They built a variety of terminal and transfer (rail to rail) facilities, and arranged for through tickets on each others' lines. Railroads were even more aggressive toward their competition, as, of course, the steamboats had been toward their predecessors on the river. Regularly, where they competed with water routes, railroads lowered rates to drive boats out of business, a practice not regulated until the Interstate Commerce Act of 1887. Again, until forced, railroad companies provided no booms or other navigation aids to get boats through their bridges. Most bridges were designed and placed with little attention to navigation needs. When the railroad did make shipping agreements with packet lines, they did so only until rail lines had been extended and the boats made unnecessary. Several railroads bought packet lines, but only to get rid of the competition, a practice that became so serious that Congress, by the Panama Canal Act of 1912, divorced railroads from ownership of any competing water carriers.[91] Even more serious than these forms of competition were the rail lines running parallel to the river, as close to the waterfront as possible. This effectively separated boat traffic from levees and landings and made it difficult for boats to load and unload. Along these lines at most waterfronts, the railroads bought land and constructed terminals, preventing such future development by river traffic.[92]

It was no contest. The urgent hustle of the railroad quickly dominated the more leisurely steamboat traffic. The steamboat industry responded, not by banding together to fight the railroad competition, but by competing even more fiercely with each other for what traffic remained. In 1890, the Diamond Jo Line, the lone survivor of the competition, could not declare a reasonable dividend, and the end was in sight. The railroads had won.

St. Louis vs. Chicago

Nowhere can the story of this rail-water competition be seen more clearly than in the 19th century rivalry between Chicago and St. Louis. Each city early picked its champion--St. Louis the river and Chicago the railroad--and went into the lists. St. Louis was the southern city, romantic and well-mannered; Chicago the northern city, brash and all business. St. Louis was the commercial center of the Upper Mississippi Valley, Chicago the young upstart. But Chicago knew what was at stake. "Chicago offers her best wishes to her anxious sister," said a Chicago newspaper editorial directed at St. Louis, "and asks only a fair field and an honorable struggle for the prize of commercial supremacy--the position of the great central city of the continent."[93]

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St. Louis' mistake was not taking rail competition—or Chicago—seriously, and continuing her dependence on the river for commercial prosperity, with little effort to improve her waterfront. A St. Louis editorial in 1855 bragged about the busy waterfront with 58 steamboats loading and unloading at once; 240 drays and 2,000 men were busy with 20,500 packages. At the same time, Chicago's lake port was handling even more business with no drays and only a quarter of the men St. Louis needed. Already, Chicago's excellent water and rail terminal facilities were undercutting the expensive and old fashioned operation at St. Louis,[94] all of which was being done by hand.

The Civil War worked to Chicago's advantage by shutting down the river below St. Louis and by increasing the importance and number of railroads. When river traffic to New Orleans resumed after the war, even the less expensive water rate—68¢ per bushel of wheat from Dubuque via Chicago to New York compared to 38¢ via St. Louis and New Orleans to New York—could not restore traffic. Shippers considered the railroad safer and the water route "unhealthy," and goods in increasing amounts left the river and went east to Chicago. By 1869, shipments and receipts at Chicago exceeded shipments and receipts at St. Louis for every single major commodity, including lumber. That year Chicago received 23,475,000 bushels of grain compared to 3,320,712 bushels for St. Louis, with shipments in the same proportions. Even in lumber, so adapted to transport by river, receipts at Chicago surpassed St. Louis, 997,737,000 to 176,082,000 board feet.[95] When St. Louis finally realized it might be in trouble, a St. Louis booster wrote: "But alas! St. Louis that used to be a Samson of strength, and a ruling master of the commercial domain from the Allegheny to the Rocky Mountains . . . has fallen a sleepy victim into the lap of the artful Delilah that is cunningly watching in the garden city on Lake Michigan."[96]

St. Louis eventually did become a railroad center in the 1870s. Its position at the foot of the Upper Mississippi system, at a point where boats had to transfer cargo anyway, should have made it a great rail-water center, but by then it was too late. In 1869 Chicago became the great link in the newly-completed transcontinental railroad and solidified her position as the rail center of the Midwest, if not of the nation. The 1870 census showed St. Louis' population of 310,864—4th largest in the United States—slightly more than 10,000 ahead of Chicago, but Chicago was already tired of competing. It knew it had won.

Even at St. Louis, the river eventually lost to the railroad. Table 2-9 compares the shipments and receipts by river and rail at St. Louis from 1871 to 1906. The river traffic remained as high as it did primarily because of traffic from the Lower Mississippi. Of the 1890 shipment

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TABLE 2-9. SHIPMENTS AND RECEIPTS BY RIVER AND RAIL
AT ST. LOUIS, 1871-1906, IN TONS

| | Water | | Rail | |
Year	Shipments	Receipts	Shipments	Receipts
1871	770,498	884,401	959,882	2,298,321
1875	639,095	663,525	1,301,450	3,232,770
1880	1,037,525	893,860	2,755,680	6,096,524
1885	534,175	479,065	3,537,133	6,794,168
1890	601,862	663,730	5,270,850	9,969,291
1895	303,355	508,830	5,349,327	10,489,344
1900	245,580	512,010	9,180,309	15,375,441
1905	90,575	289,850	15,225,973	23,915,690
1906	89,185	327,670	17,672,006	27,292,617

Source: Dixon, A Traffic History of the Mississippi, p. 53.

total of 601,862 tons, for example, only 22,547 were shipped to points on
the Upper Mississippi.

On a smaller scale, Minneapolis and St. Paul engaged in the same
kind of rivalry in the 1870s. St. Paul depended on her position at the
head of navigation to maintain her position as a thriving commercial
center, while Minneapolis turned to railroads. Between 1870 and 1880,
Minneapolis reached east to Milwaukee by the Milwaukee and St. Paul
Railroad, south by the Minneapolis and St. Louis Railroad, and west and
north through the operations of railroad giant James J. Hill, whose
St. Paul, Minneapolis, and Manitoba Railroad eventually became the Great
Northern. During those ten years the population of Minneapolis rose
from 18,080 to 46,887. In 1880 it passed up St. Paul and assumed a
dominant commercial and manufacturing position it has never lost. Although
as both St. Louis and Chicago had done, Minneapolis and St. Paul eventually
developed both water and rail traffic, Minneapolis today handles more rail
traffic while St. Paul does more business as a river port.

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