First Steamboat to Descend the Ohio River in 1811

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Steamboat NEW ORLEANS (artist rendition)

Part love story, part drama, part success story, part history, part tragedy, this is the story of innovation of a new form of transportation on western rivers. It is not at all a bad story. Keep in mind that most of us if not all of us reach the heights of our endeavors by standing on the shoulders of those who went before.

Cast of characters to this little drama. Actually, it was a pretty *big* drama:

Thomas Newcomen (1664-1729) English ironmonger who invented the steam engine in 1712. Considered by many to be the father of the Industrial Revolution. Interest: entrepreneurial...make them money.

Matthew Boulton, (1728-1809) Birmingham (England) manufacturer of steam engines (1784) greatly improved by James Watt (1736-1819) over the engine invented by Newcomen. Interest: Entrepreneurial.

British Parliament which body, in 1785, forbad exporting Boulton & Watt engines to their formerly rebellious (1775-1783) colonies. Through the Revolutionary War, these colonies had become by 1785 a sovereign country; the United States; a potential competitor. Concern: protectionism.

General George Washington (1732-1799) US President 1789-1797. Concern: expansion of country west of Alleghenies. Explored the headwaters of the Ohio as early as 1770. Worried that western migration would result two separate countries, with the west allied with Spain and France who then controlled the Mississippi...the logical outlet for the west's commerce.

Thomas Jefferson: (1743-1826), US President 1801-1809. Concern: expansion of country west of Alleghenies. Same as above.

Benjamin Franklin: (1706-1790) Founding Father of US; Concern: inventor with ideas about steamboats and interested in the betterment of mankind through innovation.

James Rumsey (1743-1792) American mechanical engineer/millwright/inventor. Concern: inventor of boat propelled by mechanical means and later by steam-induced jet propulsion. Called the RUMSEIAN EXPERIMENT; entrepreneurial.

John Fitch (1743-1798) Connecticut (originally; Kentucky later) clock maker, inventor, builder and operator of **first steamboat in regular commercial passenger/freight service** (summer of 1790). Concern: entrepreneurial.

Robert Livingston: (1746-1813) Minister to France (1801-1804) negotiated Louisiana Purchase (May, 1803). Later partner to Fulton, Stevens, Roosevelt. Robert's niece was married to Robert Fulton. Concern: entrepreneurial.

Samuel Morey: (1762-1843) American inventor, invented, patented and constructed steam-powered paddle boat and ran it in Connecticut River in early 1790s. Said to be inspiration to Fulton/Livingston who infringed "some of his earlier ideas". Also invented and constructed an internal-combustion engine and ran one in a boat and in a wagon a half-century before Duryea. Interest: Entrepreneurial.

Robert Fulton (1765-1815) mechanical engineer and inventor. Builder and operator of commercially successful steamboat on Hudson River (August 17, 1807) Concern: entrepreneurial.

Nicholas Roosevelt, (1767-1854) partner and agent of Robert Fulton, John Stevens and Robert Livingston and great uncle of Theodore Roosevelt. Built first steamboat to navigate on western rivers (October 1811) Concern: entrepreneurial.

John Stevens (1749-1838) American inventor (steamboats, railroads). Partner with Roosevelt, Livingston and Roosevelt; Concern: entrepreneurial.

Henry Miller Shreve, (1785-1851) American inventor and steamboat captain and owner. Interest: entrepreneurial.

Benjamin Henry Latrob, (1764-1820), English born immigrant said to be the father of American Architecture, business partner in some pursuits, and friend, of Nicholas Roosevelt and became his father-in-law. Designed part of US Capitol Building in Washington and rebuilt it after the British burned it in 1814, and designed porticoes of the White House. Interest: father of the bride!

Lydia Roosevelt (nee Latrob), (1791-1878) daughter of Benjamin Henry Latrob; wife of Nicholas Roosevelt. Made the first trip from Pittsburg to New Orleans with him, delivering a son, Henry, on the way. Interest: support of husband.

To set the stage, the Revolutionary War, 1775-1783 was over and the impoverished new country paid off veterans of that conflict with land west of the Alleghenies. Some sold their interest for cash or barter, and others went west to claim their land. This resulted in a great exodus toward that "new" territory. You can add to that the influence of primogenitor wherein the eldest son typically inherited the bulk of the land where wealth prevailed in the east. Those without local and economic prospect often sought their future to the west and over the mountains. Said mountains formed about a hundred-mile wide and many hundreds of miles long north/south barrier to westward migration and commerce. Washington's interest was that those who took up western lands would end up with allegiance to France and/or Spain who by turns controlled the only real outlet for commerce via the river system...New Orleans. Said river system was often thought to begin around Pittsburg (early spelling had no "h"), continued nearly a thousand miles mostly west and a bit south to the Mississippi River and thence about as far again to New Orleans.

The Northwest Ordinance of 1787 anticipated the opening of the area north of the Ohio and westerly and ceased to exist upon the addition of Ohio as a state in 1803...along with the Louisiana Purchase in that same year. The acquisition of the purchase greatly influenced migration and national interest in the west. Kentucky County of Virginia became a state in 1792.

John Fitch invented a steam powered boat using paddles (not paddle wheels) and a trial run of his steamboat PERSEVERANCE was made on the Delaware River on August 22, 1787. Delegates of the Constitutional Convention witnessed it. In 1788, working with Henry Voight, he redesigned his boat and called it EXPERIMENT. Bureaucratic red tape of the early US Patent Office caused him not to get a patent until August 26, 1791, and Fitch's investors drifted away. Fitch *did* inaugurate commercial freight and passenger traffic with this boat in the summer of 1790 between Philadelphia and Burlington, New Jersey aggregating between 1,300

and 3,000 total miles. The project failed due to the delays in patenting and acceptance by the public. James Rumsey (1743-1792) also invented a steamboat that worked upon the principle of pumping a jet of water with steam about the same time. Ben Franklin (1706-1790) had a similar idea but Rumsey put his ideas into hardware (COLUMBIA MAID) which worked, but not well; Franklin did not. Daniel Bernoulli (1700-1782) invented the concept before Rumsey, but evidently did not build a boat either. It is perhaps ironic that Fitch and Rumsey BOTH received patents for steamboats dated the same day!

Robert Fulton (1765-1815), who had met Rumsey, after all of the above principal players were dead, invented a submarine for Napolean Bonaparte in 1800. He then joined with Robert Livingston (1746-1813) to build a trial steamboat, successfully test run on the Seine River in Paris and later to build a commercially successful steamer on the Hudson River in 1807. Livingston was a lawyer and politician who, as minister to France, negotiated the 1803 Louisiana Purchase. Livingston was no doubt adept at greasing the necessary political skids for Fulton who is lauded as being the "inventor" of the first ***commercially*** successful steamboat, the CLERMONT (emphasis mine). Fulton did not build the engine himself as his predecessors had done, but ordered one from Watt, in England, something Fitch and others could not have done due to the embargo by Parliament. After Fitch and others died, the embargo expired.

Nicholas Roosevelt (1767-1854) entered into an agreement with Robert Fulton, Robert Livingston and John Stevens (1749-1838) to build a steamboat of Fulton's basic design but using Roosevelt's and Morey's side paddle wheels. It was completed under Roosevelt's direction at Pittsburgh in September of 1811. These were powerful and influential people. Livingston with his highly connected lawyer and inventor background, Roosevelt, highly educated, from a banking family, inventor and Stevens who designed a steam locomotive, built a screw-driven ferry boat (New York to Hoboken), was promoter of steam railroads and helped draft the US Patent law. Ambition, money, influence and inventive genius all came together here! Roosevelt was to have a couple of distant relatives who, in another century, became presidents of the US.

By 1811, steamboat traffic was already a very small but established fact in the Hudson River on the east coast. The east coast was well-settled by 1800 but was hemmed in by the ocean to the east, and the mountains on the west. Distant transport among the colonies was often provided by ocean-going coastal boats along well over a thousand miles of ocean. Taking into consideration all the rivers, estuaries, capes, and bays I suspect that well over double that length was accessible by boat.

But, what of this new venue that Roosevelt was concerned with; the Mississippi River System? Folks don't like dry statistics, so I'll give you some ***wet*** ones! The Mississippi was accessible from the eastern seaboard by ocean but only in a very round-about way. All the way down to and around both coasts of Florida and through the Gulf of Mexico to the mouth of the Mississippi River...and nearly a hundred miles further up to get to New Orleans. The boat that navigated the open waters of the ocean could not penetrate far up the Mississippi due to the relative shallowness of this river system. Ocean-going vessels had much deeper hulls and greater freeboard for stability and seaworthiness.

And what was the extent of this "new" river system? Nearly nine-thousand miles of river. That would take you well over half-way around the world at the fortieth parallel! Consider also, that the river has *two* banks mostly less than a mile apart and you can see the advantage to local commerce along nearly eighteen *thousand* miles of shore! This does not take into account the countless miles of rivers and streams that were too shallow for boats but rafts of logs and often flatboats could ride a good stage of water into the larger river itself. These streams more or less capable of taking the fruits of the land to where they could be sold at a profit. It extended from western Pennsylvania to the Rocky Mountains...about 2500 miles and from within Canada to the Gulf of Mexico. Land that was, mostly, newly acquired by the fledgling nation from France (Louisiana Purchase). Land largely peopled by "savages" whose ownership was subject to a cavalier attitude of the new government, countless veterans of the Revolutionary War and a ceaseless tide of new immigrants from Europe...all looking for someplace to settle...the elusive "Manifest Destiny" and the "Go West Young Man" advice of Horace Greeley.

Mark Twain in his Life on the Mississippi, said of the river:

"It discharges ...three hundred and thirty eight times as much as the Thames...it draws its water supply from twenty-eight states [now 31 plus two Canadian Provinces]*...from Delaware, on the Atlantic seaboard, and from all the country between that and Idaho on the Pacific slope-a spread of forty-five degrees of longitude. The Mississippi receives and carries to the Gulf water from fifty-four subordinate rivers that are navigable by steamboats, and from some hundreds that are navigable by flats and keels. The area of its drainage basin is as great as the combined areas of England, Wales, Scotland, Ireland, France, Spain, Portugal, Germany, Austria, Italy and Turkey..."*

Then and now, the Mississippi collects a LOT of water...some 200,000 cu ft/sec flows into the Gulf at low flow. Think in terms of a one foot thick wall of water 2000 feet long by 100 feet high going by every *second!* That's sixty thousand *tons* of water, not every hour or minute, but every second! Multiply that number by 'way more than two in flood times. I doubt not that is what gives the Gulf Stream in the Atlantic a great deal of its energy and substance.

New Orleans was then, and is now, a place where the fruits of an inland agronomy and the products of the early iron mongers and glass manufacturers in Pittsburg might peddle their wares. Zadoc Cramer was the author of a book on navigating both rivers and was well known to Roosevelt. Cramer said this about that place in his book *The Navigator*:

"After you enter the Mississippi, you begin to wind considerably to the southward, and sometimes east of that point. The climate becomes mild and warm, and the winter gives but a trifling check to the growth of vegetation. The banks of the river, especially below Natchez, are lined with groves of orange trees, whose delightful fragrance, and the beautiful appearance of their flowers, added to the prospect of getting the fruit plentifully, had a charming effect on the feelings, and seems to form a temporary compensation to the wearied navigator for the many inconveniences he experiences and the toils and hardships he may have undergone since his embarkation."

Livingston's negotiation of the Louisiana Purchase had a profound effect in that New Orleans was a free port now to American trade and using the Ohio/Mississippi Rivers as an avenue of commerce suddenly became a "two-way street" after steamboats could relatively easily return up-stream and introduce much larger commerce in the opposite direction than was possible with keelboats.

Herbert & Edward Quick said: The first through trip [to New Orleans] by flatboat from the upper Ohio to New Orleans was made in 1782; but trade increased rapidly, and during the first half of 1801 exports from the United Stated to New Orleans [not yet a part of the US], then a Spanish port, were carried in one brig, two schooners, seven pirogues, twenty-six keel-boats and four hundred and fifty flatboats. It is easy to understand why upriver trade was proportionately very small: none of the flatboats came back.

Actually, the keelboat made it a two-way street before the steamboat, but the steamboat could make the round-trip from Pittsburgh to New Orleans in a month, whereas it took the keel boat half to three-quarters of a *year* of back-breaking work with poles, cordelle (rope), bushwhacking (pulling upon vegetation growing near the water), sails and oars used to buck the unrelenting current on the return trip. The keelboat crews were TOUGH...they had to be. They claimed to be half horse and half alligator.

As mentioned, flatboats offered a one-way trip to New Orleans...the boat itself often if not mostly being broken up and sold for lumber at destination. The owner or his agent, having sold his goods was faced with a LONG journey back home. Often with pirates and other shady dealers lying in wait to relieve them of or at least lighten his burden of gold.

Nicholas Roosevelt made the trip to New Orleans in 1811 in the Fulton/Livingston/Stevens steamboat. Roosevelt superintended the construction of the boat, named NEW ORLEANS, opening the river system to a concept that swept the flatboats and keelboats in the fullness of time, off the river. Once in New Orleans, he introduced their boat to running from that place to Natchez in packet service there on the lower Mississippi. For a long time there was an increase in the number of flatboats constructed and used due to the fact that

transport was cheaper albeit much slower and less reliable than the very few new steamers. They persisted, alongside the new steamers for over a half-century more.

On October 20, of 1811, Nicholas Roosevelt took aboard his new steamer, NEW ORLEANS, his pregnant wife, two maids, Andrew Jack as pilot, Nicholas Baker, engineer, six Kentuckian deckhands, a cook and a Newfoundland dog of some size but no passengers per se. This was a voyage to display the advantages of the new concept and to deliver the boat to its chosen venue of operation; New Orleans to Natchez. The boat was a side-wheeler 120 feet in length, 20 foot beam and 400 tons burthen. It had twelve feet depth of hull but drew only four feet of water. Built more like a sea-going boat than what later evolved into the 'western style", it had masts, provisions for sails, a bowsprit and figurehead. It had a copper low-pressure boiler that primarily burned wood. The engine had a 34" diameter piston. There was a cabin up front for the crew and men-folk and one aft for the maids and the Roosevelts. After a short trip up-river, they returned to Pittsburg and set off down river for New Orleans on October 20, 1811. This was a 2000 mile journey. They arrived in Cincinnati (some 470 miles) where they were greeted with enthusiasm but the universal doubt was that they would never see them again since the boat could never stem the river's current and return from down-river. Some say they did not stop there except for wood. On October 29 they were at the Falls at Louisville (over 600 miles below Pittsburg). They would have passed Boone County, Kentucky on October 27-28. In Louisville, the celebrating and doubts were repeated. Since the falls were too shallow to allow passage at the moment, they filled the waiting time by returning to Cincinnati and back....demonstrating conclusively that they could stem the river's current over some distance...in this case about 130 miles. While waiting at Louisville, Mrs. Roosevelt had delivered her child, Henry.

Some weeks later after rain swelled the river they were able to pass over the falls (there was a drop of 23 feet in six miles at the falls; the falls were more a series of rapids than anything like Niagra). After traversing same, they encountered the great earthquake of 1811...estimated to have been about 8 on the Richter scale...greatest in recorded history for the area. Their Newfoundland dog, Tiger, would come and lay his head in Lydia's lap indicating he detected the earthquake between the huge tremors when no one else could. When the larger tremors hit, there was no doubt to any on board...even though they were somewhat cradled by being in a boat! They stopped at Henderson, Ky where they visited friends, John (the painter) and Lucy Audubon. The farther they went down river the worse the earthquake conditions got; banks caving in, earth splitting open and spewing mud, sulfurous vapor and sand, islands disappearing and being formed. The river for a time even flowing backwards! Some said that the shaking of the earth rang church bells as far away as Boston, about a thousand miles from the epicenter in New Madrid, then Louisiana Territory; now Missouri!

Coupled with the spectacular Comet of 1811 which appeared before they got to Louisville, there was little wonder that some blamed it all on the new steamboat! Houses at the epicenter in New Madrid were disappearing into large openings that suddenly appeared in the earth! Some folks living there, their chimneys askew or houses destroyed, begged to be taken aboard the boat but there was no chance of accommodating them all so they were left behind. So great was the confusion due to the caving of banks and destruction of landmarks that Captain Jack declared that he was lost in the middle of the river! He found roots and stumps where deep water had been. The river had broken through areas where forests once stood! But the only thing to do was to go on as best they could. If they tied up to an island, they might be pulled down when the island disappeared! Gradually they passed the devastated area of the earthquake and reached Natchez. And on January 10, 1812, they reached New Orleans where the steamer was to be placed in its trade. It may be of interest that the engineer of the NEW ORLEANS, Nicholas Baker, took a shine to one of Roosevelt's maids and they were married when they reached Natchez.

It is not to be supposed that this was Roosevelt's first trip down river. Indeed, between June and December, 1809 he made the same journey in a flatboat with his then new wife, Lydia Latrobe Roosevelt. This was not a leisurely drift down stream, but saw Roosevelt rowing off in a skiff from his flatboat to visit more remote parts of the river to determine if the depth, currents and other features of the river might be suitable to the passage and provisioning and commercial use of a steamer. Indeed, he even found deposits of coal on the banks in Illinois which were secured to his use so that he might avail himself of them to fuel the steamer that he intended to build. This was, of course, a supplement to the usual fuel, wood. Wood was available in seemingly limitless supply ashore, but at no little delay and expense of labor to render it suitable for boiler fuel. Indeed, in later

years as steamers proliferated on the river, cutting and providing wood to the steamers became a major industry.

Upon returning to New York from New Orleans by sea in the middle of January, Roosevelt's favorable report caused his partners to send him to Pittsburg to superintend the building of the steamboat and taking it to New Orleans. Most of this info about the journey was recorded by Charles Joseph Lathrobe, brother-in-law of Roosevelt, half-brother to Lydia and son of Roosevelt's closest friend, Benjamin Henry Latrobe. Indeed, according to Dohan, Roosevelt's wooing of Latrobe's daughter caused a rift in their relationship due to Lydia's tender age; Roosevelt was 25 years older. *"She was 10 when they met, thirteen when he proposed, seventeen when, after a courtship partly Shakespearian, partly farce, they were married. And lived happily ever after, for years and years and years"*

If you think that all was sweetness and light once the NEW ORLEANS got to that city, you are quite wrong. The boat did successfully enter the trade between New Orleans and Natchez as was their original plan. However, other would-be steamboat men soon built steamers near Pittsburg and attempted to enter the trade. But, through the good offices of Robert Livingston and his brother Edward in New Orleans, an exclusive monopoly was granted to the owners of the NEW ORLEANS. Issuing a monopoly was an early way of giving the developers of new inventions a reward for their enterprise. With a monopoly in effect, there would be no competition at all. This might be in addition to, or instead of, a patent which is the method used today. The monopoly stirred up a good deal of resentment among the shippers who did not like domination of western trade by eastern interests...which the NEW ORLEANS owners represented!

Henry Shreve was one of the interlopers and there were seizures of his and other's boats and their cargo at New Orleans. Earlier in his career, he was captain of Daniel French's boat ENTERPRISE which in 1814 took munitions to New Orleans for General Andrew Jackson to use in the battle of New Orleans. Sued and arrested for violation of the monopoly, as soon as he got out of jail, his was the first boat to return from that place to the home port of Brownsville, Pennsylvania. The judge decided that the Louisiana Court had no jurisdiction over the monopoly issue and dismissed the lawsuits. Fulton and Livingston both died in 1815 and evidently the monopoly issue died with them. This threw the river open to anyone with the initiative and the considerable capital involved to build a steamboat and the skill to operate it on the unimproved rivers. As an example, Roosevelt had spent $38,000.00 in building the NEW ORLEANS.

Henry Shreve did not like the format of the NEW ORLEANS boat and designed his own boat, WASHINGTON, built some six years after the NEW ORLEANS with his own modifications. His modifications were said to set the basic design criterion for western river boats thereafter. His boat was built in Brownsville on the banks of the Monongahela River. His design placed the engines on to the main deck and lowered the draft of the hull by making the hull wide, with flat bottom designed to navigate the shallow western rivers. He also mounted the engines horizontally with a separate engine and boiler for each wheel. There is testimony that Shreve, then with a barge and forty hands returning from New Orleans, saw and visited Roosevelt's NEW ORLEANS when it lay at Louisville in 1811 waiting to go over the falls. The NEW ORLEANS had been designed with a good deal of influence from ocean-going vessels...deep hull, lots of freeboard and rounded bottom.

The steamboat played a relatively minor role in the War of 1812 due to the lack of numbers to be a major factor in the battles ending in January of 1815. That having been said, the steamboat NEW ORLEANS did serve during the Battle of New Orleans, and, as mentioned, so did Shreve, then captain of the steamboat ENTERPRISE by taking troops and supplies to the site.

After the Steamer NEW ORLEANS made its trip in 1811, several steamers were built at Pittsburg The COMET, the AETNA and VESUVIUS. By 1817 there were twelve. By 1826, there were 143 steamers on the river. After the steamboat was introduced to "western rivers" the population of Illinois for instance, exploded from 12, 282 in 1810, **69.3** times, to 851,490 by 1850...reaching 4,821,550 by 1900...a whopping **392** times!

After Henry Shreve broke the Fulton et al monopoly and set the tone for steamboat design we see the following activity as listed by *The Cincinnati Directory of 1819*:

"about 60 steamboats, from 25 to 700 tons burthen and many of them furnished in a style of elegance and taste and are now in successful operation on these western rivers. And should the canal, already commenced around the falls of the Ohio, be soon completed, we may anticipate double the number of boats, at least, within the period of two years, and consequently a considerable diminution from the present prices of freight and passage."

Some of these boats in 1818-1819 were engaged in exploration of the Missouri River as far up as 200 miles. Before long, there were steamers in Montana via that muddy river! The canal would not be opened until 1830. This is the Portland Canal constructed around the falls at Louisville.

But, what did the evolved western rivers steamboat look like? As mentioned, Shreve pioneered a wide shallow hull, decked over and the boilers, engines and ancillary equipment mounted on that, the main deck. That was the place too, for the freight to be stored in transit. Another deck was built above called the boiler deck, although there were no boilers there. The boiler deck was designed to accommodate the passengers for these were packet boats...carrying both. The passenger cabin was a long "tunnel" running the length of the boat with passenger rooms to either side. The passengers were accommodated with meals served on tables set up in that tunnel of a cabin with a skylight or clerestory running the length on both sides. Between meals, passengers could pace the outside decks or lounge on the chairs left from seating diners after the tables were cleared, folded and stored. The gentlemen were in the front part of the cabin where the bar was typically located and spittoons for the tobacco chewers lined the walls on the polished hardwood floor. Women were in the rear part where the floor was usually carpeted. Over time, on the bigger boats, much money and attention was paid to carpet quality, stateroom door paintings of artistic scenes, rare woodwork, fretwork, furniture, crystal chandeliers, a potbelly stove for heating, a large mirror at the back wall and, perhaps, a grand piano. A fancy silver urn often dispensed river water to thirsty travelers!

The skylights were above the entrance to the passenger rooms...later called "staterooms". Said state rooms had access to a promenade outside through another, outside, door. These rooms were no bigger than what was needed to dress, wash in a washstand (running water; tip pitcher, water will run) and typically an upper and lower bunk....again, to save space. The roof of the boiler deck was called the hurricane deck; the skylight roof in the middle. Later, the skylight roof became a Texas Deck, which was space for the crew to sleep. The Texas name no doubt because it was larger than any stateroom! Affluent minorities were sometimes housed in the rear of the Texas. Perched atop the Texas was the pilot house for a good view afar but generally poor visibility up close!

Deck passengers rode on the main deck, no food or accommodation for their comfort was provided...making their bed as it were among the freight, boilers and deck hands. Depending upon the agreement and fare, the deck passengers sometimes had to help load wood at the frequent stops for fuel.

The bigger steamers were floating palaces...fancier than anything seen ashore. They looked like a giant, usually white multi-layer wedding cake and, I believe it was Mark Twain who remarked in his usual witty wisdom, that it had eleven thousand dollars' worth of jig-saw work on it. Two tall chimneys rose many feet above the highest deck to provide ample draft for the hungry furnaces.

As to crew, there was a mate who superintended general conduct of the roustabouts and deck hands at landings and decided where to place the freight. Weight distribution aboard was critical to efficient freight handling as well as the trim of the boat affecting progress and handling under way. Playing cards were sometimes used to identify freight in that most deck hands could not read? In the early days deck hands, rousters and firemen were often Irish, then being at the bottom of the social ladder. Slaves were not used on boats that penetrated the northern climes in that, technically, stepping ashore made them free. After the civil war, African Americans largely took the place of the Irish.

The boilers, usually at least two, and up to six or more, were up front on the main deck with freight, firewood, livestock and deck passengers surrounding them. Firemen did their service from the fronts or forward ends of the boilers. Engineers...at least one striker (beginner, or in-training engineer) plus one engineer per shift...were in charge of the firemen and running the big engines located aft and turning the big paddle wheels. The bigger

early boats were nearly all side-wheelers with the striker-engineer running the starboard engine and the engineer running the portside wheel. They responded to bell signals from the pilot in the pilot house up top. Three bells and combinations of bells, the meaning of which changed depending upon what the engines were doing at the time, conveyed instructions from pilot house to the engine room. In later years a speaking tube was introduced between the pilot and the engineers.

The pilot did as the name implies, piloted the boat using the big steering wheel for leverage enough to turn the big rudders. There was a clerk and purser and a mud-clerk, as the name implies, the latter got in the mud matching freight bills with freight on the bank and on the boat. Cooks, pantrymen, waiters, waitresses etc. catered to the culinary needs of passengers and crew. Fancy menus were featured on many boats. Captain Alan Bates has said that a good steamboat cook could make anything out of a can of lard and a hundred pounds of sugar! That having been said, the food was sometimes fine indeed. Overall was the captain. Sometimes called the "roof" captain in that he often stood on the hurricane roof to direct landings and critical navigation. He was often an owner or *the* owner and would sometimes take a turn at piloting.

Steamboats were usually said to be in a certain "trade" between two designated points. They often ran newspaper ads and roof banners proclaiming their trade cities or towns and schedule. Those without a given trade were said to be "tramp" steamers...opportunists... making friends (and enemies of boats whose trade they usurped) all up and down the rivers.

Steamboats were often short-lived in the west. The rivers, although generally hospitable to passage, they also had many hazards. Snagging on hidden "hull inspectors" as rocks and tree-trunks were known caused sinkings. Fire and explosion were also common. Three to five years was said to be the life-span of a steamboat. Indeed, some did not even survive their maiden voyage.

Certainly not steamboats, but wharf boats and showboats were nonetheless present to serve the trade. Wharfboats were located at major river terminals. Built on floating barges, they were usually covered to protect waiting passengers and freight. Sometimes they featured sleeping accommodations for passengers who faced a protracted wait. Showboats would offer plays and other entertainment to the remote portions of the river, often with a calliope to attract a crowd. One of these, the MAJESTIC, is presently permanently moored at Cincinnati. These were usually unpowered, using a small steamer to take them from place to place.

Keelboats sometimes paid a steamer to tow them back up the river from New Orleans. This and other factors led to a new form of steamboat by mid-century; the towboat. It was most always a sternwheel boat and pushed barges loaded with commerce, mostly coal, in front of it. While the packet boats are now long-dead, the towboat lives on, albeit now diesel powered, moving many million tons of bulk commerce (coal, iron, sulfur, oil, gasoline etc.) cheaply every year.

Reams of copy and statistics can be assembled to show the impact of the steamboat upon western settlement, commerce and expansion. But to cut to the bottom line, for the western river steamboat Professor Lewis C. Hunter summed things up:

"*In the development of the greater part of the vast Mississippi basin from raw frontier society to economic and social maturity, the steamboat was the principal technological agent."*

For the bottom line of *this* paper, Professor Hunter went further:

"It was a new hero, Henry M. Shreve, who in disregard of personal interest and against heavy odds led the fight to free the West from eastern domination [Fulton and Company]. *It was Shreve who, almost singlehanded, worked out the structural and mechanical modifications without which the steamboat would have had very limited usefulness in the West. In this sense it was Shreve, not Fulton, who invented the western steamboat.*

The case thus made in behalf of Shreve is overstated. That Fulton's boats were superseded does not alter the fact that ***they demonstrated the practicality of steam navigation in the West.****"*

THE END

Afterword:

Having researched the subject of steamboats to a fair depth, it appears to me that Dr. Bogardus was correct in dedicating some of his writings on steamboats to John Fitch. The good Doctor had this to say about John:

"...'Poor' John Fitch who was born in Windsor Connecticut, January 21, 1743, and built his first steamboat in 1786. Laughed at and ridiculed as an "insane speculation and an idiotic experiment to be treated only with contempt" his company failed, though his boat was successful. In 1792, he [Fitch] *disgustedly wrote:*

> ***"For full the scope of seven years***
> ***Steam Boats excited hopes and fears***
> ***In me, but now I see it plain***
> ***All further progress is in vain***
> ***And am resolved to quit a scheming***
> ***And be no longer of Patents dreaming***

In 1797 he came to Bardstown, Kentucky, and built a model side-wheel steamboat which he operated successfully in Salt River. Penniless, he took refuge in drink and committed suicide in July 1798."

I would add only that Fitch was the certain victim of powerful men; Washington, Jefferson and Franklin, who wanted to exploit the steamboat invention to their own ends...for the betterment of mankind. Men who favored another, contemporary, inventor, James Rumsey, for Rumsey was a gentleman and Fitch was somewhat rough around the edges. Rumsey *was* a talented inventor who, in my opinion the evidence shows, was considerably bested by Fitch. But then, never rule out those two other ever-present millstones to inventors, inventions and progress: a short-sighted, fearful and incredulous public and endless bureaucratic red tape!

Glossary:

Barge was, unlike those of later years and today, a variation of the keelboat in that it was fitted up more elaborately. It was noted that the *same* boat might be called a large batteau, a keelboat or a barge in various parts of the river. Later barges were square of end, rectangular of plan and pushed by a steamboat or diesel. (Quick)

Batteau (pronounced bat toe) was a large boat rounded at both ends the deep hull could carry as much as 80 tons. It was generally considered that one man per ton of boat was required to work it. Sails, poles and oars were used upstream as well as down. (Quick)

Bight is a loop woven or fashioned into one end of a line to facilitate making the boat or barge fast to mooring pins, bitts or other boats, barges or ashore.

Bitt is an appendage fixed firmly to a boat, barge or shore to fasten or moor a boat or barge.

Boat is an object devised by man to float on water to allow him to navigate in, cross or travel in or through bodies of water. In blue-water (ocean) parlance a boat is carried on a ship. In brown-water parlance (river), the term is not used as a noun; only as a verb.

Blue-water designates ocean or sea-oriented operations; salt water.

Brown-water is a term used to designate a stream or river; freshwater.

Bull boat. Made of a bull buffalo hides stretched over a willow framework, this fragile boat was sometimes thirty feet long and twelve feet wide. Drawing only four to eight inches of water with three tons of freight (baled furs) the seams were sealed with a mixture of wood ashes and buffalo fat. Two men poled the boat in shallow rivers. (Quick)

Calliope: A sort of steam powered organ! Having a keyboard similar to a piano/organ of about 32 notes, the keys opened steam valves leading to as many whistles mounted to a steam manifold which were tuned to a chromatic scale. The music produced was loud, brash, far-reaching and designed to attract attention. Thus it was used on showboats and circuses to toll the public to their place of business. The use of steam to excite each whistle heats the whistle proportional to the usage of that note, thus changing the pitch a bit as it is played...enough to drive some music lovers to distraction and others to fits of rapture and ecstasy! On the river, the calliope player was often called the “Perfessor”. A man named Stoddard, of Massachusetts patented the concept in 1855 originally intending it to replace church bells. A few of these appliances survive on boats today.

Capstan: a spool-shaped mechanical device having a vertical axis, located in a place useful to augmenting human strength needed to pull in or tighten lines or ropes. Primitive ones were powered by placing bars in sockets to multiply leverage with pawls around the base to prevent the unwinding of the device. Later ones were steam-powered and currently are mostly electric powered.

Captain: the person in charge of the general conduct of the boat; where to go, what to do and when.

Deckhand: boat crew charged with handling the mooring and other lines of the boat and any other chore the mate might think of. Useful are a brawny physique, a thick skin and more than a little skill to do it correctly.

Engineer: person responsible for management and maintenance of the boat’s engines and mechanical equipment. Under the captain, he responds to commands from the pilot for direction and speed of the engines.

Excursion boat is a boat fitted out for day tripping only...no overnight accommodations for passengers. The BELLE OF LOUISVILLE and the NATCHEZ are current examples. ISLAND QUEENs one and two were two greatly loved ones locally.

Ferry is a boat used for taking people and/or livestock and vehicles across a body of water.

Flatboat, wooden boat sometimes called a broadhorn, was a rectangular structure usually at least partially roofed over it contained goods for market and often entire families and livestock. Built locally and often crudely, they were cheap, one-way conveyance...broken up and sold or used the lumber to build their first abode.

Freeboard is the amount of a boat's hull that is normally above the water line. If a hull is eight feet deep and the boat draws five feet of water (to water line) there is a freeboard of three feet.

Galley was a boat designed for military purposes, not freight, and was powered by oars and was usually mounted with a small but authoritative cannon in a swivel mount. It was shaped like a ship's boat and decked over. (Quick)

Keelboat, a boat powered by oar, cordelle (rope by pulling by hand), sail, pole or pulling upon bushes ashore. Typically it was pointed on both ends, narrow and deep of hull and could be man-handled back up-stream to make a two-way journey. Mike Fink and other tough legendary folks crewed such craft...men who could take a town apart in their spare time if they felt slighted. Some of these came to be deckhands and mates on the steamboats.

Logbook is a book where information about the boat's trip is recorded day by day.

Landing, is a designated place along the shore where steamers might effect physical communication with land to load or unload passengers and/or freight or take on fuel.

Log canoes were sometimes loaded with freight and paddled to market. Sometimes called dugouts, they were usually made of a hollowed-out log about twenty feet long. It took four men about four days to hollow it out sufficiently for use. Walnut and cedar logs were liked for this. (Quick).

Line, a rope in river and/or seagoing parlance.

Mate: a boat officer reporting to the captain charged with the general operation and maintenance of the boat. Boss of the deckhands. Song and story have it that the mate always had a vocabulary consisting of emphatic words designed to invest his deckhands with immediate action. Said words were not designed to fall lightly upon a delicate ear!

Mackinaw boat, a boat made of planks an inch and a half thick pinned together with wooden pins. Pointed on both ends and up to fifty or so feet long, five feet deep of hull at stem and stern and shallower in the middle, it was typically used by the fur trade (Missouri River). Powered downstream by three or four oarsmen in the bow they averaged seventy five to a hundred and fifty miles a day to St. Louis.

Packet boat, a boat that accommodated both passengers and freight. No packet boats currently exist on the Ohio/Mississippi river system.

Pilot: person under the captain with responsibility for general conduct of the boat while under way. Steers boat. Sometimes the captain acts as pilot too.

Pirogue (pronounced pee row) was a log canoe with a square stern. Some say pointed on both ends. Sometimes two were lashed together and decked over catamaran style. (Quick).

Port: left side of boat facing forward. Signal light or running light displayed on that side of the boat is red.

Showboat is usually a theater set on a barge towed from venue to venue by a steamboat. They sometimes had a calliope to attract customers. Pot boiling dramas were the usual fare to the unsophisticated clientele. Showboat MAJESTIC is permanently moored in Cincinnati.

Sidewheel steamboat, a steamboat with a paddle wheel on each side usually located aft of the center and powered by an engine not connected to the other wheel. It may be apparent that the pilot has the engineer reverse one wheel and come ahead on the other and “turn on a dime”. The paddle boards themselves were known variously as buckets or floats.

Steam engine is a machine designed to convert the energy imparted to water in a boiler to produce steam, into rotating energy i.e. paddle wheels, pumps or other machinery. In early steamboat usage, it was a reciprocating engine, not a turbine.

Steam launch is a small steam-powered boat usually used for pleasure.

Starboard: right side of boat facing forward...signal or running lamp on that side of the boat is green.

Sternwheel steamboat, a steamer having one wide paddle wheel behind the boat powered by two engines connected to a single crank. Usually but not always an upper river boat.

Towboat is a boat that is designed for pushing a barge or multiple barges loaded with bulk commodities long distances. Transporting coal was an early chore for them. Overnight accommodations for crew only were featured. This business burgeoned after the Civil War. It is still actively pursued but steam has given way to diesel power. Sulfur, road salt, coal, cement and fuel oil/gasoline are commonly moved in this fashion in a single tow that might cover several acres...the cheapest, albeit slowest way!

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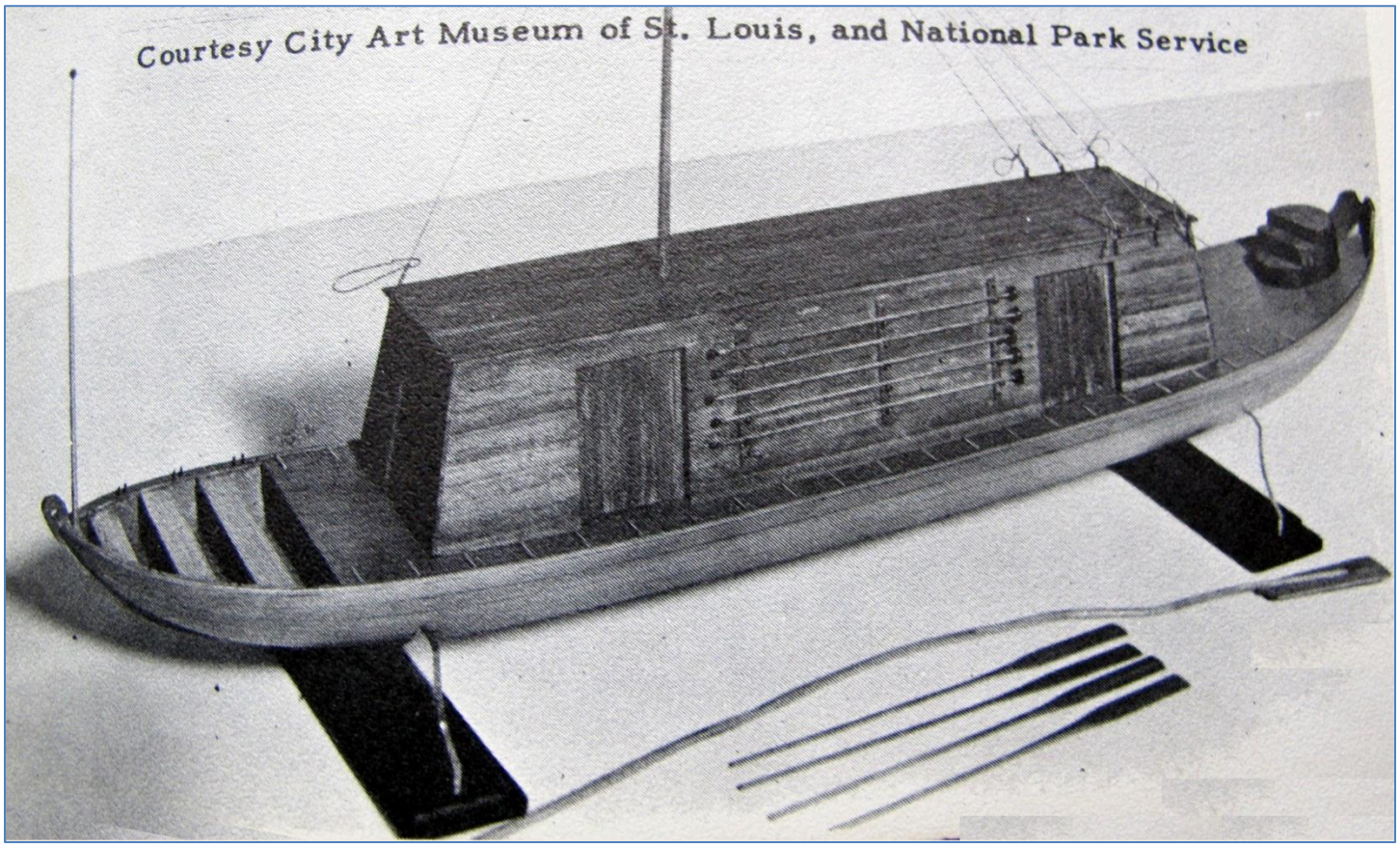
Wikipedia...for various dates and places.

Illustrations:

Yawl

Galley Boat (from Lewis & Clark reenactment)



Keelboat from the Ohio River Handbook

Excursion boat, Belle of Louisville

Packet boat, Natchez

Ferryboat

Showboat Majestic

Towboat

Calliope with Perfessor, Keith Norrington

Steam launch, owned by Thomas D. Schiffer

Wharfboat (former lifesaving station used as a Wharfboat)