

Chapter 2

THE GATEWAY TO THE WEST

Rufus Putnam peered through the blinding snowstorm, saw the trail ahead was covered by waist-deep drifts, and realized his half-frozen men and exhausted teams could move the wagons no farther. He knew the pioneer band he led must reach the Youghiogheny River in time to catch the floods in the spring of 1788, or they would never be able to navigate the rivers to new homes on the frontier, for he had learned from Thomas Hutchins and General Washington that the "Yough" went dry in the summertime.

General Putnam had served as Chief of the Continental Engineers. He remembered the forts he built around Boston in 1776 had been armed with cannon dragged on sleds across New England snows from Ticonderoga. He made his decision, strode back to camp, and ordered his men to break out their tools. Moving quickly in the cold, his frost-bitten men built four stout sleds, transferred supplies to the sleds from the wagons emblazoned with the slogan "FOR THE OHIO COUNTRY," hitched teams to the sleds, and moved out over the Appalachians, the General along with his hardest men breaking trail through the snowdrifts ahead of the sleds.

After trudging for two weeks through the frozen mountain wilderness, Putnam's pioneers arrived at the present site of West Newton on the Youghiogheny, where they hurriedly built a fleet of boats to bear them down the inland river. General Putnam had planned settlement and defense of the Ohio frontier by bands of Revolutionary veterans trained for combat and skilled at building fortifications and watercraft. General Washington heartily approved the idea and in 1787 Congress granted lands to Putnam and his associates of the



General Rufus Putnam
Howe's Historical Collections of Ohio, Vol. III

Ohio Company. Soldiers and sailors from Rhode Island, Connecticut, and Massachusetts assembled in late 1787, made a difficult winter trek to the Youghiogheny, and by the end of March 1788 had completed a fleet at West Newton.

Headed by General Putnam in the 45-foot, 50-ton galley *Mayflower*, the pioneers embarked on the Youghiogheny on the first of April 1788, timing their departure perfectly, catching a swift Youghiogheny flood and rushing down the rock-studded stream and the Monongahela and Ohio rivers to found Marietta, Ohio. President Washington relied on his second Chief Engineer to build fortifications to defend the frontier, to negotiate treaties with the Indians, to arrange safe delivery of the mails, and, in 1796, appointed him Surveyor-General of the United States. Putnam's contributions to the settlement, defense, and development of the Northwest Territory were so monumental that historians have honored him as the "Father of Ohio."



"Indians made pirogues..."

The Great Flatboat Emigration General Putnam and his veterans were a small part of the human tide that swept across the mountains and down the inland rivers after the Revolution; not since the medieval crusades had such a mass migration of peoples been seen. Pioneer hordes followed trails across the mountains to strike the Allegheny at Olean, the Conemaugh at Johnstown, the Youghiogheny at West Newton, the Monongahela at Brownsville, or the Ohio at Pittsburgh, Wellsburg, and Wheeling, and there they built or purchased watercraft to pursue their westward voyages. In 1788, 323 boats passed down the Ohio, carrying 5,885 people, 2,714 horses, 937 cattle, 245 sheep, 24 hogs, and 267 wagons. In that year, Thomas Hutchins remarked the spirit of emigration was incredible, and Colonel Israel Shreve, who personally led a party of New Jersey veterans west, commented: "It seems as if people were mad to git afloat on the Ohio."

Described as Noah's Arks, well-built hogsties, or oblong boxes, the flatboats that carried the emigrants down the rivers varied in size according to the needs and abilities of their builders. Flatboats commonly were classed as either Kentucky boats or New Orleans boats, the former being smaller, only partially roofed, and less well built, the latter stoutly built and completely roofed for long distance travel. Not being well designed for upstream navigation, flatboats were disassembled at their destination and the lumber used to build the pioneer cabins.

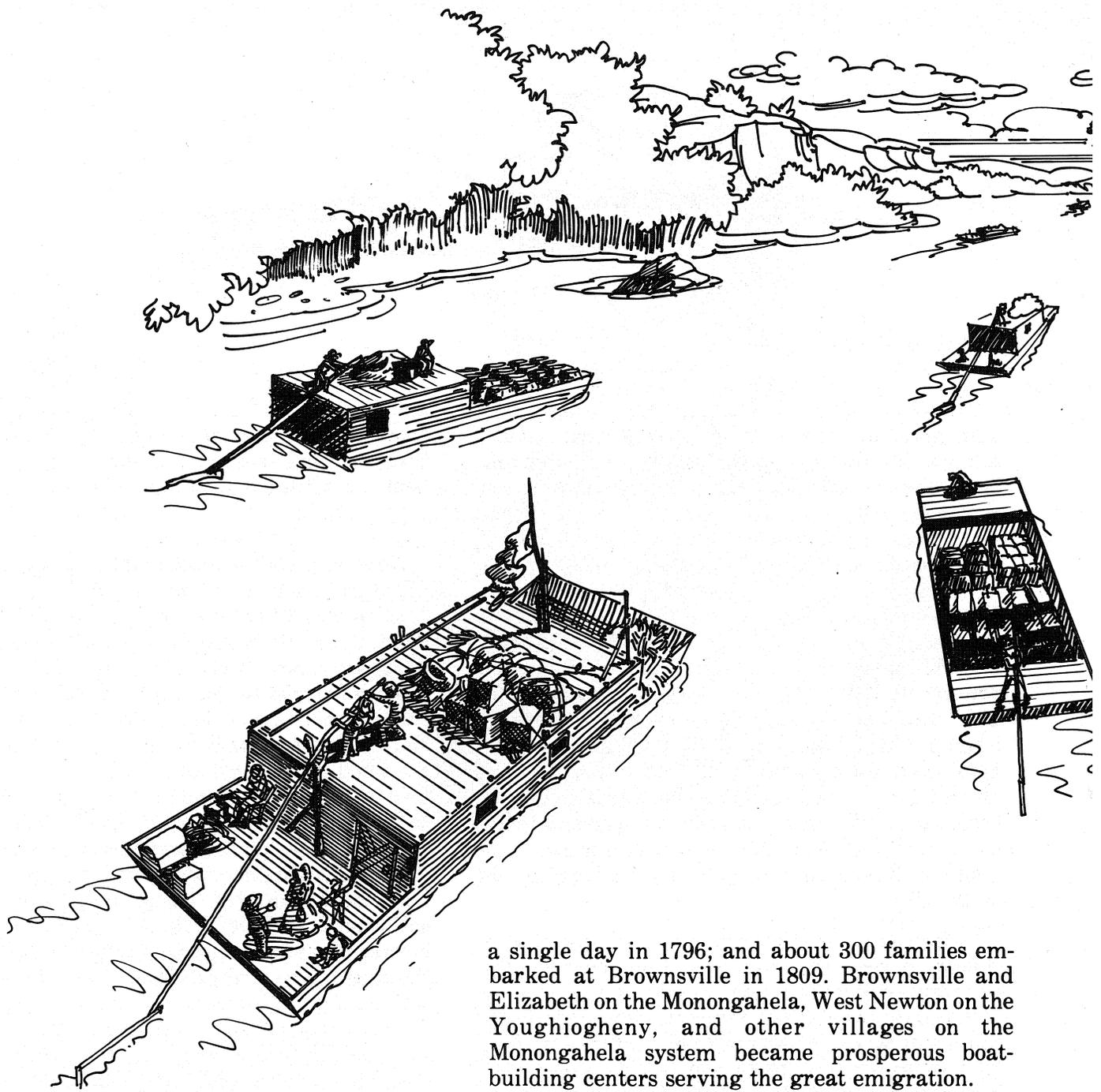
Thomas Ridout, who left Pittsburgh in March 1788 in a flatboat carrying twenty passengers, sixteen horses, and large cargo, said: "These boats are flat bottomed, with upright sides and stern, and the front turns up like a skate. They seldom use any sail, and are steered by means of a long oar from the stern, and two or three oars are occasionally used to conduct them, for the stream, which runs at the rate of about five miles an hour, carries the boat with great rapidity." Some distance down the Ohio, Ridout wrote, Indians "like so many furies, yelling and screaming horribly, brandishing their knives

and tomahawks," attacked and captured his flatboat, took him prisoner to Canada, where he eventually won his freedom and, being of philosophical bent, he settled and became Surveyor-General of Upper Canada.

No one knows the origin of the flatboat. They were afloat on inland rivers by the end of the Revolution, and, because of greater cargo capacity and ease of construction, soon supplanted the French bateaux for downstream navigation. Perhaps the flatboats evolved from the Indian pirogue or dugout canoe; at least, construction techniques were somewhat similar. Indians made pirogues, more durable than the wood-framed, bark-covered canoes, by shaping tree trunks with fire and axe, cutting and hollowing to form pirogues of up to fifty-foot lengths; for river ferriage, they placed two pirogues parallel and decked them together with planks to form two cargo holds and a wide deck. Large pirogues were built by splitting a dugout in half, pinning crossbeams between the two halves, planking over the bottom of the crossbeams and caulking the seams to form a



"...more durable than the wood-framed, bark-covered canoes"



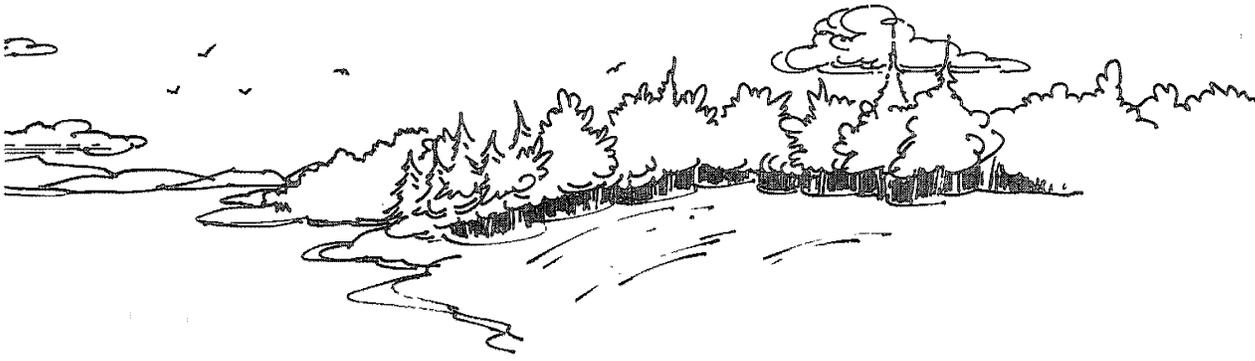
flat-bottomed boat capable of transporting thirty men and fifty tons. Until their use ended in the late 19th century, flatboats were built in similar fashion: a tree trunk was split, the two halves shaped into rigid timbers, each six inches wide and twenty-four inches high to serve as gunnels and side keels, cross timbers were fixed between the two gunnels, the bottom planked and caulked, and sides and roof then installed.

Flatboat construction in the headwaters district, the gateway to the west, became the first industry in the region, for watercraft supply scarcely met demand, especially on the Monongahela. More than 120 boats transporting 1800 pioneers passed down the Monongahela in 1787; two hundred left Brownsville in 1788; seventy passed Brownsville on

a single day in 1796; and about 300 families embarked at Brownsville in 1809. Brownsville and Elizabeth on the Monongahela, West Newton on the Youghiogheny, and other villages on the Monongahela system became prosperous boat-building centers serving the great emigration.

Johnstown at the head of the Conemaugh River was perhaps the earliest port of embarkation on the Allegheny River system; emigrants were descending the Conemaugh and Kiskiminetas rivers on the way to the Allegheny and Ohio long before the Indian threat ended in the area. At a later date, Olean, New York, became the principal port of departure for emigrants traveling the Allegheny. Major Adam Hoops, an engineer officer who served on Washington's staff during the Revolution, founded Olean in 1804 and built a sawmill on Olean Creek to supply lumber for boat construction. The scene at Olean in March 1815 was vividly described by emigrant Tilly Buttrick:

This place is called Olean Point, and was much altered in appearance since my former visit here; instead of a few log huts



Down the Ohio River on flatboats

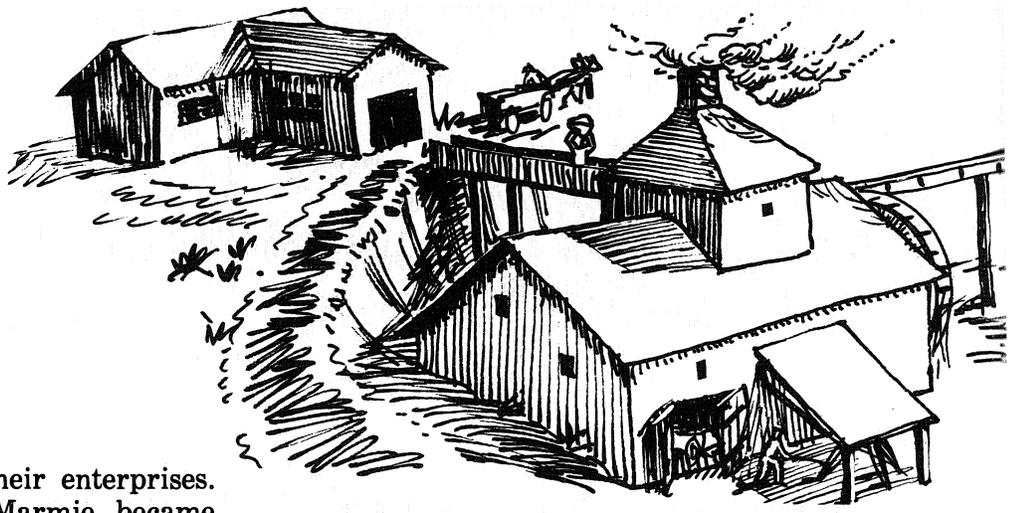
as before, there were forty or fifty shanties, or temporary log houses, built up, and completely filled with men, women and children, household furniture thrown up in piles; and a great number of horses, waggons, sleighs, &c., &c. These people were emigrants from the eastern States, principally [bound] down the Ohio river. Two gentlemen undertook to take a number of these people, and found it to be about twelve hundred, of all ages and sexes. They had a large number of flat-bottomed boats built for their conveyance; these were boarded up at the sides, and roofs over them, with chimneys suitable for cooking, and were secure from the weather. There were also many rafts of boards and shingles, timber and saw logs, which would find a ready market at different places on the Ohio river. There are many saw-mills on the stream above this place, where these articles are manufactured from the fine timber which grows in vast quantities in this vicinity. The river at this time had risen full bank, and I should suppose was navigable for vessels of fifty tons burden; but was frozen over....I waited about ten days, which brought it nearly to the close of March. On Saturday night sat up late, heard some cracking of the ice, several of us observing that we should soon be on our way went to bed. Next morning at daylight found the river nearly clear, and at eight o'clock it was completely so. The place now presented a curious sight; the men conveying their goods on board the boats and rafts, the women scolding, and children crying, some clothed, and some half clothed, all in haste, filled with anxiety, as if a few minutes were lost the passage would be lost also. By ten o'clock the whole river for one mile appeared to be one solid body of boats and rafts. What, but just before, appeared a considerable village, now remained but a few solitary huts with their occupants.

Origins of the Flatboat Commerce Pioneers of the headwaters district were producing more than they could consume before the end of the Revolution. Grain from the fertile river bottoms could be converted into liquors and laboriously transported by packhorses and wagons across the mountains to Philadelphia or Baltimore, but frontier merchants wished more accessible and more economical transportation to markets. They naturally looked to the rivers, where, at the time of the Revolution, there were two markets: American troops down the Ohio needed provisions, and the Spanish at New Orleans, cut off from normal supply sources by the British naval blockade, needed food stuffs.

Barthélemi Tardiveau, French merchant from Nantes, was first to attempt to open markets for waterborne commerce from the headwaters district. He was one of the merchants who took advantage of the disruption of British-colonial trade during the Revolution to launch new commercial enterprises.

Tardiveau met Jonathan Williams, nephew of Benjamin Franklin and a supply agent for the Continental Navy, at Nantes. Williams and Franklin had business and real estate enterprises under way; Franklin was partner with George Morgan, George Croghan, the Philadelphia financier Robert Morris, and John Holker, wealthy Huguenot merchant and assistant to the French Secretary of Navy. At the recommendation of Williams and Franklin, Tardiveau emigrated to Philadelphia in 1777 to join John Holker, French consul and supply agent. With credit supplied by Holker and Robert Morris, Tardiveau, William Turnbull, and Peter Marmie moved to Pittsburgh about 1780 to purchase flour and provisions from Monongahela pioneers to supply the French navy operating off American coasts and George Rogers Clark and American forces on the frontier. They had supplied the Virginians with 70,000 pounds of flour by 1782, in payment for which, Virginia granted them lands in Kentucky.

When the Army supply market ended in 1782, the representatives of the Holker-Morris interests at



18th century iron furnace

Pittsburgh began to diversify their enterprises. William Turnbull and Peter Marmie became partners with Major Isaac Craig and Stephen Bayard. The firm opened a distillery, built a sawmill on the Allegheny, retailed boats built at Elizabeth on the Monongahela, and tried to establish a saltworks on the Mahoning River near present Youngstown, Ohio. They purchased old Fort Pitt in 1785, dismantled parts of the structure, and put the bricks into an addition to the Bouquet-Hutchins blockhouse, in which Turnbull and Major Craig resided. In 1790, Turnbull and Marmie blew in the Alliance Iron Furnace on Jacobs Creek, a tributary of the Youghiogheny. This furnace, it has been claimed, became the first west of the Alleghenies and started the iron and steel industry, central to the headwaters district economy. The name "Alliance" doubtless was in honor of the Franco-American alliance of the Revolution.

While supplying Colonel Clark in Illinois, Barthelemi Tardiveau learned of the food shortage at New Orleans. In the spring of 1782, he loaded several flatboats with flour and left Pittsburgh in company with other boats captained by Monongahela farmers who wished to market their own produce. He carried letters of introduction from John Holker and Robert Morris to Oliver Pollock, the New Orleans merchant who had supplied munitions to the Gibson-Linn and George Rogers Clark expeditions.

The Monongahela flour fleet was attacked by Indians on the Ohio, who destroyed at least one boat. On the Mississippi near Natchez, where British loyalists still smarted from the blow given them by Captain Willing and the *Rattletrap* in 1778, a British-Indian force attacked Tardiveau's boats. Tardiveau resisted with a small cannon aboard his boat but finally surrendered. He was released to return to Pittsburgh but lost his boat and investment. Some Monongahela farmers, however, did slip by the Indian blockade to New Orleans. Captain Jacob Yoder of Brownsville got through, sold his cargo at profit, sailed to Havana, then to Baltimore, and walked home. William Kelso also reached New Orleans, but the Spanish ship on which he took

passage home was seized by the British, who made him prisoner.

The effort to open waterborne commerce with New Orleans in 1782 had not gone well, and at the end of the Revolution in 1783 Spanish New Orleans resumed importation of foodstuffs by sea and closed the Mississippi to American commerce, but Tardiveau's interest did not flag. He made the first "industrial survey" of the Ohio River basin in 1783, addressing questionnaires about agricultural surplus, natural resources, and marketing opportunities to frontier leaders. John May, for whom Maysville, Kentucky, was named, told Tardiveau the commerce of inland America would inevitably go by waterway instead of over the mountains to coastal cities, saying: "I am sensible that the navigation this way would be much longer than any other, but it is not the distance, but the having water carriage that makes the expence of transportation light." Attorney General Walker Daniel of Virginia advised Tardiveau that boats in the New Orleans trade should be sold along with the cargo, not returned upriver, and that warehouses ought to be built at New Orleans for receipt of the produce of the Monongahela and Kentucky farmers. Tardiveau published his report on Ohio River basin economics in 1787. In it, he concluded that economic prosperity for the region rested on wise use of its rivers for transportation. He urged his fellow Frenchmen to retake Louisiana from the Spanish and open the Mississippi to American commerce.

Tardiveau visited his bedfast friend Thomas Hutchins in his room at Pittsburgh throughout the spring of 1789. They discussed economic opportunities in the West, Hutchins' plans to continue his explorations, and Hutchins' venture with George Morgan and Israel Shreve in establishing a settlement at New Madrid (Mo.) on the Mississippi just below the mouth of the Ohio River. The Geographer had entered the final stages of consumption, his body was racked by disease, but Tardiveau wrote on



IN COMMEMORATION OF THE GRANT OF THIS LAND FOR THE PRESBYTERIAN CHURCH AND FOR TRINITY CHURCH BY THE HEIRS OF WILLIAM PENN IN 1787 AND IN HONOR OF THE OFFICERS OF THE COLONIAL AND REVOLUTIONARY ARMIES WHO AFTER ASSISTING IN THE ACHIEVEMENT OF AMERICAN INDEPENDENCE WERE ASSOCIATED WITH THE EARLY HISTORY OF PITTSBURGH MANY OF WHOM WERE BURIED IN THIS ENCLOSURE. ▲ THIS TABLET IS PLACED BY THE PITTSBURGH CHAPTER OF THE DAUGHTERS OF THE AMERICAN REVOLUTION 1915.

CAPTAIN WILLIAM ANDERSON
 COMMODORE JOSHUA BARNEY
 COLONEL STEPHEN BAYARD
 CAPTAIN JOHN BRANDON
 SURGEON FELIX BRUNO
 CAPTAIN EDWARD BUTLER
 CAPTAIN PERCIVAL BUTLER
 GENERAL RICHARD BUTLER
 COLONEL THOMAS BUTLER
 GENERAL WILLIAM BUTLER
 CHAPLAIN H. M. BRACKENRIDGE
 MAJOR ISAAC CRAIG
 CAPTAIN SAMUEL DAWSON
 CAPTAIN EBENEZER DENNY
 GENERAL ALEXANDER FOWLER
 COLONEL GEORGE OIBSON

COLONEL JOHN OIBSON
 CAPTAIN JOHN OUTHRIE
 CAPTAIN HENRY HETH
 CAPTAIN MICHAEL HURNAGLE
 SERGEANT MAJOR JOHN HULL
 CAPTAIN THOMAS HUTCHINS
 CAPTAIN NATHANIEL IRISH
 CAPTAIN JOHN IRWIN
 COLONEL JAMES JOHNSTON
 MAJOR ABRAHAM KIRKPATRICK
 MAJOR JOEL LEWIS
 COLONEL STEPHEN LOWREY
 CAPTAIN GEORGE MCCULLY
 COLONEL AENEAS MACKAY
 COLONEL GEORGE MOROAN
 SUPGEON JOHN MORGAN
 COLONEL JAMES MORRISON

GENERAL JOHN NEVILLE
 Lt. COLONEL PRESLEY NEVILLE
 Qm. GENERAL JAMES O'HARA
 MAJOR JOHN ORMSBY
 LIEUTENANT GABRIEL PETERSON
 Ass't. Qm. SAMUEL SAMPLE
 MAJOR JOHN SMALL
 MAJOR THOMAS SMALLEMAN
 CAPTAIN DEVEREUX SMITH
 LIEUTENANT JACOB SPRINGER
 CAPTAIN DAVID STEEL
 CAPTAIN ADAMSON TANNEHILL
 CAPTAIN GEORGE WALLACE
 CAPTAIN EDWARD WARD
 CAPTAIN JOHN WILKINS
 Qm. GENERAL JOHN WILKINS Jr.

April 20, 1789, that "feeble as he is, he still expects that his health and his strength will return in the spring, and is planning a great number of trips in the West; but I am very much afraid that he will never leave Pittsburgh." Hutchins died nine days later.

One of the reasons Hutchins, Morgan, and Shreve had for founding the New Madrid colony in Spanish territory was that settlers there would be free to navigate the Mississippi without paying foreign import duties. Settlers at New Madrid could purchase Monongahela and Ohio valley produce and market it as their own, and therefore Spanish goods, at New Orleans. A similar ploy had worked for General James Wilkinson, staff officer to General Washington who had settled in Kentucky at the end of the Revolution and in 1787 boldly descended the rivers to New Orleans, took the oath of allegiance to Spain, sold his cargo for profit and won contracts for more produce. His dual allegiance received some critical comment, but in 1787 it won him access to the New Orleans market. Wilkinson purchased produce from farmers throughout the Ohio River

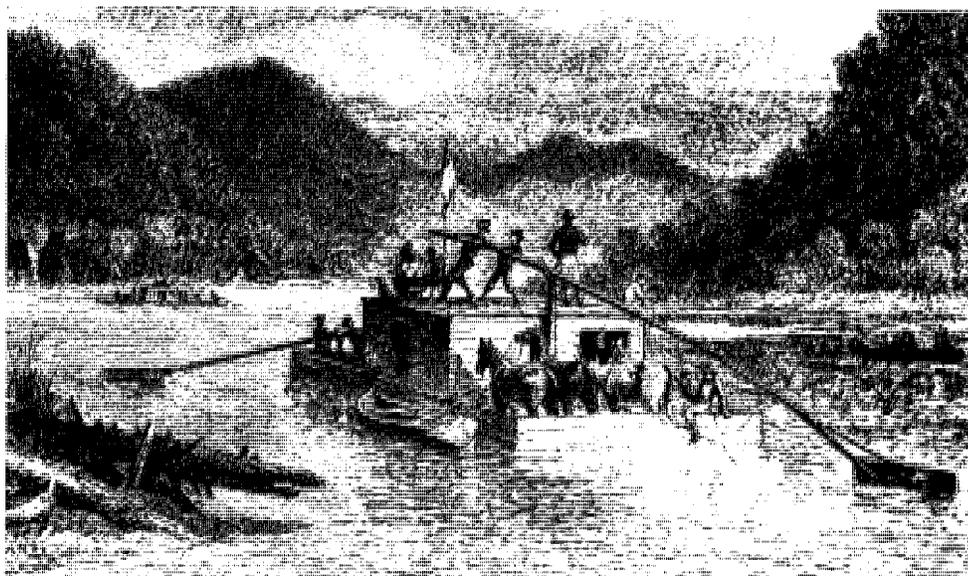


General James Wilkinson

Wilkinson, soldier and pioneer - James Wilkinson

basin, including Samuel Jackson and other merchants in the Monongahela valley, and shipped it to New Orleans in his name as a citizen of Spain.

Hutchins never made the move to New Madrid, and Morgan and Shreve, after founding the settle



ment in early 1789, returned upriver to settle near Canonsburg, Pennsylvania, but some merchants did make the move to New Madrid. Dr. Richard Jones Waters moved there from Pittsburgh in 1790 and began importation of produce from the Monongahela that he retailed to the Spanish without paying import duties. In 1792 he had the 55-ton sloop *Ulela* built on the Monongahela, loaded it with flour, navigated it down the rivers on the spring flood of 1793, and sent it on to Philadelphia.

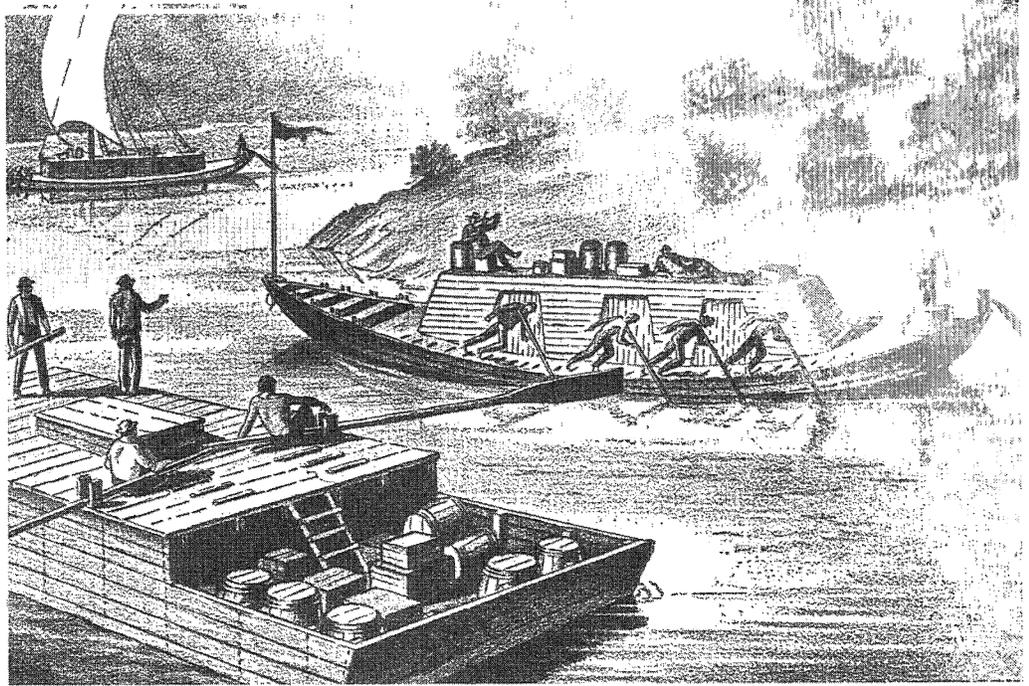
Barthelemi Tardiveau secured a land grant and flour supply contract from the Spanish in 1793 and attempted to settle royalist refugees from the French Revolution on the grant. His contract said that he would be free to bring in flour from the Ohio River basin free from all import duties. Tardiveau's supply boat was seized on the lower Ohio in 1794 by frontiersmen led by George Rogers Clark and financed by French minister Edmund Genet. Tardiveau was released and settled at New Madrid, but his colony of French royalists never thrived and his hope for commercial empire on the inland rivers never materialized.

Under the guise of Spanish citizenship, pioneers of the headwaters district continued to slip produce through the Spanish blockade, often pretending that the owner of the cargo wished to settle in Spanish Louisiana while the crew members returned to the States. By 1798, over a million dollars worth of commodities arrived at Spanish Natchez in Ohio River flatboats, and by 1802 the flatboat commerce had swollen to 45,906 tons valued at 4.5 million dollars; but control of American commerce

by a foreign power seemed an intolerable situation to the transmontane pioneers, who frequently threatened secession from the Union unless free navigation of the Mississippi for their waterborne commerce were to be secured.

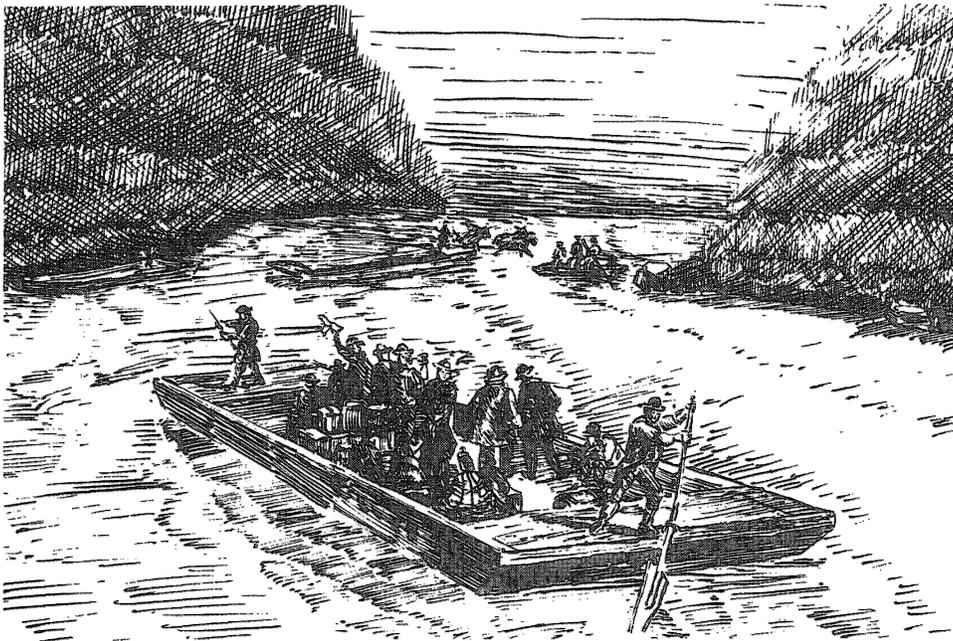
Flatboats went west and south from all ports in the headwaters district, but the port with the greatest volume of flatboat commerce was not Pittsburgh, Brownsville, or Wheeling, but Charleston, Virginia, now known as Wellsburg, West Virginia, which in 1791 was the first town organized in the Panhandle. The town became a milling center and fleets of flatboats departed the port at every high water. In 1798, for example, twenty flour-laden flatboats commanded by William Hesselgesser arrived at Natchez from Charleston; others had wrecked on snags and shoals during the downriver voyage. Wellsburg millers built a four-story warehouse over Buffalo Creek to load flatboats with flour by a system of pulleys at a rate of five barrels a minute; it may have been the first "modern" river terminal in the headwaters district. Of the 23,591 barrels of flour arriving at New Orleans in 1805-07, 16,314 or 69% came from the port of Wellsburg.

The fundamental commercial institutions of the headwaters district were shaped by the flatboat commerce. Farmers paid for their land and the necessities they could not grow in installments of produce which the pioneer merchants collected and shipped downriver. Farmers, merchants, real estate speculators, millers, and bankers came to rely on an elaborate marketing system, composed of mills, warehouses, flatboats, and credit system in a



River commerce: flatboat and keelboats

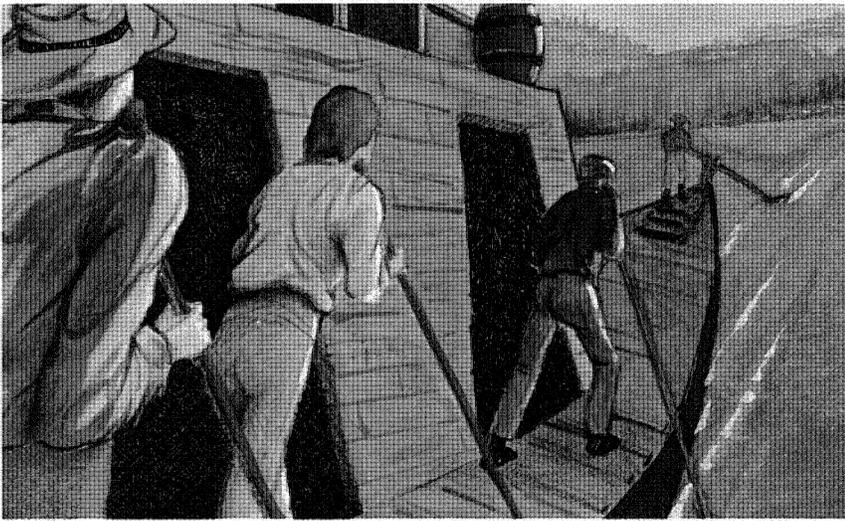
University of Pittsburgh Press



triangular trade. Western merchants, with credit from Eastern mercantile houses, imported manufactured goods from Philadelphia and Baltimore and sold the goods on credit in exchange for agricultural produce. Flatboats carried the flour, meats, liquors, and frontier staples to New Orleans, where brokers purchased the cargoes and credited the merchants' accounts with Eastern capitalists, then exchanged the flatboat cargoes for sugar, indigo, and cotton for shipment by sea to the East coast. Flatboatmen sold the boats at New Orleans, took ship to Philadelphia or Baltimore, and walked home; as a result, upstream trade rarely amounted to as much as 10% of downstream trade prior to the advent of steamboats.

Origins of Keelboat Commerce The keelboat, called "la barge" in Louisiana, was, as the name im-

plied, built like a ship on a longitudinal timber keel that supplied rigidity and bore the brunt of collisions. The long, narrow keelboat hull was ribbed and planked over, the hold covered by a cabin, and the cabin surrounded by an eighteen-inch runway along each gunnel on which the crew walked when poling the boat upriver. Keelboats ranged from 40 to 80 feet in length, from 7 to 10 feet in width, and drew about 2 feet of water when loaded; there were, however, a few large "barges" with up to 120-foot length, 20-foot width, and 4-foot draft. In 1809, naturalist John James Audubon described them: "a keelboat was generally manned by ten hands, principally Canadian-French and a patroon or master. These boats seldom carried more than from twenty to thirty tons. The barges had frequently forty or fifty men with a patroon and carried fifty or sixty tons. Both of these kinds of vessels were



through modification of ship design to meet the special conditions of tortuous and shallow inland river channels.



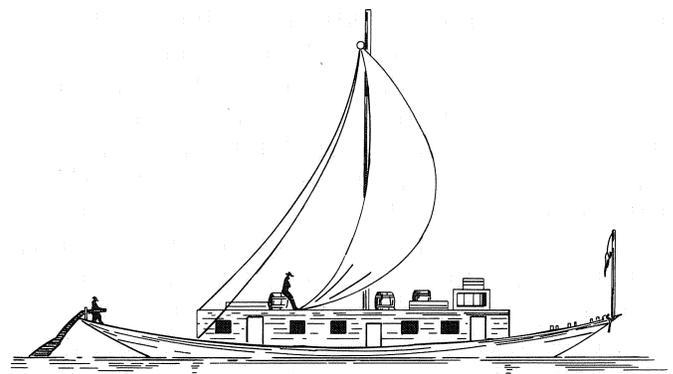
Keelboat man

provided with a mast, a square sail, and coils of cordage known by the name of cordelles.”

The origins of the keelboat, like those of the flatboat, have been lost. The first boat of record to have the cleated runway common to keelboats was the *Three Friends*, built by George Morgan at Pittsburgh in 1768 and wrecked on the Falls of the Ohio on its first trip; Morgan, however, described the *Three Friends* as a “bark.” The first keelboats did resemble small ships and the larger class of “barges” were in fact ships of a sort; perhaps this was logical since the first shipwrights in the headwaters district came from Atlantic coastal cities. The unique keelboat design probably evolved

Keelboats were rowed by four to twelve men on downstream trips and steered by the patroon standing on the cabin or a platform and moving a long tiller oar pivoted at the stern. Downstream trips could have been pleasurable, but upstream trips were sheer agony for the crew, which used any handy means of propulsion. Narrow channels restricted use of sails, and when the wind failed the keelboatmen faced downstream, lanced iron-tipped poles into the riverbottom, braced the poles against their shoulders, and walked the keelboat upstream beneath their feet until they reached the stern, or rather the stern reached them, then scrambled back over the cabin to again take their place in the line. Like a slowly turning carousel, the men moved down the runway from bow to stern, then back to the bow to begin anew, hour after hour, day after day at a rate of about six miles a day.

When the keelboats ran near the bank, where currents were less swift, the crews frequently “bushwhacked,” or pulled the boat up with tree





General Anthony Wayne
Carnegie Library of Pittsburgh

branches instead of using poles. When sailing, rowing, and poling failed at rapids, the crew broke out a rope, tied it to the mast, and "cordelled" or "warped" the boat upstream. To "cordelle," the crew walked along the banks, scrambling through the brush and wading tributary creeks, pulling the rope to tow the boat. To "warp," one man in a skiff tied the rope to an upstream tree and the crew stood on the boat bow and pulled the rope, while the skiff secured a second rope to a tree farther upriver.

Flatboatmen usually were farmers, merchants, and farmhands temporarily afloat; keelboatmen were true rivermen, commonly called "alligators" because they were equally at home on land or water. Poling boats upriver, three months from New Orleans to Pittsburgh, was not the genteel life, and keelboatmen were proverbially profane, dissolute, and disputatious. The keelboatmen had their own dialect, their own pleasures, their own riots, and even their own hero, Mike Fink, a Pennsylvania scout during the Indian wars hired by David Bell to run keelboats out of Wheeling. Bell, owner of the Wheeling boatyard and a fleet of keelboats, took a keelboat to New Orleans in 1814 and "fit" the British at New Orleans, but his fearless and cunning employee Fink won eternal fame for his daring feats and vulgar wit.

Keelboats were in wide use in the headwaters district by 1786. Stephen Bayard and Joseph Chester at Elizabeth and Allenport on the Monongahela were building and selling keelboats in 1786, and John Blair and John McDonald were running regularly scheduled keelboats from Pittsburgh up the Monongahela. Captain John Bartlett operated keelboats out of Belle Vernon. One of his cargoes in 1791 consisted of 142 barrels of flour, 84 barrels of superfine flour, plus provisions for his crew: 5 quarts of whiskey, 1 tin cup, 16 pounds of bread, and 1 blanket. The business was not without hazard: John McDonald sank his keelboat at rapids on the Monongahela in 1789 and four passengers drowned.

Keelboats were hauling the necessities of life upstream on the Allegheny by 1800 and returning with

agricultural staples shipped by the pioneers. Amazing trips were made by keelboats on the Allegheny River system. In 1822, for instance, a 35-foot keelboat arrived at Pittsburgh from Oneida Lake, New York. It had navigated Oneida Lake, Oswego River, Lake Ontario, and Niagara River to the falls, portaged to Lake Erie, then portaged to Chautauqua Lake and floated down Conewango Creek and the Allegheny to Pittsburgh.

Keelboats greatly reduced transportation costs at Louisville, Cincinnati, and downriver ports, which began to receive manufactured goods from New Orleans instead of Philadelphia or Baltimore. But the long distance prevented extensive development of a major upstream trade from New Orleans to Pittsburgh. Keelboats of the headwaters district operated on the Monongahela, Allegheny, and the Ohio as far as Louisville, but seldom to New Orleans—except for very high value cargoes, overhead was prohibitive. Fifty keelboats of thirty tons each operated in the headwaters district in 1805; the number increased to 150 by 1817, when steamboat construction began its boom. Steamboats did not entirely wipe out keelboats, however, for a few keelboats operated on streams inaccessible to steamboats and at extreme low water on the larger rivers until the late nineteenth century.

The Army Moves West "I dread the low state of the Waters of the Ohio, much more than I do the prowess & Number of the Indians," exclaimed General Anthony Wayne in 1793; he was maddened by the difficulties of moving and supplying his army by river, and he was also disturbed by a shortage of trained military engineers. His sole officer with engineering experience, General Rufus Putnam, had been sent by President Washington ahead of the army to seek a negotiated peace with the hostile tribes.

After the Indians inflicted disastrous defeats on two American armies in 1790 and 1791, President Washington selected General "Mad" Anthony Wayne to chastise the tribes. Wayne collected his Legion at Fort Fayette in Pittsburgh in 1792 and



Andrew Ellicott:
Carnegie Library of Pittsburgh

began their training, crossing and recrossing the Allegheny in maneuvers so realistic that the soldiers sometimes injured each other. To separate his men from the temptations of the dens of iniquity in Pittsburgh, General Wayne moved his Legion downriver in 1792 and camped at what became Legionville, Pennsylvania, where he built a magazine, laboratory, and armory and trained his officers in the rudiments of engineering.

General Rufus Putnam recommended a two-front assault on the Indian homeland near present Toledo, Ohio: one column to descend the Ohio and ascend the Miami River, the other to ascend the Allegheny and French Creek and cross Lake Erie. General Wayne rejected the two-front concept, though it forced him to rely entirely on the Ohio River for supply.

On the last day of April 1793, General Wayne in the barge *Federal*, with twelve brightly painted oars each lettered with the boat's name, embarked from Legionville. His army followed in a massive fleet of flatboats, each precisely in the leader's wake. With the guidance of a copy of Hutchins' map of the Ohio, the Legion safely negotiated the island-strewn channels of the upper Ohio and camped at the mouth of the Miami River five days later.

Low water during the summer of 1793, lower according to General Wayne than ever before "in the Memory of the Oldest Inhabitants," broke the Ohio River supply line and brought the Legion to the verge of starvation. General Wayne profited from this experience, appointed the capable Pittsburgh merchants James O'Hara and Isaac Craig to head his quartermaster department, and arranged that all supplies needed by the Legion for the campaign of 1794 be sent down the Ohio on high water before the first of May. With his supplies secure, he marched north to defeat the allied Indian tribes at Fallen Timbers and force the British to withdraw from their posts on American territory.

Wayne's victory at Fallen Timbers in August 1794 was timely, for the people of western Pennsylvania, disgruntled by a tax on their famed

Monongahela Rye, began a revolution against the new federal government in the summer of 1794 and by late autumn President Washington had a second army at Pittsburgh to suppress the Whiskey Rebellion. This disruption at the Legion's source of supply could have been disastrous to the Fallen Timbers campaign had it occurred earlier in 1794, before the 104 flatboats and keelboats in the Legion's supply fleet had departed Pittsburgh for the frontier.

With General Wayne's urging, President Washington established a new Corps of Artillerists and Engineers in 1794 and employed French engineers to train the new Corps at West Point. French engineer Colonel Stephen Rochefontaine commanded the new Corps; the son of Thomas Hutchins became one of its officers. Several years elapsed, however, before the officers of the new Corps were sent to the frontier in the Ohio River Basin. Secretary of War James McHenry explained in 1798 that training engineers required several years:

The knowledge of certain arts and sciences is absolutely necessary to the artillerist and engineer; such are arithmetic, geometry, mechanics, hydraulics, and designing.

Without a knowledge of arithmetic, an officer cannot calculate the expense incurred, or to be incurred, on any work, or any subject whatever.

Without that of geometry, he cannot form a just plan or chart, regulate the design of a fortification, with its lines and angles, trace it upon the ground it is to occupy, nor estimate and measure the solidity and surface of its several parts.

Without that of mechanics, he will not be able to appreciate the proportion of the machines used in war, the dimensions of carriages for artillery, nor to augment or diminish the force of the several kinds of machines, when it may be necessary.

Without that of designing, he will not have it in his power, to give plans and

profiles of works, nor to exhibit the topography of the environs of a work, or any part of a country.

Without that of hydraulics, he will not be qualified to conduct water from one place to another, or to sustain and elevate it, when there may be a necessity in sieges, or other military operations, for so doing.

The Successor to the Geographer After the death of Thomas Hutchins in 1789, the duties of the Geographer of the United States were assigned to Major Andrew Ellicott, famed scientist and astronomer and Revolutionary veteran. Ellicott surveyed the western and northern boundaries of Pennsylvania during the 1780s, and, because Hutchins was listed as a deserter by the British and refused to enter Canada, Ellicott surveyed the boundary between the United States and Canada in the vicinity of Niagara Falls. As successor to Hutchins, Ellicott surveyed the federal District of Columbia in 1790 and laid out the new capital city.

Major Ellicott early learned the techniques of wilderness survival; he later supplied the benefits of his experience to Meriwether Lewis in planning the Lewis-Clark expedition to the Pacific. Once Ellicott's packhorses failed while he and his survey party were on a tributary of the Allegheny; in six days, he and his men with three axes, two tomahawks, and a chisel, built five dugouts, two of them fifty feet long, and continued on their survey by river. While on the Allegheny in 1794, Ellicott had met with Chief Cornplanter, the Seneca who kept his tribe at peace when others fought General Wayne at Fallen Timbers, and arranged safe passage for his survey party through Seneca lands to establish roads and lay out the towns of Franklin, Warren, Waterford, and Erie, Pennsylvania.

When the Spanish agreed in 1795 to 31° latitude as the boundary between the United States and Spanish Louisiana and Florida, President Washington sent Major Ellicott to survey the new boundary. Ellicott arrived at Pittsburgh in September 1796, organized his survey party, and set

out down the Ohio on October 23 in a flatboat and three keelboats supplied by quartermaster Isaac Craig. The voyage was the most miserable experience of Ellicott's life. The Ohio was so low that he and his men had to drag their boats over the shoals in weather so cold that their clothes froze stiff when they came out of the water. The boats had been ruined by the time Ellicott reached Cincinnati on November 25, and he learned that his were the first boats to reach Cincinnati from Pittsburgh since August. "We made it," Ellicott said, only because of the number of men in his party "whose quiet submission to unusual hardships does them great credit."

Yet Ellicott was impressed by the Ohio River and its people. "The Ohio is certainly one of the finest rivers within the United States," he asserted. "The people who reside on the Ohio and its waters, are brave, enterprising, and warlike," he continued. "It arises from their situation; being constantly in danger from the Indians, they are habituated to alarms, and acts of bravery become a duty they owe to themselves and to their friends. But this bravery, too frequently when not checked by education, and a correct mode of thinking, degenerates into ferocity."

The Major left Cincinnati at the end of November and reached Spanish Natchez at the end of the year, but, he informed President Washington, the Spanish refused to permit the survey and would not remove their troops from forts north of the proposed boundary. As a result, President Washington ordered General James Wilkinson to move the American Legion from its headquarters at Pittsburgh to the mouth of the Ohio to seize the Spanish posts, if they were not promptly evacuated. General Wilkinson was the officer who had opened the flatboat trade to New Orleans in 1787. He had commanded a wing of the Legion at Fallen Timbers, and had succeeded to command of the Legion at the death of General Wayne in 1796.

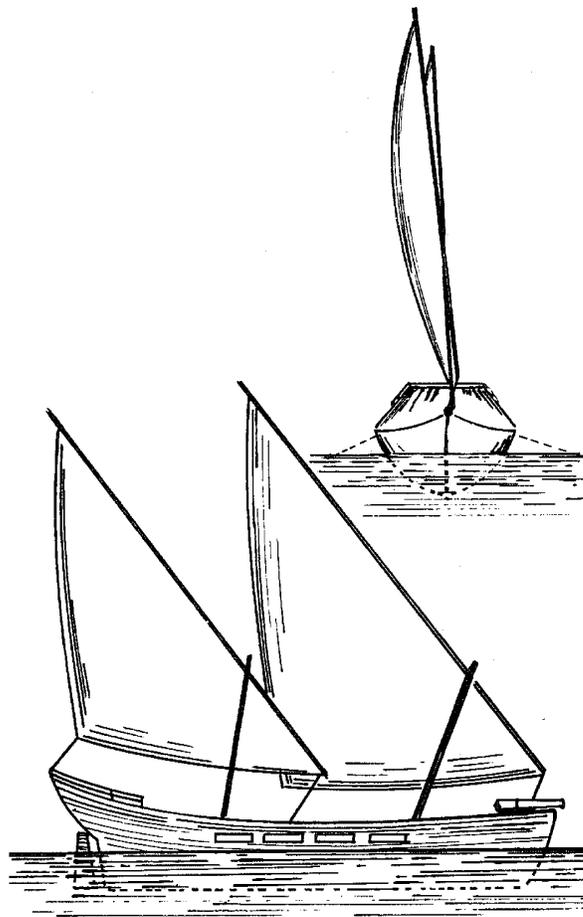
Warships at the Headwaters The sailing master touched the match to the firehole and the eighteen-pound cannon blasted a signal for the departure of the fleet. The crew scurried about the

deck, setting the sails and hoisting anchor. The lateen sails on the two masts of the galley flapped, then billowed, as the *President Adams* came round to the wind, then moved out of the Pittsburgh harbor followed by a line of flatboats transporting, with the exception of post garrisons, the entire United States Army.

General James Wilkinson, in his elaborate barge *Kitty* at the rear of the fleet, watched carefully to see that his orders were obeyed. The orders were that each boat in the fleet proceed in single line at one hundred yard intervals, maneuver at signals from the galley guns and from bugles sounding retreat or assembly, carry signal lanterns displayed prominently at the stern of each boat, and, when grounded, to give the distress signal only after the crew had jumped in the river to try to free their own boat. To encourage watchfulness, the General ordered that officers in command of boats that hit snags be immediately reduced in rank.

When the Army sailed on June 8, 1798, plans to take the Spanish posts on the Mississippi had been laid for a year. The Spanish had a ten-ship armada, 3 galleys, 3 gunboats, 3 galiots, and a bombardier, patrolling the Mississippi up to St. Louis, and General Wilkinson had concluded: "We dare not move out of the Ohio, until we have built a river navy of decided superiority." With the aid of shipwrights sent west by Joshua Humphreys, Chief of Navy Construction, Major Isaac Craig and the quartermasters at Pittsburgh began building two war galleys in late 1797.

Major Craig launched the two-masted, thirty-oared *President Adams*, 50.5 feet long, 14 feet abeam, carrying an 18 pounder on the forecastle and smaller cannon on the quarterdeck, into the Allegheny on May 19, 1798. It and the second galley would, said Craig, be superior to any Spanish ship on the Mississippi. Sailing Master John Brevoort and a crew of volunteer rivermen sailed the *Adams* at the head of the flatboat fleet to Fort Massac at the mouth of the Ohio in June 1798. General Wilkinson commented:



Sailing galley

The Galley President Adams in her passage produced a good Effect and was everywhere received with acclamations; the novelty of the scene was impressive and awoke new Interests. The Mississippi and its tributary streams will in a few years, be able to furnish ordinary shipping to the whole world at half price—the idea is stupendous, yet it is strictly correct.

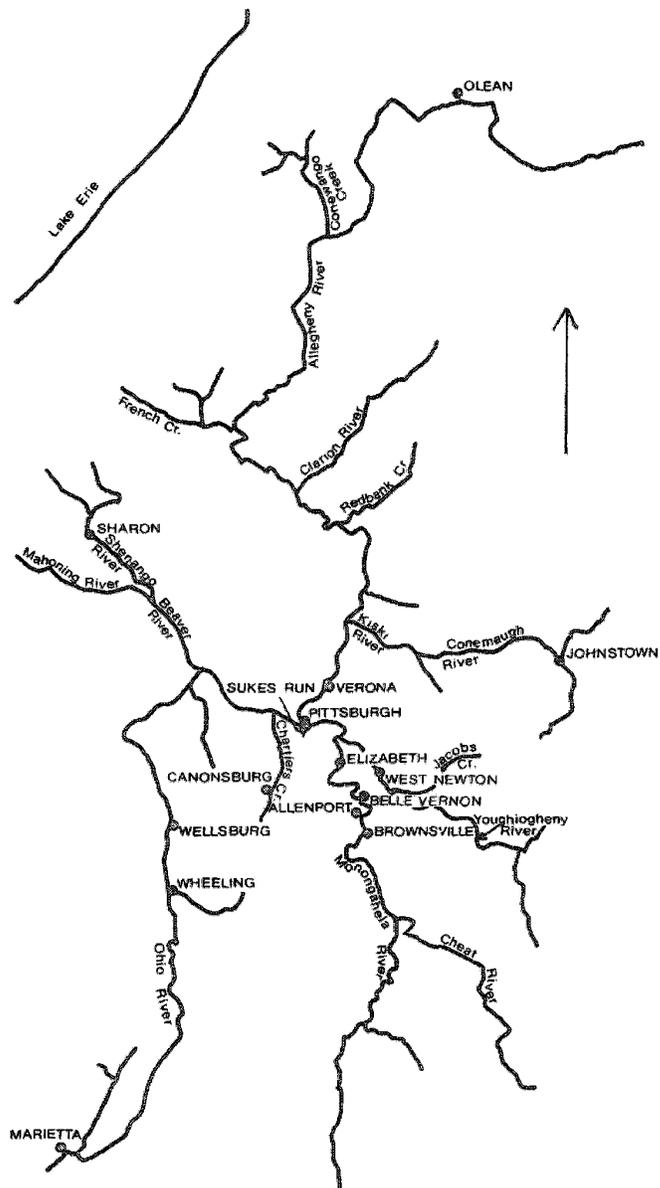
When the Spanish learned of the advance to the frontier of the American warships and army, they abandoned their posts above Natchez, withdrew their navy to New Orleans, and permitted Andrew

Ellicott to proceed with his boundary survey. The *President Adams* and the American fleet took Memphis and Natchez in the autumn of 1798, and the Corps of Artillerists and Engineers began construction of fortifications to protect against Spanish or Indian counterattack.

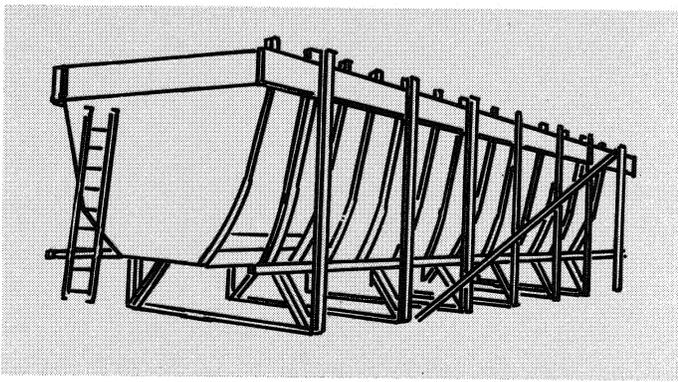
Major Craig completed the galley *Senator Ross*, named for Senator John Ross of Pittsburgh, two months after he launched the *Adams*; the *Ross* was larger than the *Adams* and had larger armament. The three rivers at Pittsburgh receded during 1798, however, to a point twelve inches below any stage ever known before, said Craig, and he was unable to launch the *Ross* before ice closed navigation for the winter. Craig finally was able to launch the *Ross* on March 25, 1799, and it joined the *Adams* on the Mississippi, convoying troops between the mouth of the Ohio and Natchez until 1803, when President Thomas Jefferson purchased Louisiana, and then sailing to New Orleans to assure quick evacuation of the city by the Spanish.

The Headwaters Shipbuilding Industry Perhaps stimulated, as General Wilkinson speculated, by construction of the two galleys, a thriving shipbuilding industry had developed in the headwaters district by 1803.

The first sailing ship built in the Ohio River basin was probably the bark *Three Friends*, designed by George Morgan in 1768 and built at Fort Pitt. Thomas Hutchins had suggested in 1778 that ships, schooners, and sloops suitable for foreign trade could be built on the Ohio and its tributaries and sent to sea laden with lumber, iron products, and agricultural produce, saving at least 50% of the cost of transporting freight overland to Philadelphia and Baltimore. The *Mayflower*, built by Rufus Putnam and Yankee sailors on the Youghiogheny in 1788 was a sailing galley, but transported emigrants to Marietta and was not used for commerce. Dr. Richard Jones Waters had built the 55-ton schooner *Ulela* on the Monongahela in 1792, floated it to New Madrid, where he loaded it with flour, raised masts and sails, and continued the



Shipbuilding in the headwaters



Shaping the hull

voyage to Philadelphia. In the same year, the sloop *Western Experiment* under the command of Captain Charles Nicholson, sailed from the Monongahela to Philadelphia. Troubles with the Spanish on the Mississippi had interrupted shipbuilding in the headwaters district in 1794, but the business resumed after General Wilkinson took Memphis and Natchez in 1798 and the troubles with the Spanish were amicably settled.

Samuel Jackson, a business associate of General Wilkinson, built the 45-foot schooner *Redstone* at Joseph Chester's shipyard at Allenport on the Monongahela in March of 1801. In April, John Scott built the schooner *Monongahela Farmer* at Elizabeth for a farmers' association. Under command of John Walker, the *Monongahela Farmer* took a cargo of flour, whiskey, hides, hemp, and flax to New Orleans and entered the West Indian trade. The first commercial ship launched on the Allegheny was the 170-ton brig *Dean*, built in 1802, probably by Brintley Robbins for William Dean near Oakmont-Verona. It sailed in January 1803, took on a cargo of cotton shipped by General Andrew Jackson at the mouth of the Cumberland River, and delivered its cargo directly to Liverpool, England.

The major shipbuilders at Pittsburgh were Louis A. Tarascon and James O'Hara. O'Hara, Army Quartermaster General, funded construction of several ships at Pittsburgh by master mariner Eliphalet Bebee and placed them in foreign trade. Tarascon and his brother John, emigrants from Bordeaux, France, became partners with James Berthoud in 1802 and opened a store, warehouse, sail and rigging loft, anchorsmith shop, and a complete shipyard at the mouth of Suke's Run on the Monongahela. Tarascon ships were taken downstream by experienced rivermen, like John Brevoort, the galley sailing master, who took the 400-ton *Western Trader* to New Orleans in 1804, from whence it, like most Tarascon ships, entered the Atlantic trade between Bordeaux and Philadelphia.

Sailing ships were also built along the Ohio at Wellsburg, Wheeling, Marietta, Cincinnati, and Louisville. The 100-ton schooner *Mary Ann* and the 177-ton brig *Recovery* were launched at Wellsburg in 1804 and 1805 and taken to New Orleans for the foreign trade by Captains Peleg West of Nantucket, Massachusetts, and John A. Fry of Rhode Island. The schooner *Nancy* was launched in 1808 at the confluence of Wheeling Creek with the Ohio.

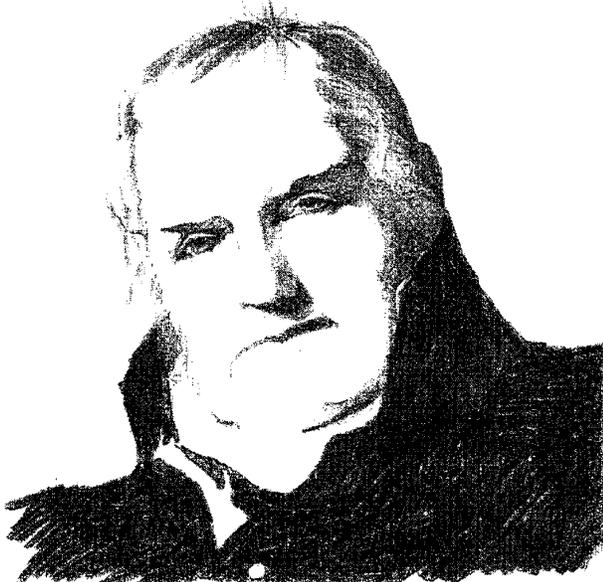
Ships were built in the headwaters district because they could sail directly to coastal or foreign markets, avoiding the cost of transshipment from flatboat to ship and eliminating the New Orleans middlemen, and because they could be built nearer plentiful timber sources at a cost less than ships built at coastal ports. Many ships built in the headwaters district were funded by shippers at coastal cities who sought to reduce construction costs. For the same reason, the Secretary of Navy contracted in 1803-08 for construction of at least a dozen gunboats at inland river ports; some were fitted out at Wellsburg on the Ohio.

The Navy gunboat construction program was interrupted by the Burr conspiracy in 1807, because some of the contractors were close associates of the Vice President and it was feared they might lend the warships to Aaron Burr for an attack upon Mexico or New Orleans.

The Vice President left Pittsburgh in April 1805 in a sixty- by fourteen-foot flatboat, equipped with dining room, kitchen, bedrooms, and even glass windows, built at a cost of \$133. "How it can be made for that sum," Burr, commenting on the economy of river boatbuilding, "passes my comprehension." On his return trip in 1806, Burr visited Colonel George Morgan and his sons at Morganza, the manor Morgan built on Chartiers Creek, and made the mistake of revealing his plans to the old patriot and his family. Burr told the Morgans that with 500 men he could seize Washington and New York and drive the federal government into the Potomac. Morgan's son retorted: "By God, sir, with that force you cannot take our little town of Canonsburg." Colonel Morgan

told Jefferson what he had heard from Burr and the President set the wheels in motion that caught up with the Burr expedition on the Mississippi in 1807. Construction of the Navy gunboats resumed and they sailed down the rivers to New Orleans, performing good service with the Navy against Lafitte's pirates and the British in 1814.

Many ships from the headwaters district wrecked or were damaged during the downriver voyage; to avoid these losses, the Tarascons relocated their shipyard below the Falls of the Ohio in 1806. Navigation hazards, in conjunction with the Embargo Act of 1807 and conflict with British and French corsairs on the high seas, brought depression to the headwaters shipbuilders in 1808, but sailing ships were built from time to time in the headwaters district until the Civil War, sometimes in unexpected places. The two-masted schooner *Locust Tree*, 56 feet long and 19 feet wide, for example, was built in 1851 at Sharon, Pennsylvania, on the Shenango River and floated to New Orleans, where it operated in the coastal trade until 1863.



Major (later Colonel) Jonathon Williams

Jonathan Williams and the Corps Major Jonathan Williams and Lieutenant Alexander Macomb organized a press detail and sent it through the narrow streets of Pittsburgh to drag the recruits for the Second Regiment of Artillerists and Engineers from the taverns and alleys and carry them to the flatboats at the wharf. "I have never seen such beastly drunks," said Williams, "that poison is ruinous & I believe they would drink till they died if they had always the Power." Once he had the sloppy Engineer recruits in one boat, the horses and dragoons in another, and the Army band in third, he left Pittsburgh on July 2, 1801. To prevent the recruits locating a new supply of poison, Williams did not land the boats until he reached the Engineer training camp at the mouth of the Ohio.

Major Williams had been educated by his uncle, Benjamin Franklin, had served as naval supply agent at Nantes during the Revolution; he and his uncle had sent John Holker, Barthélemi Tardiveau, and Thomas Hutchins from France to America. Williams studied French military engineering, took a Harvard degree in 1787, joined his uncle in scientific experiments, and accepted a commission as Major of Engineers from President Jefferson in 1801. He planned new fortifications on the Niagara frontier in early 1801, then took his regiment down French Creek and the Allegheny to Pittsburgh.

Once the recruits sobered, Major Williams enjoyed his voyage down the Ohio. He made detailed notes about valley geology, resources, and river navigation, while Lieutenant Alexander Macomb made topographic sketches. "The French used to call this *la belle Riviere*," Williams wrote, "I believe it to be *la plus belle de l'universe*." He was most impressed by the productivity of the people; every family along the river seemed to have six children. "They may in less than a Century defy the power of the world. The Ohio in that time may represent what the Rhine is now." Williams arrived at the mouth of the Ohio in late July and put his regiment through rigorous field training, performed ordnance experiments, and designed field fortifications. In October, he poled a canoe back up the Ohio on his way

east to become commandant of West Point and first Chief of the modern Corps of Engineers.

The Corps of Artillerists and Engineers established in 1794 had not been satisfactory: the Engineers had not received adequate training. Secretary of War James McHenry recommended the Engineers be made a separate Corps and thoroughly trained at West Point. McHenry explained to Congress:

We must not conclude . . . that the services of the engineer is limited to constructing, connecting, consolidating, and keeping in repair fortifications. This is but a single branch of their profession, though, indeed, a most important one. Their utility extends to almost every department of war, and every description of general officers, besides embracing whatever respects public buildings, roads, bridges, canals, and all such works of a civil nature. I consider it, therefore, of vast consequence to the United States, that it should form in its own bosom, and out of its own native materials, men qualified to place the country in a proper posture of defence.

Probably persuaded by the argument that skilled engineers could contribute both to national defense by military construction and to national welfare through civil works, President Thomas Jefferson, on March 16, 1802, separated the Corps of Engineers from the Artillery Corps and established an academy for engineer training at West Point. As both Superintendent of West Point and Chief Engineer of the Corps, Jonathan Williams appointed Major Andrew Ellicott professor of mathematics at the academy. Before Williams retired in 1812, he trained every man who served prior to the Civil War as Chief Engineer of the Army. Among them was Lieutenant Alexander Macomb, who had assisted Williams during the voyage down the Ohio. Macomb defeated a British army at the Battle of Plattsburg in 1814, became Chief Engineer of the Army in 1821, launched the Engineer project to improve inland river navigation in 1824, and designed the Essayons button still worn by Engineer officers.

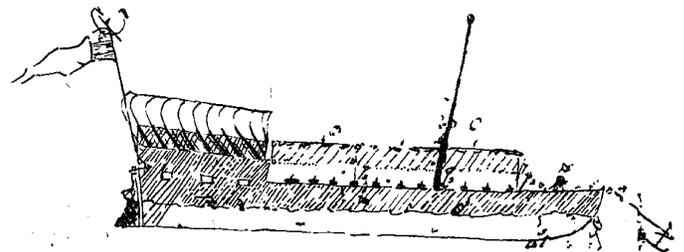
Lewis and Clark Expedition “At this stage of water, oxen make the best sailors on the Ohio River.” Captain Meriwether Lewis wrote in disgust to President Thomas Jefferson. He explained he had planned to leave Pittsburgh on an early summer rise on the way to the Pacific, but had been thwarted by a drunken contractor who did not finish the boats until the end of August 1803, while Lewis had stood daily at the Point and watched the receding water trickling down the boulder-strewn channel.

Jefferson selected Lewis, who had great experience with river navigation, fort construction, and wilderness travel as an officer in General Wayne’s Legion, to head up the Corps of Discovery on its trip up the Missouri and on to the Pacific. Lewis chose William Clark, brother of George Rogers Clark, who had served in the Legion with Lewis, as expedition co-commander. Jefferson tried to get these two infantry officers, who had learned engineering with the Army in the field, commissions in the new Corps of Engineers, but War Department regulations prevented it.

The 55-foot keelboat finally splashed into the river at Pittsburgh on August 31, and Captain Lewis and his crew tossed their supplies aboard and were off within four hours. Three miles downstream, Lewis’s boats rammed the shoals at McKee’s Rocks; Lewis and his men jumped into the water and pried their boats free, only to strand on a second ripple and

“The 55-foot keelboat finally splashed into the river...”

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Meriwether Lewis



William Clark

spend their first night just four miles from Pittsburgh. The Captain was pleased to see a soupy fog over the river next morning; perhaps the heavy dew would raise the river a bit, he hoped. That morning he hit Horsetail Ripple at the head of Neville Island, where he unloaded his boats and lifted them over the rocks, then promptly stranded solidly on rocks at the toe of the island. The boats could not be budged, so Lewis hired a team of oxen to tow them to deeper water.

On September 2, the Corps of Discovery grounded on Logstown Ripple near Ambridge, Pennsylvania, and Lewis hired another team. The Corps struck Beaver Shoals on September 3, sank one boat, stranding the rest; Lewis fumed at the high rates charged by teamsters, but paid, for he had no choice. He told Jefferson that he and his men could cut a channel through sand and gravel bars with their paddles, but if the bottom were rock, the only recourse was to unload and pry the boats downriver with pushpoles, or hire teams to drag them free, springing the hulls in the process.

At Steubenville, the river appeared deeper, so Lewis hoisted a sail and made good speed, only to ram a shoal and break the mast-spars. "Now having no assistance but by manual exertion and my men worn down by perpetual lifting," Lewis lamented, "I was obliged again to have recourse to my usual resort and sent out in search of horses and oxen." Lewis rested his men at Wheeling on September 8, camped near Bellaire on September 9, and inspected the mounds at Moundsville on September

10th. He reached the mouth of the Ohio on November 14; seventy-six exasperating, agonizing days to navigate the 981-mile course of the Ohio, but superb training for the hardships the Corps of Discovery was to endure on its exploration to the Pacific.

The Gateway to the West During the late 18th and early 19th centuries, the Allegheny, Monongahela, and upper Ohio river, the headwaters district, was truly the gateway to the west. The great pioneer emigration, the flatboat and keelboat commerce, the inland river shipbuilding industry, all had origins in the headwaters district. By 1824, when the Corps of Engineers began improving navigation on the inland rivers, flatboat and keelboat traffic from the headwaters district to New Orleans was carrying an enormous tonnage. The connecting rivers from the Monongahela to New Orleans had become by 1824 what they were still a century and a half later: carriers of the greatest waterborne commerce on the inland rivers of the United States.

The role of the Army and its engineers in developing traffic on the inland rivers was not insignificant. Rivers were the principal logistical lines for American forces operating on the Ohio River basin frontier. From Hutchins and Putnam to Lewis and Clark, the Army Engineers built a backlog of information about, and experience with, river navigation that would be useful to the engineers assigned in 1824 to the improvement of inland streams from the headwaters district to the mouth of the Mississippi.