THE BUILDING OF

The Lewis and Clark Boat in Pittsburgh

By William K. Brunot
In 2007, a man named Larry Myers contacted the Heinz History Center to say that one of his family members, Jacob Myers, had been a boatbuilder in Pittsburgh in the early 1800s. Larry supplied valid and important references that led to an investigation into the building of Lewis and Clark’s boat and Pittsburgh’s role in it.
The circumstances surrounding the building of the vessel that was used by Captains Meriwether Lewis and William Clark on their exploring expedition in 1803 have been uncertain for years. This boat, generally called a "keelboat," should more accurately be called a barge, or military galley, after a careful look at its design. The differences between the two types of boats are significant. In his journal during the voyage, Lewis himself, and others who saw it, called his big boat a "barge." The drawings of this boat made by Captain William Clark and other references in the journals also establish its type clearly.

For many years, the fact that Lewis went down the Ohio River with his barge and other smaller boats was not widely known. There is a well-documented tradition that one or more of the Lewis boats was built in Elizabeth, Pennsylvania, but the present research concludes that his barge was built in Pittsburgh. Until 2003, the belief was that it had been built at one of the boatyards along the banks of the Monongahela River.

The research outlined in Patricia Lowry's August 3, 2003, Post-Gazette article "Who Built the Big Boat?" pointed to a new possibility—that the Lewis boat was built at Fort Fayette. This stockade, erected in 1791 on the banks of the Allegheny River, was protected settlers from Indian raids after Fort Pitt had fallen into ruins. It is known that Captain Lewis had his supplies stored at Fort Fayette in preparation for his departure down the Ohio River. A painting of the city of Pittsburgh believed to have been executed in 1804, when studied in detail recently, revealed not only an image of Fort Fayette, but a building on the shoreline that has the features of a boatbuilding structure.

**BOATS FOR THE WEST AND ON THE OHIO**

The famous Revolutionary War soldier General George Rogers Clark, William Clark's older brother, used armed galleys in his campaigns against the British and their Indian allies on the western frontier. Before the summer of 1780, with his usual promises to pay the boatbuilders, Clark engaged workmen to construct 100 boats, mostly cheap flatboats, which were to be completed within two months and used to transport provisions on his planned 1780 expedition.

At that time, Jacob Myers was with Clark in Illinois. On July 21, 1780, Myers sent a bill to the Governor of Virginia listing "cost and items used ... to make 7 boats for the state of Virginia, cost of 1,765 pounds currency for caulking, nails, boxes for artillery and horses." Jacob Myers is mentioned again on records of September 29, 1780, and February 20, 1781.

During the spring and summer of 1781, General Clark was back in Pennsylvania attempting to raise troops for another expedition. He embarked from Pittsburgh on August 8 with three field pieces and only 400 men.

Jacob Myers was still attached to Clark's army on March 22, 1782, when a bill was sent from Louisville for "entries for items and cash distributed to various officers and persons—references to corn, meat, and other items." Persons owed included Jacob Myers. Many letters and bills were sent to Virginia Governor Benjamin Harrison at that time for canoes, boats, barges, paddles, oars, anchors, nails, calking, calking irons, mallets, augers, hemp, cordage, and other boat building supplies.

Major Isaac Craig had been ordered to Fort Pitt with artillery and military supplies. He reached his station in Pittsburgh on June 25, 1780, and was still directing boatbuilding operations in 1790 when he paid $2.66 and 2/3 cents a foot for most of the keelboats and barges he bought.

Of course, there were other armed barges traveling the Ohio whose designs were nearly identical to the vessel that Lewis and Clark used in 1803. On March 21, 1791, John Pope, traveling from Pittsburgh to New Orleans, encountered a "Keel-bottomed boat with a square sail" bound upriver from New Madrid, making two-and-a-half miles an hour without the aid of oars. When he neared Natchez, Pope found a Spanish fleet consisting of a governor's barge occupied by Governor Guyoso de Lemos accompanied by other vessels. This "galley" had 28 men, 24 oars, one six-pounder, and eight swivel guns.

For many years, the fact that Lewis went down the Ohio River with his barge and other smaller boats was not widely known. There is a well-documented tradition that one or more of the Lewis boats was built in Elizabeth, Pennsylvania, but the present research concludes that his barge was built in Pittsburgh.
Fort Fayette was on the south side of the Allegheny River about a quarter of a mile east of Fort Pitt; it sat within about 100 yards of the bank on beautiful rising ground. It straddled present-day Penn Avenue between Ninth and Tenth streets.
A drawing of this galley shows a remarkable similarity to the Lewis and Clark big boat, which was built 12 years later."

FORT FAYETTE AND ANTHONY WAYNE

By fall 1791, much of Fort Pitt had been torn down. In Major Isaac Craig's letter of October 6 to Secretary of War General Knox, Craig told Knox that Messrs. Turnbull and Marmie were continuing to pull down and sell the materials of the fort. Knox responded on December 16, directing Craig to build a new fort for the protection of Pittsburgh. Major Craig decided upon the name of Fort Lafayette. Knox approved, but the name "Fayette" was used thereafter."

Fort Fayette was on the south side of the Allegheny River about a quarter of a mile east of Fort Pitt; it sat within about 100 yards of the bank on beautiful rising ground. It straddled present-day Penn Avenue between Ninth and Tenth streets. The structures were enclosed in a square stockade surrounding about an acre. Four bastions contained blockhouses, a brick arsenal, and a barracks with 30 rooms. On May 5, 1792, Captain Thomas Hughes moved his men to the fort.

General Anthony Wayne commanded the third army sent against the Indians north of the Ohio, arriving at Pittsburgh on June 14, 1792. Wayne immediately plunged into the business of organizing and training his "army"—just 40 recruits, plus the corporal's command of dragoons that had accompanied Wayne across the state."

The number in his force grew rapidly and the "army" was renamed a "legion." General Wayne himself headquartered at the southeast corner of Liberty and West streets, while his troops encamped on Sake's Run and across the Allegheny River. The quartermaster and his supplies were kept at Fort Fayette. James O'Hara and Isaac Craig bought flour, meat, forage, and other supplies, and contracted boats for the army's use. By the time of Wayne's departure, Major Craig had built 42 boats, mostly flatboats, for his troops at Pittsburgh. They were larger than those he had purchased for army use the year before.

In a letter to General Knox dated November 30, 1792, Craig reported that at an early hour, the artillery, infantry, and rifle corps (except for a small garrison) left Fort Fayette, embarked, and descended the Ohio to "Legionville." As soon as the troops had embarked, the general went on board his barge under a 15-gun salute from a militia artillery corps at Fort Fayette. The salute commemorated the 15 states in the union, and voiced the army's gratitude for the "politeness and hospitality" that the officers of the legion had experienced from Pittsburgh's citizens.

Among Wayne's troops was William Clark, commissioned as a first lieutenant in the fourth sub-legion in Wayne's western army. Thus Lieutenant Clark would have known well the builders and characteristics of the vessels carrying these troops.

By June 1793, Major Isaac Craig, the deputy quartermaster general, forwarded 104 flatboats to Wayne's expedition laden with provisions, horses, and equipment in addition to goods sent by other craft.

THE JACOB MEYERS PACKET BOAT SERVICE

It seems likely that Jacob Myers participated in building some of General Wayne's barges because Craig contracted out work and because immediately after Wayne's departure, Myers built the barges used in his own "Packet Service," the first boat of which was ready to leave Pittsburgh in October 1793. Because the fortunes of boatbuilders undoubtedly waxed and waned as the demand from the military swelled and stopped, Myers might have been in need of a new market.

Boat carpentry is a highly skilled occupation, far more complicated than home building. Every frame, plank, and rail is curved, twisted, or sawn at angles, and most have to take on a three-dimensional shape. Fittings are curved, cast, or carved, and even sails are not flat. The boatbuilder serves a long apprenticeship and can be in great demand for intermittent periods.

In 1793 Jacob Myers offered his fortnightly service between Pittsburgh and Cincinnati on boats propelled by oars and sails. These were no flatboats; they were intended for continuous service up and down the river. The advertisements, which first appeared in the Pittsburgh Gazette on October 19, 1793, and in the Cincinnati Sentinel of the Northwestern Territory on January 11, 1794, described the first regularly scheduled boat service on the Ohio River between the two cities. One reference mentioned that there were to be four boats of 20 tons each, a size within the range Meriwether Lewis specified in his initial list for the expedition in 1803.

The enterprise, however, appears to have been short-lived. Isaac Craig clearly knew of the Myers boat service, and in May 1794, wrote that the idea of passenger packet-boats ought to be abandoned. The government mail boats that operated from 1794 to 1798 carried a few passengers, but thereafter no regular service appears to have been available on the upper Ohio until the advent of the steamboat. Presumably the ease and cheapness with which boats could be purchased or passage obtained on the boats of others made packet service unprofitable.
LEWIS, THE WHISKEY REBELLION, AND CLARK

In 1794, a federal army unit was sent to Western Pennsylvania to help put down the Whiskey Rebellion. Meriwether Lewis, who was then 20 years of age, had enlisted in the army as a private and was part of this unit. They camped on the Monongahela River about 15 miles above (i.e. south of) Pittsburgh on Andrew McFarlane's farm at what is now the riverfront town of Elrama, two miles upriver from Elizabeth. McFarlane's ferry landing was on the west side of the Monongahela River. Lewis may have become familiar with the Elizabeth town boatyards and boatbuilders at that time.

At the same time, Fort Fayette was the center of the rapidly changing forces involved in the insurrection, and was used for incarcerating some of the prisoners.

Lewis could have seen the Jacob Myers's advertisements for the packet boat service in the Pittsburgh Gazette, and may have seen his boats firsthand in Pittsburgh.

The 1795 Pittsburgh map on which the Fort Fayette plan is shown most clearly also shows a "U.S. Wharf" on the shore adjoining the fort. The modern definition of the word "wharf" differs somewhat from the definition at this time, which could simply mean a shore. For example, the area known as the "Monongahela Wharf" was a riverbank until well after 1850.

In 1796, William Clark retired from the army with the rank of captain to live quietly with his family. Early that same year, General Victor Collot, a French soldier who had fought on the American side during the Revolution, passed through Pittsburgh, giving us some insight into Fort Fayette and boatbuilding in the city. His mission was secret, he was to assess, for the information of the French government, the strength of the fortifications along the Ohio and Mississippi rivers. He visited Fort Fayette and had a low opinion of it, stating, "On a dark night, four grenadiers, with a dozen faggots of dry wood, might burn the fort and all the garrison, and not let a single individual escape." He also remarked about the cost of boats at that time, saying that keelboats and barges were selling farther up the Monongahela at $1.50 a foot. He stated that Pittsburgh prices were exorbitant.

GALLEYS BUILT IN PITTSBURGH

Two years later, during a period of trouble with France, two row galleys were built at Pittsburgh under the supervision of Major Isaac Craig. These galleys were 45 feet in length and 13 in beam. They had two masts and were equipped with sails and rigging. There were 30 oars of differing lengths, and the row benches were constructed so that they could be folded away. The first galley, the President Adams, was launched on May 19, 1798, with General Wilkinson presiding. Tarleton Bates, Virginian and best friend of Meriwether Lewis, wrote to his brother Frederick Bates six days later, "On Saturday the nineteenth, precisely at 2 PM, the first galley was launched at this place. It was said to be a very beautiful launch, she slid a most unusual distance, I believe 126 feet." It departed down the Ohio on June 8, 1798, with General Wilkinson and his suite on board, followed by six large flat-bottomed boats and several smaller craft.

Because of low water in the Ohio River, the second galley Senator Ross was not launched until nearly a year later, on March 26, 1799. She carried a 24-pounder gun in her bow and some swivel guns on deck. The launching was heralded by a salute fired on board and returned by the guns of Fort Fayette. By April, she had departed for the Mississippi. By then, the anticipated war with France was averted.

It is plausible that both the President Adams and the Senator Ross were built at the Fort Fayette yards. They were built under the supervision of Major Isaac Craig, who was in charge of operations at that place, and the firing of a salute from the fort would make sense only if they had been launched there— the artillery had a limited effective noise range and there was no means of communication to coordinate such a firing if the galleys had been launched farther away.

CAPTAIN LEWIS NEEDS A BIG BOAT

In September 1800, Meriwether Lewis returned to the Indian frontier. While in Pittsburgh, he had direct dealings with Major Isaac Craig. On December 5, Lewis was promoted to captain and on one of his trips traveled down the Ohio with a 21-foot bateau (or keelboat) and a pirogue (or dugout), thus gaining real experience on the western rivers.

In 1801, Lewis was in Pittsburgh off and on during his military trips where he likely had contact with Major Isaac Craig again. It's unlikely Lewis could have avoided seeing Myers and his boats during this period if Myers was still living in or near Pittsburgh.

Late in 1801, Lewis received the invitation to become secretary to President Jefferson. In 1802 Jefferson and Lewis started planning the great western expedition, and by spring 1803, President Jefferson and Lewis had completed their planning. With Jefferson's orders, Lewis traveled to Philadelphia to study navigation, surveying,
This drawing places some modern street names and landmarks atop a map drawn for the 1876 History of Allegheny County. Details of Fort Fayetto include its blockhouse, powder magazine, barracks, and guard house. HC Library & Archives.

medicine, and biology with top experts. He also purchased large quantities of military and civilian supplies and trade goods.

In a letter to Jefferson in January 1803, Lewis offered an estimate of the cost of his "means of transportation": $430.* He listed his "Articles Wanted" in detail in his May-June summary. Among those items were his "means of transportation":

1. Keelboat light strong at least 60 feet in length her burden equal to 8 Tons.

1. Iron Frame of Canoe 40 feet long
2. Large Wooden Canoe
3. 12 Spikes for setting-poles
4. 2 Boat Hooks & Points Complete
5. 2 Chains & Pad-locks for confining the Boat & Canoes &c.
No record of the order or contract for the big boat’s construction has been found, and so it is not known who was selected as contractor. What does exist, however, is an example as to how Lewis would have implemented such an order. In a lengthy letter to Jefferson concerning his boat and other transactions, he stated,

I have also written to Dr. Dickson, at Nashville, and requested him to contract in my behalf with some confidential boat-builder at that place, to prepare a boat for me as soon as possible, and to purchase a large light wooden canoe; for this purpose I enclosed the Dr. 50 dollars, which sum I did not conceive equal by any means to the purchase of the two vessels, but supposed it sufficient for the purpose of the canoe, and to answer also as a small advance to the boat-builder: a description of these vessels was given. The objects of my mission are stated to him as before mentioned to the several officers."

Lewis wrote again to Jefferson on May 29, 1803, from Philadelphia: "I have written again the Dr. Dickson at Nashville, from whom I have not yet heard on the subject of my boat and canoe."

These two letters are revealing. First, they illustrate how Lewis might have ordered the big boat in Pittsburgh. Further, they show that as late as May 29, 1803, a day or so before he left Philadelphia, he was still trying unsuccessfully to get his big boat built in Nashville, Tennessee! He then was intending to travel downriver from Pittsburgh with all his goods in smaller boats and by overland transport.

“The person who contracted to build my boat engaged to have it in readiness by the 20th ins., in this however he has failed; he pleads his having been disappointed in procuring timber, but says he has now supplied himself with the necessary materials, and that she shall be completed by the last of this month..."
LEWIS SHIPS HIS SUPPLIES TO PITTSBURGH

At this time, Lieutenant Moses Hooke was in command at Fort Fayette; Lewis had a high regard for his character and competence. Lewis also noted that Major Isaac Craig, who had always been associated with Fort Fayette, was also present in Pittsburgh at that time and could take care of his stores if necessary.

While still in Philadelphia, Lewis shipped his goods from there to the Indian Department, Pittsburgh, which was located at Fort Fayette. The list of charges taken out on Lewis's account in Philadelphia included:
- Transportation of public stores from Philadelphia to Indian D. Pittsburgh
- 18 small falling axes to be furnished at (ditto) Indian D.
- 1 Boat and her caparison, including spiked poles, boat hooks & toe line to be furnished at Pittsburgh.

Lewis also ordered "A strong waggons - wt. from here (Philadelphia) 2700 - to be increased to 3500 or more" and instructed that "the box of mathematical instruments to be sent for Mr. Patterson & well secured with canvas - marked 'This side up' on the top - & particular charge given the waggoneer respecting it."

These instructions indicate that the equipment purchased in Philadelphia was to go to Pittsburgh by wagon—not to some intermediate location on the Monongahela River such as Elizabeth. Fort Fayette, moreover, would have made more sense as a destination for the items, considering the quantity, value, purpose, and ownership of this shipment of military equipment and trading goods. Lewis would have hardly shipped them to an inn, to the post office, to a boatyard on the Monongahela, or to the dilapidated Fort Pitt.

By this time, both Lewis and Clark knew every aspect of the military boats used on previous river campaigns, and would have most likely desired an armed galley—a craft that could mount and fire cannons and go upstream.

Although Lewis wrote that he wanted a "keeled boat," an actual keelboat with full-length cabins would have been the wrong design for a big expedition up the Missouri. Lewis and Clark had to carry a huge load of supplies and trade goods as well as a large crew. Keelboats cannot mount a large sail and they have only a single oar for steering, which would have been too weak for a boat as large as the one Lewis and Clark needed. Barges or galleys have mounted rudders. A keelboat's roof oars would have been too inefficient and too few for their big crew. Oars would have to be mounted lower to function. The main power for the boat, rowing, would have dominated the whole design of the Lewis and Clark's boat selection, and thus led them to select the very type of boat that they did, which was a barge.

I arrived here at 2 O clock, and learning that the mail closed at 5 this evening hasten to make this communication, tho' it can only contain the mere information of my arrival... I have not yet seen Lt. Hook nor made enquiry relative to my boat, on the state of which the time of my departure from hence must materially depend. The Ohio is quite low, but not so much so as to obstruct my passage altogether.

Lewis had ridden in from the south. If his boat was being built anywhere along the Monongahela River—at any place between Elizabeth and the boatyards at Pittsburgh—Lewis might have ridden near the boatbuilding site upon entering the city. In fact, the post office was located in the southern section of the city throughout those years, near the boatyards on the Monongahela shore.

Lewis did not know yet where his boat was being built, nor did he know who the builder was; he had to learn from Lieutenant Hooke, commandant at Fort Fayette and in charge of Lewis's supplies there.

In Lewis's letter to Jefferson on July 22, he referred to "The person who contracted to build my boat..." Lewis never indicated that he himself selected or contracted with a particular builder. He did not know which yard to visit and it would have been quite pointless for him to ride around the city looking for Lt. Hooke, Major Craig, or the boat that late in the afternoon.

Captain Lewis settled someplace upon his Pittsburgh arrival at 2 p.m., and by 3 o'clock, he was writing Jefferson. Perhaps he stopped at Jean Marie's Inn, which was on the southeast edge of town, or at William Morrow's "Sign of the Green Tree" tavern, where he had stayed previously. Perhaps he stayed with Major Isaac Craig at his house at Fort Pitt or with his close friend from Virginia, Tarleton Bates.

LEWIS HEADS TO PITTSBURGH, 1803

It is now clear, though, that the order for the big boat could not have reached Hooke and the Pittsburgh boatbuilder before the first week of June 1803! Having finished his business in Philadelphia, Lewis returned to Washington on the first of June. He left for Harpers Ferry on July 5, where he purchased 3,500 pounds of guns and other supplies. These goods were shipped by wagon to Pittsburgh. Lewis, on the move again by July 8, headed north. When he arrived in Pittsburgh on July 15, Lewis wrote to Jefferson at 3 p.m.
In his letter of July 22, Lewis wrote that he had expected his boat to be nearly finished when he reached Pittsburgh but was dismayed to find it in an early state of construction:

DEAR SIR: Yours of the 11th & 15th Ins: were duly received.... The person who contracted to build my boat engaged to have it in readiness by the 20th Ins: in this however he has failed; he pledges his having been disappointed in procuring timber, but says he has now supplied himself with the necessary materials, and that she shall be completed by the last of this month; however in this I am by no means sanguine, nor do I believe from the progress he makes that she will be ready before the 5th of August; I visit him every day, and endeavour by every means in my power to hasten the completion of the work....

The Wagon from Harper's ferry arrived today, bringing everything with which she was charged in good order.

The party of recruits that were ordered from Carlisle to this place with a view to descend the river with me, have arrived with the exception of one, who deserted on the march, his place however can be readily supplied from the recruits at this place enlisted by Lieut. Hook....

Though Lewis never mentions the builder of the expedition vessel by name, a Jacob Myers was in the Pittsburgh area at exactly that time. His name appears in several civil records. Myers was proven as a builder of armed barges, but he was getting up in years. Major Isaac Craig would have known of past boats built by him.

Lewis said he visited the boat every day, and that he spent most of his time with the workmen. He could not have done this if he stayed in Pittsburgh and the boat was over 15 miles away by water or over land in Elizabeth.

As late as August 3, 1803, Lewis remarked in a letter to soon-to-be partner William Clark (who was then at present-day Louisville, Kentucky):

my boat this day arrived she is not yet completed (the workman who contracted to build her promises that she shall be in readiness by the last day of the next week. The water is low, this may retard, but shall not totally obstruct my progress being determined to proceed tho' I should be able to make greater speed than a boat's length per day..."

On August 9th, Major Craig wrote to Caleb Swan that "Capt. Meriwether Lewis prepares to descend the Ohio and ascend the Mississippi." Lewis wrote Jefferson another letter recounting in more detail some of his experiences during the last few weeks in Pittsburgh:

DEAR SIR: It was not until 7 O'Clock on the morning of the 31st of August that my boat was completed, she was instantly loaded, and at 10 A.M. on the same day I left Pittsburgh, where I had been most shamefully detained by the unpardonable negligence of my boat builder. On my arrival at Pittsburgh, my calculation was that my boat would be in readiness by the 5th of August; this term however elapsed and the boat so far from being finished was only partially planked on one side; in this situation I had determined to abandon the boat, and to purchase two or three perogues and descend the river in them, and depend on purchasing a boat as I descended, there being none to be had at Pittsburgh; from this resolution I was dissuaded first by the representations of the best informed merchants of that place who assured me that the chances were much against my being able to procure a boat below; and secondly by the positive assurances given me by the boat-builder that she would be ready on the last of the then ensuing week (the 15th); however a few days after, according to his usual custom he got drunk, quarreled with his workmen, and several of them left him, nor could they be prevailed on to return: I threatened him...
with the penalties of his contract, and
exacted a promise of greater sobriety in
future, which he took care to perform
with as little good faith, as he had his
previous promises with regard to the
boat, continuing to be constantly either
drunk or sick.

I spent most of my time with the
workmen, alternately persuading [sic]
and threatening, but neither threats, per-
suasion or any other means which I
could devise were sufficient to procure
the completion of the work sooner than
the 31st of August; by which time the
water was so low that those who pre-
tended to be acquainted with the naviga-
tion of the river declared it impracticable
to descend it; however in conformity to
my previous determination I set out."7

In this letter, Lewis said that the boat was
“completed” early in the morning of the 31st. If
the massive and partly perishable supplies that
had to be loaded on the boat just before leaving
the dock had to be re-loaded on wagons at Fort
Fayette, unloaded on docks located the
Monongahela River, and wait there exposed,
with quickly improvised storage plans, this
would mean more delays, damage, and public
speculation about the military nature of the
expedition. Instead, Lewis stated explicitly that
he loaded the very day that the boat was
completed. The boat was completed at 7 a.m.
and fully loaded three hours later.

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**LEWIS EMBARKS FROM PITTSBURGH**

The boat was finished on the last day of
August, and Captain Lewis described his
launching in his journal:

Left Pittsburgh this day at 11 [O’C]l ock
with a party of 11 hands 7 of which are
soldiers, a pilot and three young men on
trial they having proposed to go with me
throughout the voyage. Arrived at
Bruno[s] [sic] Island 3 miles below halted
a few minutes.”

Because of the three-mile distance, the
boat could not have been built in Elizabeth
Pits, which is nearly 20 miles up the
Monongahela from Bruno’s Island.

In the August 9th letter to Swan, Major
Craig stated: “Capt. Meriwether Lewis
descended the Ohio the 31st on board a very
fine boat fitted out with all convenience it[s]
size would admit.” This comment gives us a
clear statement, from one who knew well the
many boats that had been built on the
western rivers, that the Lewis boat was one of
a high quality.

Also, Captain Lewis clearly states the
distance from his embarkation place to his first
stop at Bruno’s Island was three miles—the
exact distance from Fort Fayette to the landing
near Dr. Felix Bruno’s farm on the island.
Lewis could not have measured this on a
moving river, but rather he knew this distance
because he had been to the island before—the
measurement came from land surveys.

After many days travel down the Ohio,
the Lewis party reached Wheeling, now in
West Virginia. Captain Lewis met Thomas
Rodney, who later commented on this
interaction in his own journal. Rodney called
the Lewis boat a “barge” several times and
made other comments that added to the
information about the boat:

Captain Lew[i]s is a stout young man
but not so robust as to look able to
fully accomplish the object of his mis-
SION, nor does he seem to set out in the
manner that promises a fulfillment of
it. He sits out in a vessel 56 feet long
and completely equipped with sails and
18 oars, with as many soldiers and
rivermen as are necessary to man her,
and a Mr. Clark, son of Genl. Clark as
his companion; and his vessel fitted
very nice and comfortable accommo-
dations with great stores of baggage
and cargo so that she draws 2 ½ feet of
water and will be very heavy to go up
against the stream of the Mississippi
and other rivers.

This will be the case of great delay in
ascending the river so far as this vessel
may carry him; but he has what he calls
a portable boat, the frame of which is
made of iron, to proceed in; yet it seems
to me that he had better have adopted
the long experience of the Canadians
and used bark canoes that are used by
them in their northern trade. He has
already been delayed a long time in the
Ohio waiting for his boat, which cost
400 dollars, and in getting this far, and
now is obliged to use three or four Ohio
canoes to light him over the ribs or rip-
bles below this place.”

But Lewis knew better than Rodney. A
barge was the biggest vessel they could have
used and still have gotten up the Missouri
River. Rodney might not have understood
that a keelboat or just canoes and piroques
would be too small for the military trade
goods and other supplies that Lewis and
Clark had to carry. Also, Lewis and Clark
intended to take many more men and
supplies out of St. Louis than were on the
voyage down the Ohio.

After more arduous river travel, Lewis
wrote to Clark when he reached Cincinnati at
the end of September:

**DEAR CLARK:** After a most tedious and
laborious passage from Pittsburgh I
have at length reached this place; it was
not until the 31st of August that I was
enabled to take my departure from that
place owing to the unpardonable negli-
gence and inattention of the boat
builders who, unfortunately for me,
were a set of most incorrigible drunk-
ards, and with whom, neither threats,
treats nor any other mode of treat-
ment which I could devise had any
effect; as an instance of their tardyness
it may serve to mention that they were 12
days in preparing my poles and oars.”

Lewis referred to his builder in this letter
as “a workman” and “the boat-builder” along
with a set of “drunkards.” These references
seem to rule out the possibility that he
contracted with one of the bigger
shipbuilding companies. Lewis noted that his boatbuilder was a man of "mature" years. Jacob Myers would have been about 70 and given his long career, may have known many men in the area who were capable and willing to help with boatbuilding. Lewis does not, however, name Myers in his journal or letters.

Although Lewis didn't indicate the boatbuilder, he generously heaped complaints and insults upon him. At least some of the blame for the delay was due to the impossibly tight schedule. Also, the builder may have promised more than he could deliver in order to get the contract. So it is understandable why the boat was still in an early stage of construction on July 15, 1803. Had Lewis been successful in his original plan for having his big boat built on the Tennessee River, it could have been brought up to St. Louis in plenty of time for the Missouri expedition, with none of the struggles over the rapids of the Ohio River.

Judging by the success of the Lewis and Clark expedition, however, this Pittsburgh boatbuilder was the right man for the job after all. Beyond that, even a cursory reading of Lewis's journal of his trip down the Ohio, in which the big boat was subjected to an amazing amount of abuse while being dragged over rocks at many rapids, it is a wonder that this boat made it as far as Cincinnati. This should also be a tribute to the design of the boat and its builder.

The final irony regarding Lewis's criticism of his boatbuilder is that Lewis himself began drinking to excess at an early age, which could have been a factor in his taking of his own life only six years later.

If a contract for the boat existed it is probable that the arrangements were made by Major Isaac Craig and Lieutenant Moses Hooke. In his letters, Lewis stated several times that the boat had been "contracted for." He did not say, however, that he himself had signed such a contract. Presumably there was a

"DEAR CLARK: After a most tedious and laborious passage from Pittsburgh I have at length reached this place; it was not until the 31st of August that I was enabled to take my departure from that place owing to the unpardonable negligence and inattention of the boat builders who, unfortunately for me, were a set of most incorrigible drunkards..."
contract made on paper, but the agreement would have been written and signed by Craig or Brooke, as this was one of the duties that Major Craig had long exercised at Fort Fayette.

BOATBUILDING AFTER 1803

The building of flatboats, keelboats, and barges continued at Fort Fayette and at other boatyards on all three rivers until well after the War of 1812. As late as 1824, Zadok Cramer stated that barges, keels, and Kentucky boats were built in great numbers in Pittsburgh.

Pittsburgh directories listed seven or eight boat builders in 1810 through 1814, although Jacob Myers is not listed. If we consider his obvious advanced age and debilitated condition in 1803, it is probable that he had died before 1810.

On May 3, 1872, Peter Shouse, aged 83 years, applied for a pension certificate at Fort Fayette for his war service as a boatbuilder during the war of 1812, along with nine other boatbuilders. Those named were William Sprague, S. McGill, G. Guest, W. Hamilton, F. Edmondson, R. Moore, William Whiteacre, and Robert Beebe. They had all been enlisted by Hezekiah Johnson, the commander at the fort. The implication was that some of these men had been building boats at the fort location before being enlisted.

William Sprague and Peter Shouse appeared again at Pittsburgh as boatbuilders after the War of 1812, and Fort Fayette remained a center of army supply activity until its abandonment sometime in the winter of 1815.

Left: Lewis and Clark were beat out in publishing about their own trip by Patrick Gass, a member of the Corps of Discovery. Zadok Cramer printed it in Pittsburgh. Both MC Library & Archives.

Below: By time the expedition ended and the crew returned, Pittsburgh would have looked much like this 1877 print that was based on a sketch drawn by Emma Gibson in 1817.
CONCLUSIONS

Captain Meriwether Lewis took his barge all the way from Pittsburgh to St. Louis in 1803. In the spring of 1804, he and his partner Captain William Clark took it all the way to Fort Mandan in the far west, arriving in the fall. By spring 1805, the barge was reloaded and sailed down the Missouri River to St. Louis by some of his crew.

The success of these voyages is a remarkable testimony to Lewis and Clark and their men. But this success is also a testimony to the designers and builders of Lewis's barge. Working in the heat and humidity on an impossible schedule, these men completed an incredibly durable vessel. They have been too long forgotten, and too often maligned.

The specific location of the building of this barge seems clearly to be Fort Fayette in Pittsburgh, not anywhere on the Monongahela River. The contractors were clearly Lieutenant Moses Hooke and Major Isaac Craig. Fort Fayette was their center of operations, Fort Fayette was where Lewis's supplies were shipped and stored, and Fort Fayette was the location of the U.S. Wharf at the time. It was the only practical location for the semi-secret project to be carried out.

When Larry Myers contacted the History Center in 2007, his communication led to a valuable reevaluation of the evidence that has accumulated about the building of the Lewis and Clark barge some 200 years ago. Much of this evidence supports the conclusion that Jacob Myers was the principal builder of the Lewis Barge.

William K. Brunot is a retired engineer who has developed an interest in certain details in the adventures of Meriwether Lewis.

3 Baldwin, Pittsburgh, pp. 140, 141.
LEWIS & CLARK'S BOAT: BARGING

By David Purdy

With some knowledge of the route's geography, Thomas Jefferson and his secretary Meriwether Lewis planned a discovery expedition across the American continent, hoping to find a short portage from the Columbia River to the Missouri. That search would serve as one of the most important goals of the expedition: to find a water transportation route to the west coast. As such, the navigability of the rivers was critical to Jefferson. There was also a considerable amount of material that needed to go on the trip, from supplies to gifts for the Plains Indians. With this in mind, Lewis drew up a list of requirements for equipment and supplies to be used on the expedition. One of the items was a “keeled boat light strong at least 60 feet in length her burthen equal to 8 tons.”
Detail of Barge on the Mississippi, Félix-Achille St. Aulaire, 1832, hand-colored lithograph.

The custom of the time was to appoint someone local, either a politician or a government official, to supervise a project such as building a boat. Accordingly, in April 1803, Lewis sent a letter with a description of the vessel he wanted to William Dickson, U.S. Representative from Tennessee, in order to have the boat built in Nashville. The record is not completely clear, but by June 1803, Lewis realized that the boat could not be built there, and he shifted his attention to Pittsburgh. Where his boat was built and by whom remains a source of debate. This article attempts to shed light on what type of boat was built for Lewis and Clark in Western Pennsylvania.

In the early 19th century, Pittsburgh and vicinity had an active ship- and boatbuilding industry. Eight boatyards in the region produced an estimated $40,000 worth of boats per year in 1802. In the year Lewis' boat was built, several vessels, including a brig and a schooner, left Pittsburgh for such places as Liverpool and the Caribbean. In addition to these projects, the Pittsburgh yards busily built barges, bateaux, flatboats, log canoes, pirogues, and skiffs. While not a major world shipbuilding center, the Pittsburgh yards were certainly capable of building complex watercraft.

When Lewis arrived in Pittsburgh on July 15, 1803, he expected to find his boat almost ready for service. The promised date of completion had been July 20. The boat builder, however, complained that he was unable to procure proper timber. As Lewis waited impatiently, he found that the builder was frequently drunk, and when he was drunk, his men did not work. Meanwhile, the level of water in the Ohio River continued to fall, and Lewis was increasingly apprehensive about his ability to travel downriver. Finally, with his boat completed on July 30, Lewis quickly departed for St. Louis with a crew of 11—seven soldiers, three candidates for the expedition crew, and a pilot.

As Lewis predicted, the passage as far as Wheeling was difficult due to low water, lower than had been seen for the previous four years. Several times the crew had to shovel through sand bars, and oxen or horses had to pull the boat over shallow spots. This was apparently common since locals with teams stood ready to provide the animal power. Lewis complained that the owners of the teams took advantage of him and charged exorbitantly. Lewis bought a pirogue (a dugout boat) to provide additional capacity. The idea was to lighten the big boat. Unfortunately the pirogue leaked, so goods had to be shifted between boats. It was fortunate that the weather was warm (63°F at one time) and the water was warmer (75°F), but this combination resulted in fog, which even in better circumstances would have made travel difficult. At one point, the wind sprang up from a favorable direction, and the foresail was put up. The sprit carrying

Clark had been active in the Ohio River Valley since the early 1790s as an army officer and land developer so he was familiar with boats and their application on Western rivers and took advantage of the winter to modify the expedition vessel.

Figure 1: A drawing in The Field Notes of Captain William Clark shows the boat after his modifications in the winter of 1803–04, with one mast removed.
it broke, so they put up the main sail too, but its spirit also broke.6

Since both a foresail and a mainsail are mentioned in Lewis’ journal, it is apparent that the boat had two masts at this time. This view is confirmed by two informal representations of the boat in 1803.7 At this stage, it was probably an open boat with a foredeck, cabin aft, and two masts.

On October 15, William Clark joined the expedition at Clarksville, Indiana Territory, just across the Ohio River from Louisville, Kentucky. The crew paused here while Clark got acquainted with plans for the journey and while recruits for the expedition were selected, mostly from among young soldiers and experienced backwoodsmen. They continued down the Ohio, reaching its mouth on November 10, then traveled upstream on the Mississippi without major difficulty. The boat suffered one casualty on this leg of the trip—one of its masts broke—but arrived in St. Louis on December 11.8

The boat was moored in a small tributary on the east side of the Mississippi—Wood River—located across from the mouth of the Missouri. It was initially afloat, but as the river fell during the winter, it was supported on “prics,” to use Clark’s term. (The journals do not explain, but prics seem to be wedges or props.)9 Expedition members built and occupied huts nearby. Lewis spent most of the winter in St. Louis, while Clark stayed on the boat at Wood River.

Clark had been active in the Ohio River Valley since the early 1790s as an army officer and land developer so he was familiar with boats and their application on Western rivers and took advantage of the winter to modify the expedition vessel. One mast was removed and the remaining one adapted so that it could be pivoted down. The rig became one square sail. Lockers were installed along the bulwarks for storage and protection. (See Figure 1, from Clark’s field notes.) The boat was now in the configuration used by most modern replicas. (See, for example, Figure 3.)

They set forth on May 14, 1804, with Clark and 20 members of the expedition on board. The barge and two pirogues were bound for the Mandan Indian towns on the Missouri River in present-day North Dakota.10 Lewis rejoined them on May 20.11

The Missouri was a difficult river to navigate. Fast, wild, and meandering, its banks often caved in, making camping near it dangerous. It was also studded with snags.
Examination of expedition journals and letters written by members of the expedition shows this terminology:

**Keeled boat**
Lewis, Statement of Requirements 1803

**Keeled boat**
Lewis, letter to Clark
June 19, 1803

**Bateaux (sic)**
John Ordway, journal
May 14, 1804

**Bateau (sic)**
Patrick Gass, journal
May 14, 1804

**Bateau (sic)**
Charles Floyd, journal
May 14, 1804

**Barge**
Lewis, journal May 15, 1804

**Barge**
Lewis, journal May 20, 1804

**Barge**
Joseph Whitehouse, journal
September 12, 1804

**Barge**
Ordway, journal 11/23/1804,
01/22/05, 02/05/05,
02/24/05, 02/27/05,
04/04/05, 04/07/05

**Barge**
Lewis, letter to Jefferson and journal, April 7, 1805

**Barge**
Pierre Chouteau Letter to William Henry Harrison, May 22, 1805

**Keelboat**
*History of the Lewis & Clark Expedition*, originally 1814, edited by Elliott Coues, 1893

Figure 3: A modern replica, this one built and owned by the Discovery Expedition of St. Charles, Missouri.
Print: David Jrty.

(trees) stuck in the riverbed, which were sometimes difficult to see. A special form of snag, called a sawyer, could oscillate up and down and threaten to come up beneath a boat. On several occasions, the boat did hit obstacles and wheel around several times. During a violent storm it was saved from capsizing by the crew’s prompt action and the locker tops, which kept water out of the boat.12

The boat was propelled upriver by whatever means worked at that moment. If the wind was favorable, the sail was used. More commonly, if the river was shallow enough and the bottom firm, it was poled. If the bank was stable, the men on shore could tow or “cordelle” the boat. In extreme cases, the boat was warped—a long rope was tied to an object on shore, a tree for instance, and then the men in the boat pulled it upstream. The boat could also be rowed but this seems to have been done rarely. Progress was slow, and labor was brutal.

By November 1804, the expedition reached the Mandan towns, and it became obvious that they would have to stop again for the winter. The party built winter quarters at a site with timber. Ice covered the river progressively and finally closed it completely. The boat remained iced in until January 1805, when efforts were made to free it. Finally, in late February, it was cut loose, dragged ashore, and placed next to the winter quarters.13

The expedition plan called for one boat to return to St. Louis, carrying scientific specimens, data, and reports. In September 1804, it was intended that one of the pirogues would be so used. The plan was changed, however, and it was decided that the return trip would be delayed until spring and the big boat would make the voyage. The reasons for these changes are not explicitly stated, but the delay permitted better planning for the boat’s return. Perhaps, too, Lewis and Clark may have
realized that the big boat was too awkward to continue on the shallow upper river.

The boat was put back in the water in early April and started downriver while the expedition traveled upriver on its way to the Pacific Ocean. With its arrival in St. Louis, the nameless barge had completed its service to the expedition.14

**Facts about the Boat**

The facts we know about the boat are limited. The most reliable and comprehensive information extant on the Lewis and Clark boat is a drawing in Clark's field notes made during the winter of 1803–04. It shows an outboard profile and plan view of the vessel, both drawn freehand. One might suspect the accuracy of this sketch, since it was made without the benefit of drawing instruments. However, other Clark boat drawings, such as those for a Spanish galley and for a flatboat, demonstrate that he was a careful drafts person. The sketch also gives the length of the cabin as 14 feet and the length in hold as 31 feet. The beam is given as 8 feet 4 inches. Twenty oar positions are shown.15

Evidence indicates that the boat had two masts when it left Pittsburgh. Incidents implying two masts are described in the journals. Also, details on two maps prepared by Clark in 1803 show a boat with a cabin aft, and two masts. It is probable, but not proven, that the details are intended to represent the expedition's boat.

Since the drawing in Clark's notes shows the boat as it was after his modifications in the winter of 1803–04, it is apparent that Clark had one mast removed. Two masts were the normal, but not universal, practice on the east coast for a boat as narrow and shallow in proportion to the length of this one. Extant examples of Mississippi River system practice, on the other hand, show only one mast.16

The official report of the expedition, published in 1814, says that the boat was 55 feet long, drew 3 feet of water, and had 22 oars. It also says that the foredeck was 10 feet long. This length data in the introduction is then consistent with the length data in Clark's notes, assuming that "length" is meant length on deck. Unfortunately, the introduction says the cabin was also 10 feet long, which introduces a discrepancy with the drawing.17

Several replicas of Lewis and Clark's boat have been built in recent years, based largely on the above information. Two schools of thought on the actual shape of the boat have developed. One says that the boat was flat bottomed. The other says that a more rounded hull was used. Clark's sketch does not suggest which is correct. For further indications of the boat's shape, one must examine contemporary descriptions. The official report of the expedition, published in 1814, refers to the boat as a "keelboat." Lewis also used the term "keeled boat" to refer to the craft.

Keelboats were developed on the American frontier. They appear in literature about the time of the Revolutionary War, and were popular on the Ohio and Mississippi rivers in the 1800s. Keelboats were round-bottomed, double-ended boats, meaning that they were pointed at both bow and stern.

Figure 4: Plans for a galley, 1799. Schlesinger Library, Radcliffe Institute of Advanced History.
They had a strong sheer and sharp raked ends, and were steered with a sweep. Both the stern and the stern posts were greatly slanted. The result was an easily constructed hull, all convex surfaces, and minimum twist to the planking. This type of hull was streamlined and easy to propel. (See Figure 2 for two keelboats.) Because of this, keelboats became the standard type of cargo or passenger boat on Western waters.  

The keelboat seems to have developed from the "dorem" used on the Mohawk River. Dorems did not have keels, since a keel would have increased the vessel's draft—an important consideration on the shallow Mohawk River and Frenchmen's Creek. Instead of a keel, the dorem's ribs were set directly on the center plank. Yet to cope with obstacles on the Ohio and Mississippi rivers, such as rocks and snags, a keel was deemed necessary and the ribs were fastened to it. Thus was the "keelboat" born.

Although Lewis called the expedition vessel a "keeled boat," it is not clear what he meant by this. In his order for the boat, he might have been trying to convey that he needed a boat with a keel, as distinguished from a flatboat or a bateau. It does not appear, however, that Lewis and Clark's boat could fairly be described as a keelboat. It had a transom and a flat sheer, and it was steered by a rudder. In the plan view of Clark's drawing, the shape of the boat's stern is not compatible with a keelboat because it does not come to a point. Instead, it is squared off at the deck level to accept the cabin. Also, the stern post is nearly vertical to provide for the rudder, rather than angled like a keelboat's.

**If the Boat wasn’t a Keelboat, What was It?**

Clues about the type of boat can be derived—to a degree—from the words used by people involved in the expedition to describe it. Several people called it a barge, while others referred to it as a "bateau," the French word for boat.

On the frontier, bateau was used to designate a flat-bottomed, double-ended boat steered with a sweep. Known examples of bateaux are open boats. It is apparent that Lewis and Clark's boat was not a bateau, even though three members of the expedition used that term for the boat on the same day.

In the mid- to late 1700s, a barge meant a rowing vessel with a cabin for important personages. George Washington used "a
Instead of a primitive boat built in a near wilderness, the research indicates that Lewis and Clark’s boat was sophisticated, in contemporary terms, being built in a well-developed shipbuilding center.

Eventually, American barges became cargo vessels. Responding to the conditions of American waterways, the use of oars was reduced and gangways were provided for poling. Sails were also used. (See Figure 3 for an example of a large cargo barge.) Smaller barges and keelboats were employed in fur trade expeditions up the Missouri River in the first and second decades of the 19th century.

Given what evidence is available, it seems probable that Lewis and Clark’s boat was a barge. Barges were common at the time and used for purposes similar to those of Lewis and Clark’s expedition. Thomas Rodney, who saw the boat at Wheeling on September 8, 1803, termed it a barge, as did Pierre Chouteau, manager of a prominent fur trade company in St. Louis when it arrived in that city in May 1804. Even Lewis called it a barge by the end of the expedition. Clark’s sketch is also consistent with a barge. Indications seem to be that Lewis and Clark’s vessel had a form broadly similar to that of known barges, including a rounded hull with a transom. Unlike a bateau, there would have been no chine (spine). Unlike a keelboat, there would have been a transom.

Another type of boat that might have influenced Lewis and Clark’s is the galley, as built and employed on the Ohio and Mississippi rivers. (An example of about the

Figure 6: Another 1799 barge, this one in _The 32 Gun Frigate Essex_, 1990.

Courtesy of author.
same length is shown in Figure 4.) A John Taylor built two boats to these plans in Pittsburgh in 1799.\textsuperscript{27} The galleys are beamier, deeper, and probably fuller bodied than Lewis and Clark’s boat, but like Lewis and Clark’s, both of these galleys had two masts. Since the galleys were built to U.S. government specifications, there is probably a relationship between their specifications and those of the Lewis and Clark boat.

Assumptions about Lewis and Clark’s vessel can also be checked by comparing it to others of the same period. One example is the Swedish state barge, the Wåaldoen, built in 1775. (Figure 5.) This boat was slightly bigger than Lewis and Clark’s boat and slightly longer (56.5 feet vs. 55 feet) and wider (10 feet vs. 8 feet). It had almost the same number of oars (18 vs. 20). The cabin of the Swedish boat was placed further forward of the stern to allow room for a helmsman at deck level and to provide a convenient place for eminent guests to board the vessel. Like the Lewis and Clark boat, the hull width at deck level was nearly constant in way of the rowing space. This feature, common in large rowing craft, provides a nearly-constant ergonomic condition for all the rowers. The stern was square at deck level on both boats. At waterline level, the Swedish vessel was pointed at both ends to make the hull easier to row.\textsuperscript{29}

A final example from that time period is the barge carried on the U.S. frigate Essex, built in 1799. (Figure 6.) This barge is smaller (30 feet long) than the Swedish barge or Lewis and Clark’s with only 10 rowing positions and no cabin—presumably because a cabin would have been awkward for a boat carried on a ship. Passengers would have been carried in the open at the stern. Like the Swedish barge, the hull width is nearly constant over much of the length at deck level, while the hull is pointed, bow and stern, at the waterline and below.

It can be inferred from the similarities in design that the hull form for the Lewis and Clark boat was similar to the two examples above. The Lewis and Clark barge was deeper than either of the other two to provide more room for cargo.

Instead of a primitive boat built in a near wilderness, the research indicates that Lewis and Clark’s boat was sophisticated, in contemporary terms, being built in a well-developed shipbuilding center. The records and a comparison of William Clark’s drawing with plans for contemporary barges show much commonality. Construction of the boat by the anonymous drunken builder, supervision by Meriwether Lewis, and modifications made by William Clark at Wood River resulted in a craft well-adapted to carrying the expedition on the first successful phase of its voyage westward.

David Purdy acquired a deep affection for boats during his boyhood on the Manasquan River in New Jersey. He went to college and gained a bachelor’s degree in Naval Architecture at Webb Institute. His early career was spent on the design of naval surface vessels and submarines. He then went on to design of machinery for nuclear merchant ships including the German Otto Hahn. Economic conditions forced him to switch to power plant design in his later career. Now retired, he has returned to boats as a historian.
Captain Lewis & Clark holding a Council with the Indians.

5 Letter, Lewis to Jefferson September 8, 1803, Document 86 in Jackson.
8 Journals, December 11, 1803.
9 Journals, December 22, 1803.
10 Journals, May 14, 1804.
11 Journals, May 20, 1804.
12 Journals, July 14, 1804.
13 Journals, February 26, 1805.
14 Journals, April 7, 1805.
16 Manuscript Drawings in Clark Papers, Missouri Historical Society.
18 Leland Baldwin, The Keelboat Age (Pittsburgh: University of Pittsburgh Press, 1941), especially pp. 43-45, 64, 138-139.
23 Unsigned manuscript report to Major General Wayne in Clark Collection, Missouri Historical Society.
28 Bror Hallang, Slupen Waarden (Stockholm: Liber Forlag, 1995).