

AUGUST 2019 VOL 45 NO 3

# We Proceeded On

LEWIS AND CLARK TRAIL HERITAGE FOUNDATION



*"When they shook hands,  
the Lewis and Clark Expedition began."*

— Stephen Ambrose

- The Trail Extends – Now 4,900 Miles
- From Pittsburgh to the Pacific
- The Significance of the Eastern Legacy
- Another Great Book from Larry Morris

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The Lewis and Clark Trail Heritage Foundation (LCTHF) is pleased to make this edition of our quarterly journal, *We Proceeded On (WPO)*, available to residents of the Falls of the Ohio area. This issue of *WPO* highlights the importance of the eastern portion of the Lewis and Clark Expedition's travels to the success of the mission.

LCTHF is a national membership organization. Our mission is to protect, preserve, and promote the Lewis and Clark Trail and its stories. Along with help from many friends in the Falls area and elsewhere, the advocacy LCTHF has maintained for a half-century resulted recently in the official eastward extension of the Lewis and Clark National Historic Trail. From its previous eastern terminus at Wood River, IL, across from St. Louis, MO, the extension runs down the Mississippi River and then up the Ohio River to Pittsburgh, PA, adding 1,200 miles to form a nearly coast-to-coast trail of 4,900 miles. This extension also, at last, adds Indiana to the map of the National Scenic and Historic Trails administered by the National Park Service and the Forest Service, the final state that remained to be included.

The Falls of the Ohio area played a large role in the expedition's preparatory phase. At the Falls, Lewis and Clark shook hands and became a working team. They incorporated the "Nine Young Men from Kentucky" recruited by Clark from the area as well Clark's African American servant York, into the Corps of Discovery. As they made their way downriver from below the Falls, they gathered additional recruits and gained valuable experience that helped them navigate the Missouri River through the lands of the Louisiana Purchase that President Jefferson sent them to investigate.

To obtain more information about the Lewis and Clark Trail Heritage Foundation, to view back issues of *WPO*, to make a donation, and to become a member, please visit our website at [lewisandclark.org](http://lewisandclark.org). Thank you for your interest. We look forward to your participation as we continue to tell the story of the Lewis and Clark Expedition.

Proceeding on together,

Louis N. Ritten  
President, LCTHF



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**Front:** Bud Clark (left, portraying his great, great, great grandfather William Clark) and Jan Paul Donelson (as Meriwether Lewis) shake hands in Clarksville, Indiana, May 13, 2019, at the Falls of the Ohio, in front of a bronze commemorating “the handshake,” sculpted by Carol Grende from Big Arm, Montana.

**Back:** The Discovery Expedition of St. Charles sets out from Clarksville, Indiana, at dusk on October 26, 2003, re-enacting the Lewis and Clark Expedition in real time. Photo by James Holmberg.

*We Proceeded On* welcomes submissions of articles, proposals, inquiries, and letters. Writer’s guidelines are available by request and can be found on our website, [lewisandclark.org](http://lewisandclark.org). Submissions should be sent to Clay S. Jenkinson, 1324 Golden Eagle Lane, Bismarck, North Dakota 58503, or by email to [Clayjenkinson2010@gmail.com](mailto:Clayjenkinson2010@gmail.com). 701-202-6751.



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As Keepers of the Story—Stewards of the Trail, the Lewis and Clark Trail Heritage Foundation, Inc., provides national leadership in maintaining the integrity of the Trail and its story through stewardship, scholarship, education, partnership, and cultural inclusiveness.

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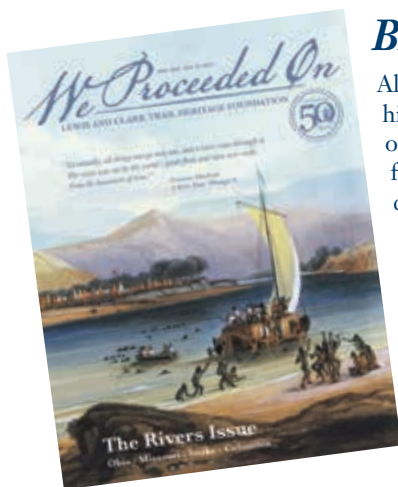
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# *A Message from the President*



LCTHF President Louis Ritten

After working to extend the federally designated Lewis and Clark National Historic Trail for nearly half the life of the Lewis and Clark Trail Heritage Foundation (LCTHF), it finally happened on March 12, 2019, exactly one day after the 50th anniversary of the legal establishment of the LCTHF. We thank our friends at the Partnership for the National Trails System (PNTS), our sister trail organizations, and many dedicated individuals for their help in making this happen. What a tremendous way to step into our next half-century! What an opportunity this presents us!

At a well-planned and well-attended media event in Clarksville, we unveiled the news in person to the general public. TV and print media covered the event, which took place at the Falls of the Ohio Interpretive Center on a chilly but pleasant day. The issue in your hands focuses on the Eastern Legacy and will highlight why the area so richly deserved to be added to the trail.

Extending now from Pittsburgh down the Ohio and up the Mississippi to connect with the previous eastern terminus at Wood River, Illinois, the extension adds 1,200 miles to the previously existing

3,700 to create a magnificent 4,900-mile historic trail. A more densely populated trail geography has now been brought into immediate contact with the story and the trail. How can we capitalize on this?

Thanks to the stellar work of our extremely dedicated core Eastern Legacy Committee members Paige Cruz of Huntington, West Virginia; Mike Loesch of Mason, Ohio; Jerry Wilson of Versailles, Indiana; and Phyllis Yeager of Floyds Knobs, Indiana; and our entire Ohio River Chapter, LCTHF has a framework through which to seize new opportunities. We will be working hand in hand with the National Park Service (NPS) to integrate the new territory (new to NPS, but we Clarkies have known the Ohio River has been an integral part of the true trail for years!) into the greater whole. With our contacts and experience in the Ohio River Valley, we can provide real value to the NPS as it gets up to speed. We are looking forward to this deepening of our relationship.

What can you do to help in this effort? You can inform your local tourism bureau or chamber of commerce of the tourism opportunities now before them. If you know people along the Ohio River, or for that matter anywhere else, who have an interest in history or natural beauty, buy them a gift membership to our foundation to bring them into the fold and allow them to start learning the Lewis and Clark story all over again. Encourage them to travel highways along both sides of the Ohio River. Although in some areas the name the French gave to the Ohio, “La Belle Riviere,” the “Beautiful River,” no longer applies, in the vast ma-

jority of the Ohio valley enough natural beauty remains to recall the old “nom.” Along with Lewis and Clark sites, a curious traveler will encounter lovely old river port towns, major cities like Louisville and Cincinnati, history related to the Civil War, riverboats, Native Americans, the Underground Railroad, industrial development, the US Corps of Engineers, and much more.

The LCTHF Eastern Legacy Committee will continue to mark relevant sites in the east, on and off the officially designated trail, with signage indicating their importance. The money used for this endeavor has come from our Bicentennial Trail Stewardship Fund. Grants we award from that fund, however, are not restricted solely to such use. Up to \$7,500 may be awarded to help a project sponsored by any non-profit entity, within LCTHF or without, that best meets the fund’s established criteria in competition with other project applications in a given year. See <http://lewisandclark.org/grants/index.php> for more information on trail stewardship and other grants awarded by LCTHF.

The amounts awarded do not necessarily have to fund a project entirely, but can be used in conjunction with monies obtained from other sources. It may be possible for LCTHF to conduct a separate fundraising campaign for a specific project that will meet organizational goals. Can you, your local chapter, or a non-profit entity to which you belong dream up a project that will promote some aspect of the Lewis and Clark story? How can we keep the story alive and bring it into the modern world? Will we protect



Announcing the Eastern Extension to the Lewis and Clark National Historic Trail at the press conference in Clarksville, Indiana, on May 13, 2019, are (from left) LCTHF Eastern Legacy Committee Chair Paige Cruz, LCNHT Integrated Resources Lead Dan Wiley, LCNHT Superintendent Mark Weekley, LCTHF President Lou Ritten, LCNHT Chief of Interpretation Neal Bedlan, LCNHT Volunteer And Partnership Specialist Ashley Danielson, LCTHF Board Member Mike Loesch, and LCTHF Member Lorraine Loesch.

the magnificent landscape through which the Corps of Discovery passed? Successfully answering these challenges will ensure that LCTHF can remain relevant and active in future years. I urge each and every one of our members to promote the Lewis and Clark story at every chance that presents itself and to create opportunities to do so. The grant money we award can be used to make this possible.

On a separate note, Lindy Hatcher, the LCTHF Executive Director for seven years, has left us to become the executive director of a homebuilders association in San Luis Obispo, California. We thank Lindy for her work in stabilizing the office situation when she first arrived, for creating a stronger working relationship with the National Park Service, LCTHF chapters, and other partners, and for working diligently and successfully in pursuit of legislative passage of the Lewis and Clark Trail Extension Bill through Congress. The Lewis and Clark Trail Heritage Foundation wishes Ms. Hatcher well as she enters this new chapter in her life. Three huzzahs for Lindy!

I would be remiss if I failed to recognize the absolutely first rate work our

administrative assistant Chris Maillet has performed as we transition to new leadership. She has worked very well with volunteers to handle the office workload while we search for a new executive director. Chris has blossomed and we are very lucky to have her capable, conscientious, warm, and gracious presence to navigate us through this stretch.

Like the Corps of Discovery, we will overcome the challenges we face and will work together to accomplish our mission cheerfully. If you know anyone who may be qualified and interested in applying for the job of LCTHF Executive Director, please let us know. We have a human resources committee hard at work seeking the right person. And we have the greatest story in American history as the reason for being for our organization. Given all the marvelous people involved in the Lewis and Clark Trail Heritage Foundation and their passion for and dedication to it, I like our odds. ■

*Proceeding on together,  
Lou Ritten  
President  
Lewis and Clark Trail Heritage Foundation*



## Attention Lewis and Clark Trail Stewards!

### The LCTHF has three Grant Programs:

- The Lewis and Clark Trail Stewardship Endowment
- The Burroughs-Holland/Bicentennial Education Fund
- The Montana Lewis and Clark Bicentennial Sign Maintenance Fund

For criteria, deadlines and applications, visit [lewisandclark.org](http://lewisandclark.org) and click on "What We Do"

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any LCTHF Board member

## Editor's Note:

I had the great good fortune to attend the ceremony in Clarksville, Indiana, on May 13, 2019, to mark the long-awaited extension of the Lewis and Clark Trail. Several hundred people gathered on a perfect May morning at the Falls of the Ohio to celebrate the extension of the trail from Wood River, Illinois, to Pittsburgh, Pennsylvania, where the floating of the Lewis and Clark Expedition began on August 31, 1803.

This issue of *We Proceeded On* commemorates the trail's extension and its possibilities and implications.

The ceremony in Clarksville was attended by a dozen prominent politicians of the region, including members of the House and Senate of the United States Congress; by a cluster of dedicated National Park Service employees, including the superintendent of the Lewis and Clark National Historic Trail Mark Weekley; by members of the indefatigable Eastern Legacy Committee; by reenactors of the Discovery Expedition of St. Charles, who overcame some last-minute permitting hurdles raised by state highway authorities to get the keelboat to Clarksville on time (they arrived in style led by a police escort); and by scores of curious citizens from across the United States. The keelboat did not attempt to run the Falls of the Ohio, but its presence on site reminded everyone of the deep satisfactions of the journeys we have all made together in the last two decades.

It was a great moment for Lewis and Clark and for everyone who is devoted to what the eminent historian James Ronda has called "America's first great road story." Former Lewis and Clark Trail Heritage Foundation President Philippa Newfield called the trail extension "the most important thing that has happened in the Lewis and Clark world since the Bicentennial." Celebrating the legislation at Clarksville was also in a sense a tribute to the late Stephen Ambrose, whose now-famous sentence about the meeting at the Falls of Meriwether Lewis and William Clark in *Undaunted Courage* has shaped America's memory of the greatest exploration mission in our history: "When they shook hands, the Lewis and Clark Expedition began."

It was a transcontinental journey, conceived by one of the Enlightenment's greatest figures, a philosopher-president whose famous Palladian villa Monticello

looked west over the Blue Ridge into the interior of the continent. Thomas Jefferson was at once a visionary, a shrewd politician, an amateur scientist, a statesman with a hungry geopolitical agenda, and a commercial pragmatist. He imagined the West as an "empire for liberty as [the world] has never surveyed since the creation." He engineered a number of explorations of Trans-Appalachian America, the greatest of which was the Lewis and Clark Expedition.

The trail extension was the achievement of countless individuals who worked tirelessly (and repeatedly!) over the last decade to get this important thing done. Hundreds, even thousands, of citizens contacted their Congressional team as the legislation crawled its way through Congress, and scores visited their Senators and Representatives on Capitol Hill. Members of the LCTHF played an important role, as did the Lewis and Clark Trust. Former LCTHF Executive Director Lindy Hatcher testified ably before Congress.

There is much to celebrate, much new ground (for some) to explore, new programming and interpretation to undertake, new trail sites to develop. Thanks to this important legislation no historian will ever again dare to "skip the east" and start the narrative of the Lewis and Clark Expedition from Camp Dubois at the confluence of the Mississippi and Missouri Rivers.

In Ambrose's oft-repeated formulation, the trail now extends from *sea to shining sea* (almost). We all look forward to the day when the trail gets one more modest extension and takes its start from three related eastern locations: Philadelphia (America's intellectual capital in the age of Jefferson), Washington, DC (the nation's new political capital in 1800), and of course the west portico of Monticello, where the Lewis and Clark Expedition and so much of the American Dream were first imagined.

Clay Jenkinson

p.s. For my thoughts on what Meriwether Lewis learned on the Eastern Legacy portion of the journey, visit [lewisandclark.org](http://lewisandclark.org), [jeffersonhour.com](http://jeffersonhour.com), or [clayjenkinson.com](http://clayjenkinson.com).



# Sixteen States, 4,900 miles, One Lewis and Clark National Historic Trail

By Ashley Danielson

*Lewis and Clark National Historic Trail Supervisor Mark Weekley, surrounded by politicians and our own Bud Clark, celebrates the extension of the Trail in Clarksville, Indiana, May 13, 2019*

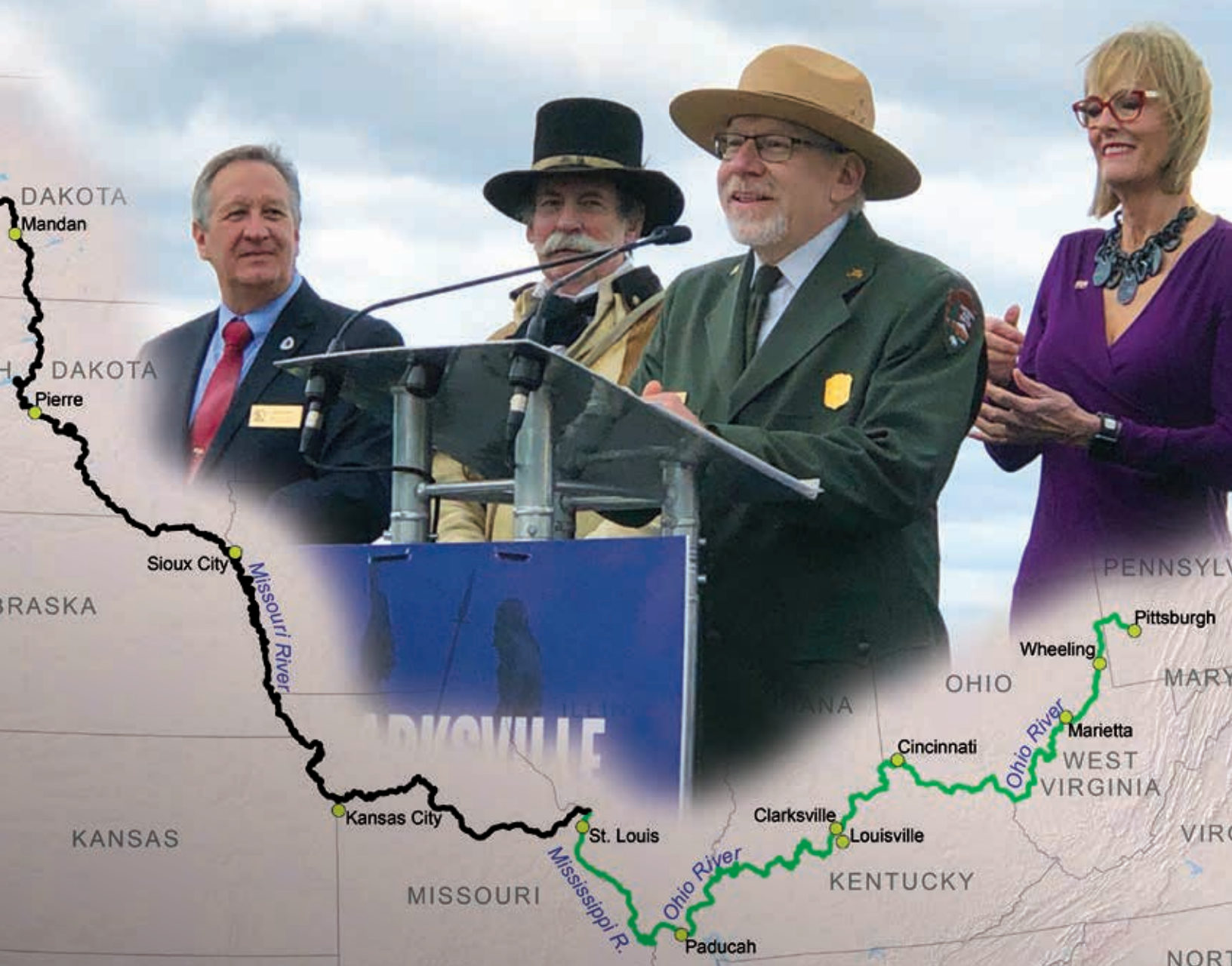
*No trip begins without* preparation and this is especially true for the Lewis and Clark Expedition. To commemorate the importance of preparation to the expedition, 1,200 miles have just been added to the Lewis and Clark National Historic Trail (NHT).

The John D. Dingell, Jr. Conservation, Management, and Recreation Act signed into law by President Donald Trump on March 12, 2019, includes the Lewis and Clark NHT eastern extension, which adds an additional 1,200 miles to the trail starting at the Ohio River in Pittsburgh, Pennsylvania. The entire 4,900 miles of the Lewis and Clark NHT now traverse the states of Pennsylvania, Ohio, West Virginia, Kentucky, Indiana, Illinois, Missouri, Kansas, Iowa, Nebraska, South Dakota, North Dakota, Montana, Idaho, Washington, and Oregon.

The passage of this legislation demonstrates the power of

partnerships and marks the culmination of much hard work on behalf of the Lewis and Clark story. While the establishment of the extension by law was a huge undertaking, now a new phase begins and we look forward to working with the Lewis and Clark Trail Heritage Foundation and the Lewis and Clark Trust as we move forward.

The eastern extension will increase opportunities for interpretation and education, particularly about the activities that happened in preparation for the expedition. Additionally, the extension will highlight recreational opportunities along the Ohio and Mississippi Rivers and will engage partners and stakeholders in management and related activities. National Park Service (NPS) staff will work with local communities to integrate the new extension into the existing trail and continue to build strong state and local partnerships.



“Working with our long-standing and new partners is an important first step,” said Trail Superintendent Mark Weekley. “We are excited to include the rest of the story of this renowned journey with the additional 1,200 miles of trail. Our new partners will be integral to the Trail’s future.”

National historic trails are not completed overnight and it will take years for the NPS to have the same presence on the newly established trail sections as we do on the sections that were designated in 1978. For the NPS to fulfill its legislative mandate, partners and partner organizations are critical. The length and complexity of the trail and the fact that very little of it is under NPS ownership mean that many activities must be undertaken in collaboration with partners, landowners, and governmental organizations.

The staff at the Lewis and Clark NHT headquarters

office in Omaha, Nebraska, is working towards both short and long term goals to achieve successful incorporation of the newly established trail segments into the existing trail. Some actions will happen in the next year or two while others may take a decade or more to complete.

An important step will be to develop appropriate partnerships with sites, organizations, tribes, and individuals in the newly designated sections of the Lewis and Clark NHT. Lewis and Clark Trail Heritage Foundation and Lewis and Clark Trust members have played key roles in developing a preliminary partner list and in helping to familiarize staff with the resources in the five new states. A comprehensive partner contact list will enable NPS staff to reach out to potential partner sites and organizations in order to provide them with information and get them involved in current trail programs.

Another key component of our initial outreach efforts is to connect with tribes that have historical and/or current ties to the areas of the trail extension. The Lewis and Clark NHT is taking a team approach in working with the trail's American Indian Liaison. The newly formed team consists of Loren Yellow Bird, Interpretive Park Ranger at Fort Union Trading Post National Historic Site, and Alisha Deegan, Interpretation and Cultural Resources Program Manager at Knife River Indian Villages National Historic Site, both in North Dakota. Loren and Alisha will continue with their current positions while assisting on a part-time basis in this effort. They will be working with trail tribes to enhance communication and provide technical assistance to the Lewis and Clark NHT staff and partners.

Incorporating the sites and partners along the eastern extension into ongoing programs of the Lewis and Clark NHT will be an exciting opportunity. Members of the trail headquarters staff look forward to integrating the newly designated trail segments and sites into our ongoing programs.

or 402-661-1818.

We are currently developing a strategy for rolling out the Geotourism program in the eastern extension region, including a series of workshops this summer and targeted outreach by email to communities that we are not able to visit in person. We will be recruiting individuals to the Stewardship Coalition to represent this region and facilitate our outreach and calls for nominations in their areas.

We are also inviting people to follow Lewis and Clark this summer as Citizen Scientists through **GO (GLOBE Observer) on the Lewis and Clark Trail**. Lewis and Clark greatly expanded our knowledge of the country's geography and biological diversity through their specimen collection, landscape mapping, and detailed journal entries. This year NASA and the NPS are encouraging the public to follow in these explorers' footsteps through a new citizen science challenge from June 1 to September 2, 2019.

All you need are your smart phone and the NASA GLOBE Observer (GO), an app-based citizen science pro-

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*"Working with our long-standing and new partners is an important first step. We are excited to include the rest of the story of this renowned journey with the additional 1,200 miles of trail. Our new partners will be integral to the Trail's future."*

*Mark Weekley, Trail Superintendent*

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The Lewis and Clark National Historic Trail Geotourism (Sustainable Tourism) website has been completely redesigned to be more engaging and user-friendly. All the content and nominations have been ported over to the new site, and user accounts have been created for content nominators who registered on the previous site. We will soon be emailing all site users with instructions on how to activate their accounts on the new site, and asking them to log in to review their nominations and update them as needed. In the meantime, we strongly encourage you to take a moment to explore the new site: <https://lewisandclark.travel>

As we roll out the new site, our priority is to kick off another strong push for additional nominations, with a particular emphasis on rural and underserved regions along the trail. We will be working with partners to put out the call for nominations through destination marketing organizations, business associations, civic groups, and others. If you would like to help host an outreach meeting in your community this summer, please contact Kristine Struck at [kstruck@nps.gov](mailto:kstruck@nps.gov)

gram active in more than 120 countries that lets the public send observations about land cover, clouds, mosquitos, and tree height directly to NASA. To participate in the "GO on a Trail" challenge, download NASA's free GLOBE Observer app from the Apple App Store or Google Play and use the app's Land Cover tool to map land cover along the Lewis and Clark NHT and elsewhere. This will assist scientists who are studying environmental changes because land cover such as grass, pavement, and trees influences the water and energy cycles and contributes to a community's vulnerability to natural disasters. NASA studies land cover changes worldwide from space as part of its mission to better understand our home planet and improve our lives.

Any land cover observations taken along the nearly 5,000-mile-long trail from Pittsburgh, Pennsylvania, to the mouth of the Columbia River in Washington State earn points. The top participants will receive recognition and "GO on a Trail" commemorative material. Go to [go-on-a-trail.nps.gov](https://go-on-a-trail.nps.gov) for more information.



Ashley Danielson

“We hope that, by becoming involved with this project, people will care about the trail and become its stewards,” said Dan Wiley, Chief of Integrated Resource Stewardship for the Lewis and Clark NHT. Wiley notes that the challenge will both spark a general interest in science and show the public how it can be involved in collecting vital information for decision makers.

NASA’s scientists are eager to receive citizen scientist observations of land cover along the Lewis and Clark NHT which cuts across much of North America from east to west. Because of the wide range of ecological regions along the trail, data collected during the challenge could help improve satellite-based mapping of land cover across the entire continent.

“We are observing and monitoring our home planet from space to achieve a better understanding of how it is changing and what the main drivers of change are,” said Eric Brown de Colstoun, a scientist at NASA Goddard Space Flight Center in Greenbelt, Maryland. “The view from the ground provided by the challenge participants is one component that helps us verify the space-derived data. Lewis and Clark were exploring an environment totally new to them. We invite you to get out and explore, and document the places you know and care about. Go out on a trail and do science along with us!”

The Lewis and Clark NHT has updated the **Geographic Information Systems (GIS) Data** of the trail centerline to include the Ohio-Mississippi extension from Pittsburgh, Pennsylvania, to Wood River, Illinois. These data have been uploaded to ArcGIS Online along with descriptive information and are available to the public to be used in a variety of web mapping applications. Lewis and Clark NHT web

maps, including the Interactive Visitor Map (NPMap), the Interactive Trail Atlas, and the new NASA Globe Observer GO on a trail web mapping application all represent the Trail using the congressionally-designated route from Pittsburgh, Pennsylvania, to the mouth of the Columbia River.

There are also many longer term projects that the trail is undertaking to incorporate the newly designated sections. Trail staff will be working with the Harpers Ferry Center to determine how to move forward on a new NPS Unigrid Brochure. This multi-year process involves the determination of which sites will be included and the auto tour routes, design, and printing.

**Designating and signing auto tour routes** in the new states will need to be completed in the long term. Auto tour routes are designated by the states. If you are in a newly designated state and would like to help with the auto tour route, please contact your local groups. Once this happens, then trail outdoor recreation planners can work with the state Department of Transportation to start the process of getting the route signed.

Another long term project will be **compiling an in-depth evaluation of all historic sites along the extension**. This will assist in the subsequent consideration of sites along the eastern extension in terms of their qualification as High Potential Historic Sites. This process will take many years to complete.

As with everything with the Lewis and Clark NHT, no one can do it all at once and no one can do it all alone. Partnerships are extremely important. For the eastern extension to be a success we need your help. There are many ways to get involved. You can provide trail staff with a list of contacts of partners and sites along the extension area. You can encourage sites to participate in one of our existing programs. Partners are also needed to coordinate with trail staff to work with the individual states to help designate the official Lewis and Clark NHT auto tour route. With your help, the future is bright for all 4,900 miles of the Lewis and Clark National Historic Trail. ■

Ashley Danielson

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*Ashley Danielson is the Volunteer and Partnership Specialist for the Lewis and Clark National Historic Trail. Based in Omaha, Nebraska, she supports volunteerism on the trail and coordinates trail-wide social media campaigns. This summer, Ashley is organizing the GO on a Trail citizen science challenge with NASA.*

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# Into the Wilderness, from Pittsburgh

By James J. Holmberg

*The Ohio River, Jefferson's "most beautiful river in the world." Photo by James Holmberg.*

*The Lewis and Clark* Expedition did not spring from nothing at the mouth of the Missouri River. There were all-important planning, supply, and recruiting stages before the Corps of Discovery set off up the Missouri in May 1804. That journey to the Pacific encompasses the renowned Western Legacy of the expedition. What occurred east of the Mississippi is the lesser known but crucial part of the Lewis and Clark journey known as the Eastern Legacy.

Thomas Jefferson's long hoped for voyage of discovery beyond the Mississippi to the Pacific finally became reality when seed money for it was approved by Congress and the president tapped his private secretary, Captain Meriwether Lewis, to lead it. Lewis studied and prepared for the undertaking in Philadelphia, Lancaster, Harpers Ferry, Washington, DC, and Monticello. On July 5, 1803, he set out from Washington for Pittsburgh where he had ordered a keelboat built for the expedition. Delays occurred in completion of the keelboat and it wasn't until August 31 that Lewis finally set off down the Ohio to rendezvous at the Falls of the Ohio with his co-leader, William Clark.

Lewis's original plan was to have a boat built in Nash-

ville, Tennessee, and sail down the Cumberland to the Ohio and then up the Mississippi to the Missouri. On that route he planned to enlist his first recruits at the military post at South West Point in east Tennessee on the Tennessee River. From there he would proceed to Nashville on the Cumberland River where he had requested William Dickson 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."<sup>1</sup> As of May 29 Lewis hadn't received a response from Dickson about a boat and Major William McRae in Tennessee informed him that there were few likely expedition candidates at South West Point. Still, Lewis planned on taking a more southerly route via the Cumberland.<sup>2</sup> By June 10 Lewis's route had changed to the Ohio River. In a letter of that date he informed William Linnard of the need to have his stores for the expedition transported to Pittsburgh.<sup>3</sup>

Why did Lewis' plans change? The sources to explain this apparently haven't survived, but one can make educated guesses. The best one is that Lewis received word that he wasn't going to be able to get a boat in Nashville meeting



his specifications; or he failed to receive a response from Dickson and had to alter his intended route from the Cumberland River to the Ohio River. Also, while Lewis was still hoping to recruit some soldiers from South West Point, McRae made it clear that the post would not be a major source for expedition enlistees. Therefore, Plan B—the Ohio.

In many ways this new route was better. Ever since Euro-American pioneers had breached the Appalachians and began settling in the Ohio Valley, the Ohio was the major route to take. Flatboats and other craft traveled down the river by the thousands. It was the “highway” to the West. William Clark and his family had taken it in 1785 when they moved to Louisville. By the early 1800s Zadok Cramer’s *The Navigator*, published in Pittsburgh, served as the guidebook for travelers on the Ohio, providing information on the river, its channels, towns, and maps. Published travelers’ accounts also provided useful information. And conveniently, with Lewis and Clark now teaming up as one of the most famous partnerships in history, Clark and the men he recruited were right on the route and would be waiting for Lewis at the Falls.

Lewis left Pittsburgh on August 31, about a month behind his planned departure date. As he explained it to Jefferson on September 8, from Wheeling, he was “shamefully detained by the unpardonable negligence of my boat-builder.”<sup>4</sup> And now, by late summer, the Ohio was very low and making his way down river would be difficult. Before the dam system and the navigation pools they created, the Ohio could be so low a person could walk across it in certain seasons. Lewis reported that the water was only six inches deep in some channels. As he made his way down river, he had to hire teams of horses and oxen to drag the keelboat forward in some areas. In others men wielded shovels to sluice sand bars to keep the boat moving downstream. Lewis reported that he averaged twelve miles a day from Pittsburgh to Wheeling, but on some days only four and one-half to five miles were achieved. The expedition’s red pirogue was purchased in Wheeling and other small craft occasionally used to lighten the keelboat’s load. The farther downriver Lewis’ little flotilla traveled the better navigation became as more tributaries added to the Ohio’s waters, but it was still slow going. The novice explorer also noted fogs, heavy dews, a huge squirrel migration crossing the river, and other observations.<sup>5</sup>

Who accompanied Lewis when he set off down the Ohio? The first sentence of what would be thousands in his journals over the course of the journey, dated August 31, 1803, states that eleven men were with him: seven soldiers, a pilot, and “three young men on trial” as prospective members of what would become the famous Corps of Discovery. This number fluctuated depending on dismissals and hands hired to help move the boats downstream. By the time Lewis reached Cincinnati on September 28, he reported to Jefferson that he had two men (rather than the initial three) on trial. Who were they? All agree that one was George Shannon. The youngest enlisted member of the Corps, Shannon is believed to have been attending school in Pittsburgh at the time. The other member generally listed is John Colter, since he is believed to have been living in the Maysville, Kentucky, area and Lewis stopped there en route downriver. This author’s theory is the second recruit was George Gibson. In a post-expedition document, Gibson stated that he was from Mercer County, Pennsylvania. Mercer and several other counties were created from the much larger Allegheny County (Pittsburgh’s county) in 1800. Therefore, Gibson was living in the Pittsburgh area in the years just before Lewis set off down the Ohio. Also, the two Georges



"Plan of the Rapids or Falls of the Ohio" from Victor Collot's atlas accompanying his *A Journey in North America*, plate 17. Courtesy Filson Historical Society.

often are connected on the expedition, including the same enlistment date of October 19 at the Falls of the Ohio.<sup>6</sup>

In addition to Lewis' incomplete journal and his correspondence, other sources provide information regarding his journey down the Ohio. Newspapers reported Lewis' activity, sometimes inaccurately using old information, rumor, and mentioning the officially stated goal of exploring the headwaters of the Mississippi—but sometimes speculating that the Missouri and farther west might be a goal. An important source is Thomas Rodney's journal and letters to his son Caesar. Rodney, heading for a judgeship in Mississippi Territory, recorded his meetings with and news of Lewis as he traveled down the Ohio. On September 8 and 9, at Wheeling, Rodney described the air gun, the keel-boat, and Lewis' objectives. But Rodney harbored doubts

about Lewis and his undertaking, writing, "Captain Lewes is a stout young man but not so robust as to look able to fully accomplish the object of his mission, nor does he seem to set out in the manner that promises a fulfilment of it." Those doubts did not prevent Rodney from enjoying Lewis' company. They dined, had drinks, and snacked on water-melons prior to Lewis' continuing downriver. Rodney noted news of Lewis at Maysville, Cincinnati, and Big Bone Lick (complaining that he had carried off all the large fossils). At Louisville he caught up to him.<sup>7</sup>

Rodney provides one of the three sources providing news of Lewis and Clark at the Falls of the Ohio. When Lewis invited Clark to join him as co-leader of the expedition and in their early exchanges of letters, he estimated rendezvousing with his partner in early August. As delays in completing the



The Louisville paper of the 25th ult. contains the following information :—" An expedition is expected to leave this place shortly under the direction of capt. Wm. Clarke and Mr. Lewis, (private secretary to the President) to proceed through the immense wilderness of Louisiana to the Western or Pacific Ocean. The particular objects of this undertaking are at present matters of conjecture only ; but we have good reason to believe that our government intend to encourage settlements and establish sea ports on the coast of the Pacific Ocean, which would not only facilitate our whaling and sealing voyages, but enable our enterprising merchants to carry on a more direct and rapid trade with China and the East-Indies."

Clipping from *The Daily Advertiser*, New York [City], September 19, 1803. Courtesy Filson Historical Society.

keelboat continued and the river continued to drop that date got later and later. Finally, on October 14, Lewis reached Louisville. The *Kentucky Gazette* reprinted a report from a Louisville newspaper of October 15 announcing Lewis had arrived the day before. Clark had been anticipating Lewis' arrival and undoubtedly was there to meet him. Rodney reached Louisville at one in the afternoon on October 15, and wrote his son Caesar the next day, reporting, "Lewis's boat passed the Falls just before we got here but I am informed he will be detained here all next [week]." Rodney had heard in Maysville that Lewis planned on staying in Louisville for a week, and had it confirmed when he reached Louisville. But that one week became almost two. Why the delay? A need to rest the crew? A need to replenish certain supplies? A need to allow Clark more time to wrap up his affairs? A need to evaluate and enlist the men that Lewis and Clark had recruited? Did the keelboat get damaged in passing through the rapids that were the Falls? The Indian or Indiana Chute was the main and safest route through the two miles of rapids but it was rock strewn and dangerous, especially in low water. Recent rain might have raised the water level and thus the rush to take the boats through the Falls to Clarksville at the foot of the Falls on the Indiana side.<sup>8</sup> The reason for the lengthy delay at the Falls might never be known. The season rapidly was advancing, and the

goal of traveling some 100 or more miles up the Missouri before establishing winter camp was perhaps fading.

While Lewis was in Pittsburgh and making his way down the Ohio, what was William Clark doing? The timing of Lewis' invitation to accompany him on the expedition arrived at a perfect time in Clark's life. That spring he and his brother George had moved from the family farm Mulberry Hill outside Louisville to a farm at the Point of Rocks, at the foot of the Falls on the Indiana side. Clark was forced to sell Mulberry Hill to settle debts he had incurred in assisting George with his tangled legal and financial affairs dating back to the American Revolution. Consequently, he was in search of opportunities; and in mid-July his friend Lewis' invitation arrived. Clark knew that if successful he might well be set for life with financial compensation, reputation, and territorial employment.

Clark being Clark wasted no time in setting about preparing for the journey and an absence of at least two years. With most resources and family and friends in Louisville he spent much time there, but moved back and forth between Louisville and Clarksville. The surviving letters between him and Lewis help document this movement as well as their intention to meet in Louisville. The legal and business affairs he could not conclude before setting out were entrusted to his brother Jonathan. A top priority was recruiting

LOUISVILLE, October 15.  
Captain Lewis arrived at this port on Friday last. We are informed, that he has brought barges &c. on a new construction, that can be taken in pieces, for the purpose of passing carrying-places; and that he and captain Clark will start in a few days on their expedition to the Westward.

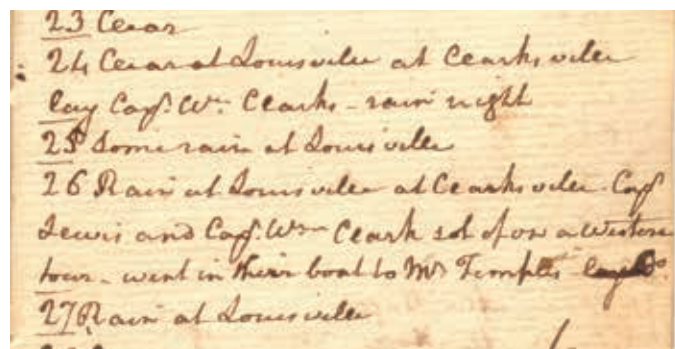
Clipping from the *Kentucky Gazette*, November 1, 1803. Courtesy Filson Historical Society.

the "good hunters, stout, healthy, unmarried men, accustomed to the woods, and capable of bearing bodily fatigue in a pretty considerable degree." And Clark knew such men. If Lewis brought two with him, then Clark added seven. Those seven were Charles Floyd, Joseph and Reuben Field, John Colter, John Shields, William Bratton, and Nathaniel Hale Pryor. Floyd and Pryor were first cousins and would be

appointed sergeants in the Corps, testifying to their ability and the confidence the captains placed in them. Shields, in addition to being an excellent hunter, was a blacksmith and gunsmith—a must for an expedition heading into the wilderness for two years or more. Shields was married but the ever practical Clark knew Lewis' charge to recruit single men would simply need to be waived in order to have someone with these crucial smithy skills with them. The other men all were excellent hunters and woodsmen, raised on the frontier and very capable of bearing the expected fatigues and dangers of the journey. These first enlisted members of the Corps of Discovery were dubbed by Clark the "Nine Young Men from Kentucky." Six of the nine were enlisted at the Falls from October 15 (Colter) to October 20 (Pryor). But Clark was so sure of Floyd and the Field brothers that he ignored Lewis' request to delay enlisting men until his arrival at the Falls. Their enlistment date was August 1.<sup>9</sup>

An important member of the expedition, who never was an official member of the Corps, and only was compensated by whatever reward Clark chose to give him, was Clark's enslaved African American York. Companions since childhood, York was Clark's manservant and had traveled extensively with him. He also had grown up on the frontier and had many of the same frontier skills as the Nine Young Men. These and having a servant to make camp life more comfortable certainly were desirable. York almost certainly had no choice in going on the journey. Clark wanted him with him so he went. The fact that he left a wife behind in Louisville was of no concern to Clark. York acquitted himself well—as did all the Falls recruits—but the major advantage in having him on the journey was not apparent until the Corps encountered native peoples who had never seen a person with black skin. That uniqueness earned York the name "Big Medison" and the captains used the advantage York gained them to help to successfully advance the expedition.<sup>10</sup>

Preparations proceeded at the Falls, with the captains traveling back and forth between Louisville and Clarksville. Family and friends were visited and good byes said. On October 17, the captains visited Rodney on his boat on the Louisville waterfront and enjoyed a glass of wine with him. On October 24, Jonathan Clark journeyed to Clarksville from his farm outside Louisville, apparently anticipating the explorers' setting off either that afternoon or the next. The nucleus of the Corps of Discovery, twelve permanent members of the Corps, a temporary party to assist them, a pilot, and of course Lewis' faithful dog Seaman, finally pushed

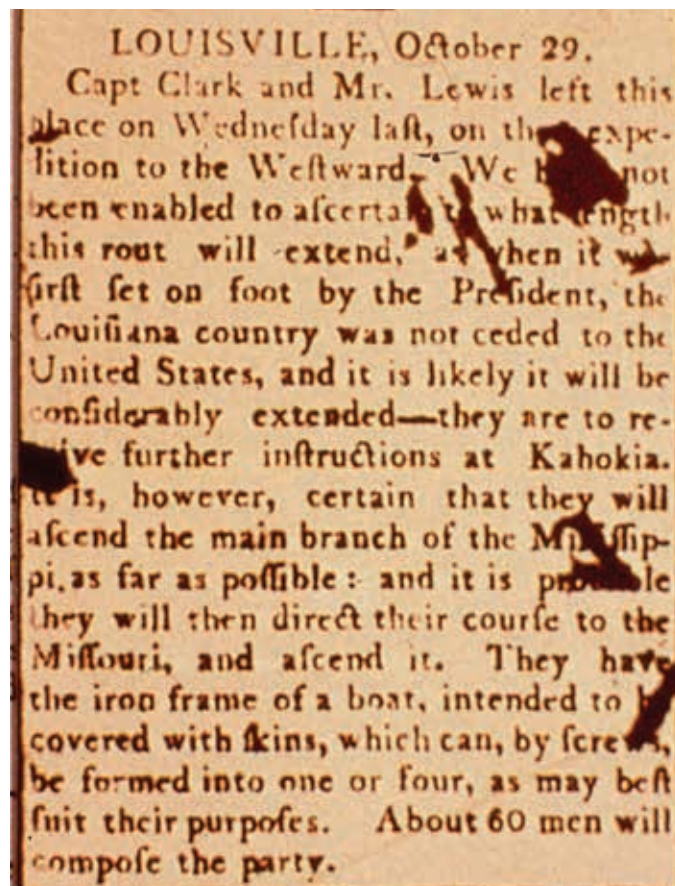


23 Clear  
24 Clear at Louisville at Clarksville  
lay Capt. W. Clark - saw night  
25 Some rain at Louisville  
26 Rain at Louisville at Clarksville Capt  
Lewis and Capt. W. Clark set off on a Western  
tour - went in their boat to Mr. Tompkins' camp  
27 Rain at Louisville

From the diary of Jonathan Clark, October 26, 1803. Courtesy Filson Historical Society.

off down the Ohio and into the wilderness on October 26. Jonathan recorded the event in his diary, "Capt. Lewis and Capt. Wm. Clark sot of [set off] on a Western tour." (Oh, had he only provided more description!) The November 8 issue of the *Kentucky Gazette* reprinted the Louisville newspaper's report of their departure.<sup>11</sup>

The journey from the Falls of the Ohio to Fort Massac on the lower Ohio essentially is a blank. No known journal, notes, or letters survive from those approximate two weeks. The little flotilla arrived at Fort Massac on November 11.



LOUISVILLE, October 29.  
Capt Clark and Mr. Lewis left this place on Wednesday last, on the expedition to the Westward. We have not been enabled to ascertain what length this rout will extend, as when it was first set on foot by the President, the Louisiana country was not ceded to the United States, and it is likely it will be considerably extended—they are to receive further instructions at Kahokia. It is, however, certain that they will ascend the main branch of the Mississippi, as far as possible: and it is probable they will then direct their course to the Missouri, and ascend it. They have the iron frame of a boat, intended to be covered with skins, which can, by screws, be formed into one or four, as may best suit their purposes. About 60 men will compose the party.

Clipping from the *Kentucky Gazette*, November 8, 1803. Courtesy Filson Historical Society.

Here they recruited more temporary soldiers to help move the boats up the Mississippi and at least a couple of the soldiers became permanent members of the Corps. The captains also hired George Drouillard there. One of the most important members of the expedition, Drouillard was working out of Fort Massac as a hunter and courier. The captains hired him as an Indian interpreter for twenty-five dollars a month. He proved his value far beyond that skill. He was sent to find the soldiers from South West Point in Tennessee that were to meet the party at Fort Massac. This he did, and on the 1804-06 expedition was one of the Corps' best hunters and scouts, in addition to his interpreting duties.<sup>12</sup>

Lewis maintained his journal for the remainder of their time on the Ohio; and Clark began intermittent journal entries. Letters written by both captains in November and December provide additional information about their activities on the lower Ohio and as they ascended the Mississippi to what would be the Corps' winter encampment at Wood River. Almost a week was spent at the confluence of the two rivers as they conducted field surveys and toured the area. On the morning of November 20, the party left the Ohio and began its ascent of the Mississippi.<sup>13</sup>

The Ohio would be traveled again by some members of the expedition in post expedition years. The keelboat was at Fort Massac in the spring of 1805 following its return from Fort Mandan up the Missouri. After that brief mention it disappears from history.<sup>14</sup> But in the summer and fall of 1803 the Ohio River was Lewis and Clark's first major river highway, carrying them westward on their exploration of the American West and into history. And it was at the Falls of the Ohio that the all-important foundation was laid for the Corps of Discovery and its eventual success. Lewis and Clark did not give praise lightly, and those they did note for special attention tended to be the men enlisted at the Falls of the Ohio and George Drouillard.

This integral part of the Lewis and Clark story officially was recognized in March 2019 when legislation was signed extending the Lewis and Clark National Historic Trail down the Mississippi from Wood River and St. Louis to the confluence of the Ohio and up the Ohio's entire length to Pittsburgh. An important section of the Corps of Discovery's Eastern Legacy is now on the official trail. Will more of the Eastern Legacy trail extending eastward to Philadelphia, Washington, and Monticello eventually be added to this national saga and trail that span from sea to shining sea? Time will tell. ■

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*James J. Holmberg is the Curator of Collections for the Filson Historical Society in Louisville, Kentucky. His major publication is Dear Brother: Letters of William Clark to Jonathan Clark, published by Yale University Press in 2002. Holmberg has written entries for the Kentucky Encyclopedia, Dictionary of Virginia Biography, African American National Biography, The Encyclopedia of the New American Nation, and The Encyclopedia of Louisville. He is a frequent contributor to WPO.*

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## Notes

1. Meriwether Lewis to Thomas Jefferson, April 20, 1803, Donald Jackson, ed., *Letters of the Lewis and Clark Expedition with Related Documents, 1783-1854*, 2 vols. (Urbana: University of Illinois Press, 1978), 1:38.
2. Lewis to Jefferson, May 29, 1803, Jackson, *Letters*, 1:53.
3. Lewis to William Linnard, June 10, 1803, Jackson, *Letters*, 1:53.
4. Lewis to Jefferson, September 8, 1803, Jackson, *Letters*, 1:121.
5. Jackson, *Letters*, 1:121-122; Gary E. Moulton, ed., *The Journals of the Lewis and Clark Expedition*, 13 vols. (Lincoln: University of Nebraska Press, 1983-2001), 2:65-84. Lewis' journal for his journey down the Ohio records the first nineteen days and then stops until November 11 when the party arrived at Fort Massac on the lower Ohio. As unfortunate as that is, what Lewis did record provides important information about events in the early days of the expedition and river conditions. For a good overview of Ohio River conditions specific to Lewis and Clark and through the years to the present see Michael Loesch, Lorraine Loesch, and Paige Cruz's article "Lewis and Clark on the Ohio River: Then and Now" in the May 2019 (vol. 45 no. 2) issue of *We Proceeded On*.
6. Lewis to William Clark, September 28, 1803, Jackson, *Letters*, 1:125; Moulton, *Journals*, 2:65, 81; Deed of Hugh McNeal to George Gibson, September 29, 1806, St. Louis City Land Records, Book B, 357.
7. Dwight L. Smith and Ray Swick, eds. *A Journey through the West: Thomas Rodney's Journal from Delaware to the Mississippi Territory*, (Athens: Ohio University Press, 1997), 50-53, 104, 111-112; Simon Gratz, "Thomas Rodney," *The Pennsylvania Magazine of History and Biography*, Philadelphia: The Historical Society of Pennsylvania, vol. 43 no. 1, (1919), 120-121, 124-125, 129, 132-133. It was from Cincinnati that Lewis wrote one of his longest expedition date letters. Addressed to Jefferson, Lewis updated the president on his progress and then wrote extensively what he had learned about the fossils at Big Bone Lick, Kentucky. He subsequently visited the lick after leaving Cincinnati and collected a significant number of fossils, including a large tusk. They were carried to the Falls and were then transported by boat for New Orleans for shipment to Jefferson. They never made it. While at the Natchez, Mississippi, landing the boat sank and the fossils with it. See Jackson, *Letters*, 1:126-132.
8. *Kentucky Gazette* (Lexington, Kentucky), November 1, 1803; Smith and Swick, *Journey*, 121; Thomas Rodney to Caesar Rodney, October 16, 1803, Gratz, *Rodney*, 133. Rodney wrote his son on Sunday, October 16, but mistakenly listed the day of the week as Saturday. In the letter he reports a variety of news, including Lewis' boats passing the Falls just before they arrived. The Louisville newspaper being published in 1803 was the *Farmer's Library*. No extant copies of it are known and the reports picked up by the *Kentucky Gazette* consequently are the source of Lewis' arrival in Louisville and later Lewis and Clark's departure on October 26.
9. Jackson, *Letters*, 1:58, 110-119, 123-125, 2:378; William Clark power of attorney, September 3, 1803, Jonathan Clark Papers - Temple Bodley Collection, The Filson Historical Society; George H. Yater and Carolyn S. Denton, *Nine Young Men From Kentucky, We Proceeded On*, Publication No. 11 (May 1992); James J. Holmberg, "Kentucky & the Lewis and Clark Expedition," *Lewis & Clark - Corps of Discovery 1803-1806*, (Clay City, KY: Back Home In Kentucky, Inc., 2003), 5-6, 8, 10-14, 16-17, 42-44, 46-47.
10. Robert B. Betts with a new epilogue by James J. Holmberg, *In Search of York: The Slave Who Went to the Pacific with Lewis and Clark*, revised edition, (Boulder: University Press of Colorado and Lewis and Clark Trail Heritage Foundation, 2000).
11. *Kentucky Gazette*, November 8, 1803; Smith and Swick, 124; Jonathan Clark Diary, October 24-26, 1803, The Filson Historical Society.
12. Moulton, *Journals*, 2:85-86, 516; James J. Holmberg, ed., *Dear Brother: Letters of William Clark to Jonathan Clark*, (New Haven: Yale University Press, 2002), 60, 66-67.
13. Moulton, *Journals*, 2:86-94; Jackson, *Letters*, 1:135-155; Holmberg, *Dear Brother*, 60-62.
14. Holmberg, *Dear Brother*, 87-88.



Lewis and Clark Trail Heritage Foundation 51st Annual Meeting

# Return to St. Louis

ST. LOUIS, MISSOURI • September 21–September 25, 2019

## Please join us this September in St. Louis . . .

As we commemorate the 50th anniversary of the incorporation of the LCTHF, we will share stories with old and new friends. On Sunday, Dr. Peter Kastor will deliver the 2nd Annual Moulton Lecture as he explores “What a half-century has taught us about Lewis & Clark and the world around them.” Throughout the meeting, registrants will have the opportunity to learn about new scholarship such as Mark Wagner’s findings from the Fort Kaskaskia site.

Registrants will visit the new museum exhibits at the Gateway Arch and learn about the background research from the curator and historian. Conference attendees will have a behind-the-scenes experience with Lewis and Clark artifacts at the Missouri Historical Society. We will revisit “Lewis and Clark Through Indian Eyes” with Indigenous scholars more than a decade after its groundbreaking publication. An exclusive chartered river cruise will take participants to the confluence of the Missouri and Mississippi Rivers, passing through the massive Mississippi lock system on this fascinating opportunity to understand changes to the river system since the time of Lewis and Clark. Scholars from the Osage Nation will share their history with Lewis and Clark and their delegation that met with Thomas Jefferson in 1804.

The final afternoon, attendees will choose one of three special tours: 1) an historical tour of Bellefontaine and Calvary Cemeteries

that will include visits to William Clark’s grave and the Nez Perce Warriors monument; 2) a visit to historic St. Charles (celebrating its 250th anniversary in 2019 with fiberglass replicas of Newfoundlands throughout the city) and the Lewis and Clark

Boat and Nature Center; or 3) a tour of Illinois Lewis and Clark sites including Campsite #1, the museum, and the Lewis and Clark Confluence Tower (completed in 2010).

We will be honoring individuals and organizations, past and present, that have worked together to make the Lewis and Clark Trail Heritage Foundation what it is today.

A pre-conference walking tour of the St. Louis riverfront will be offered on Saturday afternoon by NPS historian Bob Moore. You won’t want to miss this opportunity to learn about the St. Louis of Lewis and Clark. Archaeologist Michael Meyer will also be there to talk about his work with French colonial-era artifacts and the remnants of vertical log houses. Two post-conference day tours are being offered. One tour is to the recently designated Ste. Genevieve National Historic Park, where participants will tour

vertical log homes from the period. The second tour is a behind-the-scenes look at Jerry Garrett’s St. Louis. (This tour is not Lewis and Clark-focused but is a unique opportunity to see St. Louis through Jerry’s perspective.)



Hand-drawn map of Great Falls of the Columbia River by William Clark, Voorhis Journal 4, October 22–23, 1806. Missouri Historical Society Collections.

ST. LOUIS, MISSOURI • September 21–September 25, 2019



Return to St. Louis

## Commemorating the 50th Anniversary of the Incorporation of the Lewis & Clark Trail Heritage Foundation

### Conference Registration

**Conference registration is open.**

**Go online:** Visit [lewisandclark.org](http://lewisandclark.org) and click on **St. Louis Annual Meeting** to register

Registration after **August 1, 2019:**

- LCTHF Member: \$425
- Non-Member: \$474

### Host Institution



**MISSOURI  
HISTORICAL  
SOCIETY**

### Lodging

#### HEADQUARTERS HOTEL:

Drury Inn, Forest Park

#### RESERVATIONS:

**Go online:** [www.druryhotels.com/bookandstay/newreservation/?groupno=2312997](http://www.druryhotels.com/bookandstay/newreservation/?groupno=2312997)

or

**Call:** 1-800-325-0720 and use group code 2312997

Conference Hotel registration includes hot breakfasts, evening receptions, free Wi-Fi, and free parking

**If conference hotel is full, the following hotels/motels are within walking distance of the Drury Hotel Forest Park:**

Holiday Inn Express Forest Park  
5915 Wilson, St. Louis, MO 63110  
855.549.0864

Red Roof Inn  
5823 Wilson, St. Louis, MO 63110  
314.645.0101



The Tom Sawyer River Boat will take conference attendees to the confluence of the Mississippi and Missouri Rivers. Photo courtesy of Gateway Arch National Park.

Gateway Arch National Park exhibition.  
Photo courtesy of Gateway Arch National Park.



Lewis and Clark Confluence Tower,  
Hartford, Illinois.



Nez Perce  
Warriors  
Monument,  
Calvary Cemetery,  
St. Louis, Missouri.

**"Decended to the Mississippi and down that river to St. Louis at which place we arrived about 12 o'clock. We suffered the party to fire off their pieces as a salute to the town. We were met by all the village and received a harty welcom from its inhabitants &c."**

**WILLIAM CLARK  
September 23, 1806**



ST. LOUIS, MISSOURI • September 21-September 25, 2019



*Return to St. Louis*



MOUNDSVILLE, W. VA. THE MAMMOTH PRE-HISTORIC MOUND. 79 FT. HIGH. 900 FT. IN CIRCUMFERENCE AT BASE  
T. R. Rogers & Sons. 507 7th Street.

Early black and white postcard of Grave Mound, Moundsville, West Virginia. Courtesy Wikimedia commons.

# Down the Ohio and Up the Mississippi

By Paige Cruz

Sit back in your armchairs and hold onto your hats.

Come with us on a quick trip down the Ohio River from Pittsburgh, Pennsylvania, to Camp Dubois in Illinois that will take you along the entire length of the Eastern extension to the Lewis and Clark National Historic Trail, signed into law by President Donald Trump on March 12, 2019. Recall the Bicentennial activities on the Ohio. And see what remains for us to visit in those areas today.

*Let the Journey Begin...*

## Pittsburgh, Pennsylvania

Meriwether Lewis recorded in his journal on August 31, 1803, "Left Pittsburgh this day at 11 o'clock 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."<sup>1</sup>

When Lewis left Pittsburgh, it was a bustling place of about 1,500 people according to the census of 1800. Just

upstream on the Monongahela River was the Walker boatyard. Local lore has it that a vessel of some type from their boatyard was on the Lewis and Clark journey west.<sup>2</sup>

Earlier explorers and surveyors for companies like the Ohio Land Company had provided information to those traveling the Ohio River and navigation guides were also available. In 1750 and 1751 Christopher Gist, agent for the Ohio Land Company, surveyed land in the Ohio Valley in preparation for settlement.<sup>3</sup> The company, "making a move to acquire and colonize five hundred thousand acres of lands lying along the Ohio,"<sup>4</sup> had explored the West (Ohio, Kentucky, Indiana, West Virginia, western Maryland, and western Pennsylvania) through men like Gist, Colonel Thomas Lee, Thomas Cresap, George Washington, William Trent, Barney Curran, William Crawford, Hancock Lee, and for a time, George Rogers Clark.<sup>5</sup>

As interest in western lands continued to grow after the end of the French and Indian War in 1763, George Washington endeavored to secure patents for 200,000 acres promised

to colonial officers and soldiers. He made another surveying trip down the Ohio River as far as the Kanawha in 1770.<sup>6</sup>



The Discovery Expedition of St. Charles replica keelboat, red pirogue, and Corps of Engineers exhibit barge are dwarfed by Ingram Barge Company's towboat *James E. Anderson* as they move through Hannibal Locks and Dam during the 2003 Lewis and Clark Commemoration on the Ohio River.

By the time Lewis began his journey down the Ohio River in 1803, there were a number of settlements, but early navigation remained treacherous and in 1803 this was even more so as the river level was lower than usual. Autumn fog was also a concern, delaying Lewis' departure. Changing water and air temperatures heralding the new season create foggy conditions.

On Sunday, August 31, 2003, 200 years after Lewis' departure, those same Pittsburgh riverbanks were lined with people who had come to commemorate this epic voyage. A flotilla of boats led by the Onawa, Iowa, replica keelboat escorted the Discovery Expedition of St. Charles' keelboat into view on the Ohio River.<sup>7</sup>

The appreciation that the Lewis and Clark Expedition had its beginning in Pittsburgh continued to grow as the Discovery Expedition of St. Charles reenactors, a US Army Corps of Engineers exhibit barge, a private industry towboat, and a spud barge made their way down the Ohio River stopping at pre-determined locations important to the Lewis and Clark story. This carefully developed partnership also included the National Park Service, which sent a replica of the iron frame boat from Harpers Ferry National Historic Park, and volunteers from communities along the entire length of the Ohio River. The present-day "Corps of Discovery" traveled down a now navigable river very unlike that which Lewis and later Clark documented in their journals.<sup>8</sup>

Pennsylvania historians Roger and Brenda Applegate

noted Lewis' presence in and later departure from Pittsburgh on a state Lewis and Clark Expedition marker in downtown Pittsburgh near the waterfront. The sign, located one block north of the 10th Street Bypass and Waterfront Drive intersection, states, "On Aug. 31, 1803, Capt. Meriwether Lewis launched a 50-foot 'keeled boat' from Ft. Fayette, 100 yards downriver. This marked the beginning of the 3-year expedition commissioned by President Jefferson, which opened America to westward expansion."<sup>9</sup>

Meriwether Lewis did not make it out of town without incident. Lewis described the event:

Arrived at Bruno's Island 3 miles below halted a few minutes. went on shore and being invited on by some of the gentlemen present to try my airgun which I had purchased brought it on shore charged it and fired myself seven times fifty five yards with pretty good success; after which a Mr. Blaze Cenas being unacquainted with the management of the gun suffered her to discharge herself accedentally the ball passed through the hat of a woman about 40 yards distant cutting her temple about the fourth of the diameter of the ball; shee feel instantly and the blood gusing from her temple we were all in the greatest consternation supposed she was dead by [but] in a minute she revived to our enespressable satisfaction, and by examination we found the wound by no means mortal or even dangerous....<sup>10</sup>

The journey continued as Lewis faced low water, riffles, and the need to lift the boat over extremely low areas of the river. Fatigued, that night Lewis "gave my men some whiskey and retired to rest at 8 OClock—."<sup>11</sup>

Pittsburgh's Mount Washington overlooks Brunot Island which has limited access today. At Mount Washington in Point of View Park (Grandview Avenue at Sweetbriar Street) on the westernmost end of Grand View Scenic Byway is a statue of George Washington conversing with an early Native American resident of the area. Adjacent to this sculpture is a Lewis and Clark interpretive sign developed and installed through the leadership of Brenda Applegate.

## Logs Town

On "Septr. 2ed" Lewis wrote,

supposed I had gotten over Logtown riffle but find ourselves stranded again suppose it best to send out two or three men to engage some oxen or horses to assist us obtain one horse and an ox, which enabled us very readily to get over payd the man his charge which was one dollar; the inhabitants who live near these riffles live much by the distressed situation of traveller....



Racine Locks and Dam inundated the treacherous Letart Falls that Lewis described in his journal entry for September 18, 1803. Photo courtesy US Army Corps of Engineers.

In his frustration, Lewis went on to describe the residents of the area as “generally lazy charge extravagantly when they are called on for assistance and have no philanthropy or continence....”<sup>12</sup>

A Lewis and Clark marker is located at Baden, Pennsylvania, along Route 65 in Hill Cemetery near the site Lewis described. Logstown, a major Native American trading village between 1747 and 1758, was the site of important conferences and treaties between the British and native tribes. While working on a mission for Governor Dinwiddie, George Washington counseled with Indians at Logstown in 1753.<sup>13</sup>

### Legion Ville

Near Logstown is Legion Ville where the Applegates note that “Redoubt #4 from Legion Ville once stood in the southwest corner of Hill Cemetery.” Although the cemetery was founded in 1819, it contains much earlier graves. Also located at Baden, Pennsylvania, on Duss Avenue is a marker for Legion Ville established in 1792 as a military training ground by General “Mad” Anthony Wayne before the Battle of Fallen Timbers which opened the Northwest Territory to settlement. William Clark reportedly received his military training at

Legion Ville under General Wayne. At this location are markers for both Legion Ville and Logs Town placed by the Daughters of the American Revolution (DAR).

Native Americans, including the Shawnee, Delaware, Mingo, Chickasaw, Wyandot, Cherokee, Iroquois, and others were present along the Ohio River when Lewis traveled in this area. The Treaty of Greenville in 1795 “brought an uneasy peace” between the settlers and the Indians.<sup>14</sup>

### Rochester, Pennsylvania

On a rainy September day 200 years after Meriwether Lewis traveled through the confluence of the Ohio and Beaver Rivers, Rochester was the site of a community commemoration of the re-creation of the expedition. Eugene Painter, great grandson of Patrick Gass, noted his ancestor’s participation.<sup>15</sup> The marker commemorating Lewis’ passing on the Ohio River is located in Riverfront Park on Water Street on the bank of Ohio River near the mouth of the Beaver River. Located on Beaver Creek is a “Flags Across America” display with information panels on Lewis and Clark.

More than 35 communities along the river and the river corridor held events during the Bicentennial of Lewis

and Clark's journey. Most significantly, the recognition during the 200th anniversary commemoration solidified the historical context of the beginning of the expedition on the Ohio River.

### **Mackintosh (now Beaver), Pennsylvania**

Lewis recorded on September 3 passing "the mouth of big beaver creek and came to ancor off Macckintosh[,] a fort founded in 1778 by General Lachlan McIntosh. There Lewis met Guy Bryan, a wealthy merchant from Philadelphia who had two boatloads of furs. Bryan informed him that if he could get over the Georgetown bar, his travels would be easier. While there, Lewis "discharge[d] one of my hands." More ruffles followed and again they "were obliged to unload and drag over with horses."<sup>16</sup>

The site is marked on the south side of River Road opposite Insurance Street in a roadside park next to the Ohio River. An archaeological dig from 1974 to 1978 uncovered foundations of the walls and some interior buildings still visible today. The area contains informational signs and a stone marker erected by the Fort McIntosh DAR.

In 1785 William Clark's older brother, George Rogers Clark, was involved in negotiating a treaty here with the Wyandots, Delawares, Ottawas, and Ojibwas.<sup>17</sup>

### **Georgetown, Pennsylvania**

Lewis' troubles increased on September 4 at Georgetown, founded in 1793. Fog, low water, and ruffles plagued him daily and now he had a leaky pirogue. He wrote that

the Perogue was loaded as his been my practice since I left Pittsburgh, in order as much as possible to lighten the boat, the [men] who conducted her called as in distress about an hour after we had got under way, we came too and waaited her coming up found she had sprung a leak and had nearly filled; this accedent was truly distressing, as her load consisting of articles of hard-ware, intended as presents to the Indians got wet and I fear are much damaged; proceeded about three miles further got fast on a bar below georgetown, and with the assistance of some of the neighboring people got overe it with much difficulty; at Georgetown purchased a canoe compleat with two paddles and two poles for which I gave 11\$, found that my new purchase leaked so much that she was unsafe woithout some repairs...

Stopping for the night, Lewis checked the articles. After drying them out, oiling them, and putting them in oil cloth bags for storage in casks, Lewis reported that, "the articles

were not as much injured as I had supposed..."<sup>18</sup>

The marker commemorating Lewis' stop in Georgetown is located at the intersection of 1st and Market Streets. Also nearby is the Georgetown River Hotel, now a private residence, which was built in 1803 and may have been there when Lewis stopped.

Later that day, Lewis recorded in his journal,

about two miles above my camp passed the line, which divides the States of Virginia and Pennsylvania... from the State of Ohio; this line is made vible from the timber having been felled about sixty feet in width, the young timber has spring up but has not yet attained the hight of the other that it can with ease be traced with the eye a considerable distance—....<sup>19</sup>

That same line seen by Lewis is marked today by the "Point of Beginning" marker in Ohioville on the south side of Midland Road (Pennsylvania Route 68) a quarter mile west of Calcutta Road on the Pennsylvania/Ohio state line. The Point of Beginning was established by a survey that marked the western boundary of Pennsylvania. From there a line was run due west in 1785 to survey a group of townships in the Ohio Territory known as the "Seven Ranges." All subsequent public land surveys from this point forward would trace their history to this single point on the Ohio River.

### **Steubenville, Ohio**

On September 6 Lewis arrived at Steubenville, a small town founded in 1797 with a fort established ten years earlier and named for Baron Friedrich Wilhelm von Steuben. Lewis had again loaded and unloaded his boats, and upstream of the town, hired a man with a team of horses who "charged me an exorbitant price of two dollars for his



Lewis purchased what came to be designated as the Red Pirogue at Wheeling (now West Virginia) on September 8, 1803.

trouble.” A strong wind helped carry them further downstream by use of their sails; when they got hung up again on a riffle, Lewis and his exhausted men were forced to hire a team of oxen to pull them over the riffles.<sup>20</sup>

Today, a reconstructed Fort Steuben is open to the public with a beautiful visitor center and exhibits adjacent to the fort area.

### **Charlestown, Virginia (now Wellsburg, West Virginia)**

Continuing on, Lewis noted the location of Charlestown, founded in 1791, in his journal as about six miles below Steubenville. He wrote on September 7 about striking a riffle just above Charlestown as they passed “the mouth of Buffaloe over which there is built a handsom wooden bridge, this has the appearance of a handsome little Village, containing about forty houses— this village is three miles below our encampment of last evening...”<sup>21</sup>

When Corps member Patrick Gass returned home to Charlestown, Virginia (now Wellsburg, West Virginia), in 1806, he brought the journal he kept during the expedition, the hatchet he used on the journey, and a small razor box carved for him by Sacagawea while at Fort Mandan. He directed that these items be handed down from generation to generation in his family.<sup>22</sup>

Although he had only fourteen days of formal education, Patrick Gass was the first to publish his journal in 1807. He also saw additional military service including in the War of 1812.<sup>23</sup> Gass and his wife Maria are buried in Brooke Cemetery; a bust of Gass dedicated in 2003 is near the river; and the Brooke County Museum at Wellsburg has exhibits on the 2003 commemoration.

### **Wheeling, Virginia (now West Virginia)**

This was an important stop for Lewis as supplies he had purchased were delivered to this point overland on Braddock’s Trace, part of which eventually became the Old National Road. The trace was also a road Lewis had used earlier in his army career to travel to Pittsburgh. In addition to the supplies, he acquired another pirogue to carry those items.

His list of necessities included rifles, tomahawks, knives, and the iron-frame boat from Harpers Ferry and a long list of other items from Philadelphia. Among the items he took on the journey were mathematical instruments, arms and accouterments, ammunition, camp equipage, provisions, Indian presents, and medicine.<sup>24</sup>

While in Wheeling Lewis wrote to President Jefferson on September 8 about his problems with the boat-builder in Pittsburgh and his issues with navigating the Ohio River noting,

I have passed as many as five of those bars, (or as they are here called riffles) in a day, and to unload as many or more times. The river is lower than it has ever been known by the oldest settler in this country. I have been compelled at this place in order to transport the baggage which was sent by land from Pittsburgh, and also to lighten the boat as much as possible. On many bars the water in the deepest part dose not exceed six inches.<sup>25</sup>

Today a developed Wheeling waterfront acknowledges with interpretive panels Lewis’ passage and his acquisition of the red pirogue here.



The keelboat and pirogue negotiate the fog on the Ohio River, 2003.

### **Moundsville, West Virginia**

On September 10 Meriwether Lewis described landing on shore about 11 o’clock in the morning to see a remarkable sight, an “artificial mound of earth called by the people in this neighborhood the Indian grave...” He thus described Grave Creek Mound built by the Adena Indians centuries earlier.

This remarkable mound of earth stands on the east bank of the Ohio 12 miles below Wheeling and about 700 paces from the river,...this mound gives name to two small creeks called little and big grave creek which passing about a half mile on each side of it & fall into ohio about a mile distant from each other...<sup>26</sup>

Lewis went on to describe a small town to the north “lately laid out called Elizabethtown there are but about six or seven dwelling houses in it as yet, in this town there are several mounds of the same kind of the large one but not

near as large....”<sup>27</sup> Elizabeth Town, where Moundville now stands, was established by an act of the Virginia Assembly in January of 1803, although settlers were in the area as early as 1772.<sup>28</sup>

Lewis goes on to describe the mound in great detail and adds that he

was informed that in removing the earth of a part of one of those lesser mounds that stands in the town the skeletons of two men were found and some brass beads were found among the earth near these bones, my informant told me the beads were sent to Mr. Peals museum in Philadelphia....<sup>29</sup>

A tunnel made in 1838 from the north side of the mound Lewis observed revealed two skeletons near the center. A second tunnel disclosed artifacts.<sup>30</sup> The state of West Virginia currently protects and manages the property along with the Delf Norona Museum near the mound.

## Marietta, Ohio

Lewis discussed in his journal the thirteen hands onboard when he stopped at Marietta, Ohio.<sup>31</sup> This historic town, settled in 1788, was the first settlement in the Northwest Territory. Ohio, carved out of the Northwest Territory, had just become a state in 1803. The Ohio Land Company had an office in Marietta and endeavored to attract settlers to the thousands of acres of land in its possession.

The founders named their new town in honor of Marie Antoinette of France and their stockade Campus Martius in honor of the ancient Romans. “One resident called Campus Martius ‘the handsomest pile of buildings on this side of the Allegheny mountains.’”<sup>32</sup>

One of the four blockhouses of the stockade included the home of General Rufus Putnam. The office of the Ohio Land Company and the Putnam home, incorporated in the Campus Martius Museum, are now on the National Register of Historic Places. Lewis would have seen these structures while in Marietta in September of 1803.

On September 13 Lewis, now 100 miles below Wheeling, again wrote to President Jefferson that,

from whence in descending the water is reather more abundant than it is between that place [Wheeling] and Pittsburgh insomuch that I have been enabled to get on without the necessity employing oxen or horses to drag my boat over the ripples except in two instances; tho’ I was obliged to cut a passage through four or five bars, and by that means past them...” Lewis would dig through the loose gravel so

that water could pass through the cut and create a channel for his boat.<sup>33</sup>

## Blennerhassett Island

Lewis passed by Blennerhassett Island but failed to stop or note Harman Blennerhassett’s large mansion located there. He may have known that the residents could already have been connected with Aaron Burr and his filibustering plots to separate the West from the rest of the United States.<sup>34</sup> The island, accessible only by boat, has reconstructed buildings and is open to visitors from May through October.



Blennerhassett Island, where Aaron Burr stirred up so much trouble. Lewis passed by what would be the locus of the Burr conspiracy, but did not visit the island. Photo by T.W. McCutcheon.

## Ravenswood, West Virginia

The Ravenswood, West Virginia, area, where George Washington had land claims, was a place for Lewis to lay out and dry his goods. They were wet from an earlier rain storm even though he had wrapped them in oil cloth and commanded that water be bailed from the boats during the night. He and his men labored all day drying, oiling metal items, and airing his goods before repacking them in “casks, trunks, and boxes—.” He observed that the water in this area was frequently subject to strong winds that blow upstream which necessitated the use of “hard rowing—or force of the oar or pole.”<sup>35</sup>

The Racine navigation pool would have inundated the many sandbars, riffles, and low shoreline that plagued Lewis. A small park along the river at Ravenswood, the Washington Western Land Park Museum, contains a Lewis and Clark marker at the site of old lock and dam no.22 constructed in 1918 and replaced by the current system.

On September 18 Lewis described Letart Falls during an early morning run as “the most considerable in the whole

course of the Ohio, except the rapids as they are called opposite to Louisville in Kentucky—the descent at Letart’s falls is a little more than 4 four feet in two hundred fifty yards.”<sup>36</sup> This known navigation hazard was eliminated by the construction of Racine Locks and Dam.

After Lewis navigated Letart Falls, he stopped making journal entries. We know his route and some of his activities from other sources in the interim until he began keeping his journal again in November of 1803.

### Vanceburg, Kentucky

This vantage point overlooking the river gives a panorama of the riverbend and a sense of where the explorers were headed. A small park with a commemorative cottonwood dedicated in 2003 links the passage of Lewis and his men past this point.<sup>37</sup>

### Maysville, Kentucky

John Colter was from this area and may have joined Lewis here.

### Augusta, Kentucky

The British Proclamation of 1763 setting “aside all lands lying between the Alleghenies and the Mississippi River for the exclusive use of the aboriginal population” may have slowed settlement of the area but did not stop it. Some of the buildings in Augusta, founded in 1795, were there during Lewis’ time.<sup>38</sup>

### Cincinnati, Ohio

Ten days after passing Letart Falls, Lewis writes to William Clark on September 28 to inform him he has arrived at Cincinnati. His attention is focused on the soldiers the expedition is recruiting and their compensation.<sup>39</sup>

### Big Bone Lick

Earlier reports from Christopher Gist in 1751 noted bones “taken from one of the salt licks a short distance above the falls. The rib-bones from one of these beasts found in this lick were eleven feet long and the skull bone over six feet in width; several teeth were found that were about five inches long.”<sup>40</sup>

Lewis traveled by land to Big Bone Lick and had his boat meet him there. He collected specimens to send back to President Jefferson, but the boat reportedly sank on its return east and the specimens were lost. In 1807 Clark did collect a

number of specimens that he sent to the curious president.<sup>41</sup>

Today a state park established in 1960 has exhibits and a visitor center that tell the story of Big Bone Lick with interpretive signs acknowledging the presence of Lewis and Clark. The Behringer-Crawford Museum in Covington, Kentucky, also has some specimens from Big Bone Lick.

### Falls of the Ohio

It was here that Clark joined Lewis as they prepared for their journey. Clark had recruited more men for the expedition while he awaited Lewis’ arrival. Once the two captains joined forces, supplies, men, and boats were ready to head to Fort Massac at the end of October.

The statue by Carol Grende of the explorers shaking hands gracing the front of the Falls of the Ohio Interpretive Center in Clarksville, Indiana, commemorates the moment of their meeting at this spot. The Interpretive Center’s exhibits and film take the visitor with the explorers on their journey. Nearby is the recreated Clark cabin where William Clark lived with his older brother George Rogers Clark.

The falls are no longer a treacherous navigation hazard as McAlpine Locks and Dam on the opposite shore provide safe passage past the falls. In Louisville, Locust Grove, the home of William Clark’s sister Lucy Croghan, has been restored. Mulberry Hill, the Clark family homesite, and family graves are located at Louisville’s George Rogers Clark Park. The Filson Historical Society research facility in Louisville offers exhibits and resources for scholars.

### Paducah, Kentucky

In 1827 Clark purchased 37,000 acres of land along the Ohio which included the area of Paducah. A mural of Lewis and Clark on their journey on the floodwall, statues of the explorers near the National Quilt Museum, and the 1905 William Clark Market House Museum are all located there.<sup>42</sup>

### Fort Massac

Lewis began writing in his journal again on November 11 when the explorers arrived at Fort Massac. There they hired George Drouillard to join the expedition. Over the years the fort was destroyed and then rebuilt in 1794 by General Anthony Wayne.<sup>43</sup> Today the reconstructed fort stands on a promontory and offers a commanding view of the Ohio River.

### Cairo, Illinois

The Ohio River flows into the Mississippi at Cairo. Lewis

and Clark spent several days in this area using their surveying equipment to determine latitude and longitude.

The Custom House Museum features a number of items relating to the Lewis and Clark Expedition. Surveying equipment of the type used by the explorers is prominently displayed with figures of Lewis and Clark and an exhibit about Sacagawea. A catfish display replicates the size of the 128-pound catfish the men caught in this area. There are also monuments to York and Lewis' Newfoundland dog Seaman.<sup>44</sup>

On November 16 Jefferson wrote to Lewis clarifying his earlier instructions. "The object of your mission is single, the direct water communication from sea to sea formed by the bed of the Missouri & perhaps the Oregon." The President went on to discuss other explorations he had in mind, but stated he considered Lewis' mission of "major importance."<sup>45</sup>

On November 20 Lewis and Clark began the ascent up the Mississippi to Camp Dubois on the Wood River, which was to be their winter quarters.

Current residents along the Ohio River, from the places mentioned here and at many more along Lewis and Clark's route, took ownership of this historic event during the 200th anniversary of the explorers' presence in the area. During the Bicentennial commemoration those fortunate to have Indian heritage or to be descended from the explorers shared their knowledge along the route and offered displays and activities that contributed to the understanding of our history. Lewis and Clark exhibits, interpretive panels, and sites in the Eastern Extension help us to remember the journey that began in Pittsburgh and continued west to the Pacific and back. ■

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*Paige Cruz was the Eastern Legacy Coordinator for the Great Lakes and Ohio River Division, US Army Corps of Engineers during the 2003 Lewis and Clark Corps of Discovery Commemoration. She is currently the chair of the Eastern Legacy Committee for the Lewis and Clark Trail Heritage Foundation.*

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# *“it is a Limestone principally”*

## Lewis and Clark’s Initial “Mineral Productions” Observations

By John Jengo

*In assessing* Thomas Jefferson’s pre-expeditionary instructions to Lewis,<sup>1</sup> and acknowledging their emphasis on natural (but not necessarily earth) history, it is remarkable how much geological information was recorded by Meriwether Lewis and William Clark or in the four other extant expedition journals by Charles Floyd, Patrick Gass, John Ordway, and Joseph Whitehouse over the course of their 1803-1806 trek across the continent. The captains were responsible for documenting their observations in botany, zoology, and ethnology; recording meteorological information; attempting to conduct intricate intertribal diplomacy; making astronomical observations; surveying and map making; tending to the men’s injuries and illnesses; and of course, effectively guiding the Corps of Volunteers of North Western Discovery to their North Dakota winter encampment in the winter of 1804-05, then ultimately leading the 33-person permanent party across the continent and back over the next eighteen months.

Yet, there are several key segments of the expedition route where mineral and rock descriptions were in the forefront of Lewis and Clark’s observations along with instances

when the captains attempted to interpret the cause of some perceived geological displacement or upheaval. The first of these geologically intriguing regions was encountered during the late November 1803 ascent up the Mississippi River to the expedition’s 1803-04 winter encampment at Camp Dubois in Illinois across the river from St. Louis. This is when Meriwether Lewis first carried out Jefferson’s instructions to describe the “mineral productions of every kind.”

### **Limestone and Flint: The Geology Upriver from Cape Girardeau**

Following the descent of the Ohio River, the expedition turned up the Mississippi River on November 20, 1803, and began a strenuous journey against a “current very rapid and difficult.”<sup>2</sup> The uplands and rock cliffs that commenced a few miles below Cape Girardeau on the west side of the river would be the focus of Lewis’ geological observations until he disembarked at Kaskaskia five days later. Upon departing the expedition encampment at Old Cape Girardeau on the morning of November 24, 1803, Lewis noted, “the main shore has been generally bold on the Lard. quart. all day,”



*Tower Rock by Karl Bodmer, 1833. Courtesy Fort Mandan State Park, Washburn, North Dakota.*

with “high cliffs” that were:

nearly perpendicular in many places sixty feet, and the height of the hills appear to be about 120 feet above the bank which forms their base...the rock which compose these cliffs is a singular one tho’ not uncommon to this country it is a Limestone principally.<sup>3</sup>

There are numerous limestone<sup>4</sup> formations along the expedition’s November 24, 1803, route, but it is most likely Lewis was observing the Girardeau Limestone and perhaps the overlying Sexton Creek Limestone at Old Cape Girardeau and at points in the upstream vicinity, and then the more prominent Bailey Limestone as the corps approached that evening’s encampment.<sup>5</sup> These formations represent fairly similar ancient paleodepositional settings (a warm, shallow marine shelf conducive to the deposition of limestone), but they were laid down over three different geological periods (the Ordovician, Silurian, and Devonian, respectively)<sup>6</sup> separated by millions of years of non-deposition and erosion.<sup>7</sup> The Bailey Limestone is ten times thicker (more than 300 feet) than the other two older formations so it is likely this limestone figured most prominently in Lewis’ observation of

a “generally bold” shoreline on November 24, 1803.

It is evident that somewhere along the November 24 traverse, Lewis dedicated time to closely examine a limestone exposure, and he assiduously noted a distinguishing secondary feature in the limestones of this region:

imbeded in this stone there are detached pieces of a stone resembling flint of yellowish brown colour which appear at some former period to have been woarn smothe and assume different shapes and sizes as the pebbles of runing streams usually do tho’ now firmly united and forming a portion of the solid mass of this rock.<sup>8</sup>



On November 24-25, 1803, Meriwether Lewis: “imbeded in this stone there are detached pieces of a stone [chert] resembling flint of yellowish brown colour ...the flint appears to ly in stratas yet reather divided by the limestone.” This outcrop of Girardeau Limestone is at Old Cape Girardeau. The head of the rock hammer is 7-inches long.

The term “flint” can be technically synonymous with chert, a dense and very hard microcrystalline sedimentary rock composed of interlocking crystals of quartz (silicon dioxide or silica) less than thirty microns in diameter, but there are different perspectives on what types of present-day chert deposits would fit an early American (and Lewis and Clark’s) appellation of flint. For example, dark-colored chert

deposits were called flint because of their resemblance to familiar flint deposits in the chalk deposits of England.<sup>9</sup> The term flint was also used by many, including Lewis and Clark, for hard rocks of any color that fractured conchoidally and delivered a spark when struck, and, thus, exhibited the same characteristic features as the flint in their flintlock firearms. Even today, the line between the usage of “chert” and “flint” is imprecise. In practice, the term “flint” tends to be applied to small nodular occurrences of the rock, whereas “chert” is employed to describe massive, bedded occurrences.

Lewis was incorrect that the rounded occurrences of chert were “woarn smothe,” although this is an understandable error, because no one in his era understood the principal means of chert formation. Chert can form biochemically when sponge spicules and microorganisms such as diatoms and radiolarians<sup>10</sup> possessing a silica skeleton accumulate on the sea floor, dissolve, and then re-crystallize, oftentimes around the remains of marine organisms (which explains the nodular occurrences). There are two other modes of chert formation. One involves the amassing and precipitating of dissolved silica into irregular-shaped concretions. In the second, which occurs long after the limestone has deposited, dissolved silica in groundwater replaces the calcium carbonate of the limestone in the same manner in which silica both replaces and preserves plant cellular structure to form petrified wood.

Proceeding on upriver on November 25, 1803 (including passing present-day Trail of Tears State Park on the west bank), Lewis continued to note “the same rock discribed yesterday,” particularly the interbedding of chert layers with limestone:

the flint appears to ly in stratas yet reather divided by the limestone even in those stratas, they appear to be from six inches to a foot asunder. all the stone of whatever discription which I have observed in this country appere to lye in horizontal stratas except where they have been evedently been forced or removed from their original beds by the courrant of the river on which they border.<sup>11</sup>

The only difference between occurrences of “detached pieces” of chert that Lewis described on November 24, 1803, and his observations of chert lying in more contiguous “stratas” was the relative abundance of dissolved silica at the time of chert formation; enriched concentrations of silica will cause disparate chert nodules to merge into continuous or near contiguous layers. And overall, Lewis was correct about the horizontal nature of the geological formations along this reach of the Mississippi River.

## “Spanis whiting:” A Geological Investigation

Late in the evening of November 25, 1803, Lewis noted:

Arrived at the Grand Tower a little before sunset, passed above it and came too on the Lard. shore for the night. A discription of this place will be given in my journal tomorrow.<sup>12</sup>

This is now known as Tower Rock, one of the most famous landmarks of the Mississippi River, opposite the community of Grand Tower in Jackson County, Illinois. Before delving into the multiple observations made by Lewis of the environs of Tower Rock, it is worth investigating a succinct comment made by Lewis regarding another geological feature of interest:

a mile and ¼ below the G. Tower on the lard. qutr. is a large bank of white clay that appears to be excellent Spanis whit- ing, tho’ it has a considerable portion of grit in it.<sup>13</sup>

Spanish whiting is a pigment and extender composed of powdered calcium carbonate derived from chalk or limestone, and Lewis’ reference to a “bank of white clay” indicates he observed eroded material already in a powdered or finished state, rather than a consolidated limestone exposure. Yet, Lewis’ comment about “a considerable portion of grit in it” is not consistent with a typical composition of Spanish whiting, which has the textural consistency of chalk powder. To resolve this discrepancy, the author reconnoitered the toe-slope along the western bank of the Mississippi River from Tower Rock southward for one and a half miles in an attempt to locate the exposure Lewis described as being “a mile and ¼ below the G. Tower.” Three closely spaced, heavily vegetated banks of a white, fine-grained unconsolidated material were encountered approximately 4,000 feet to 4,600 feet downstream of Tower Rock that matched Lewis’ description of a “bank of white clay,” and no other “white clay” exposures were noted over the remaining distance from Tower Rock. Geologic mapping indicates this material has been recorded as the early Devonian age Bailey Limestone;<sup>14</sup> however, the material did not remotely resemble the characteristic light gray microcrystalline and interbedded consolidated limestone, lime mudstone, and medium gray chert of the Bailey Limestone the author examined elsewhere in the Tower Rock vicinity.<sup>15</sup>

The author collected “white clay” samples composed of a bright white, unconsolidated to loosely cemented material that was easily crushed into a powder from the most northern and southern outcrops and submitted two representative samples from these locales to an accredited mineral analysis laboratory for diagnostic mineralogical testing. The XRF

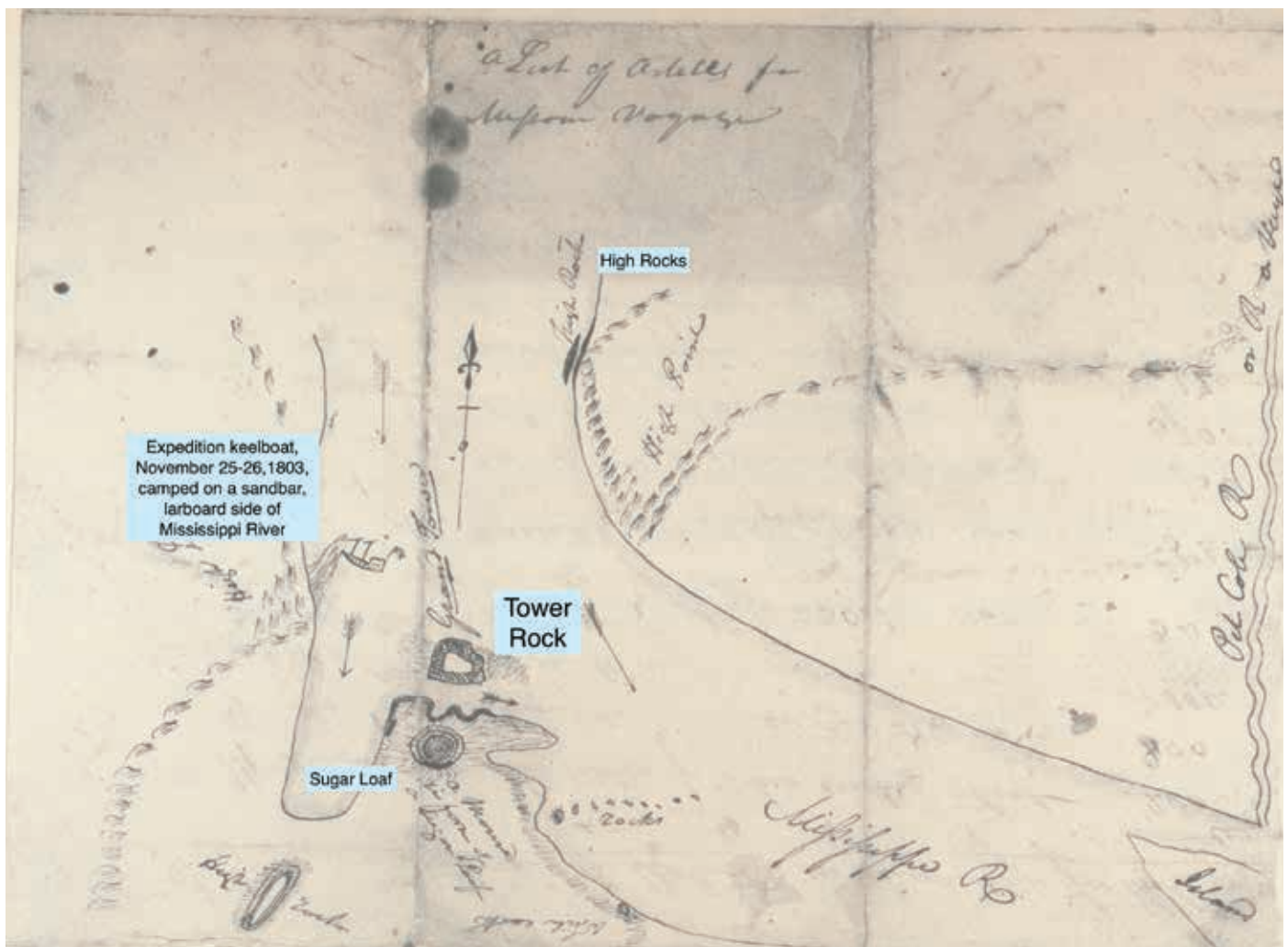


Upon arriving at Grand Tower [now known as Tower Rock], Lewis noted “a large bank of white clay that appears to be excellent Spanis whiting” downstream on the west bank of the river. The author endeavored to relocate this deposit and submit samples to an analytical laboratory to determine whether Lewis was correct in identifying such an exposure as powdered calcium carbonate.

analyses<sup>16</sup> indicated that silica ( $\text{SiO}_2$ ) composed 99.47% and 99.25% of the samples, respectively, with an exceedingly minor amount of calcium carbonate (0.02%). These analyses clearly indicate these outcrops were not composed of Spanish whiting, but the crystalline silica results do explain why Lewis thought the material had “a considerable portion of grit.” The author’s outcrops were located just north of the area known as “Silica Mines,” an area so substantively excavated that any outcrops Lewis may have observed there probably no longer exist.<sup>17</sup> Geological mapping has that vicinity mapped as the “Grassy Knob Chert,”<sup>18</sup> which includes massive thicknesses of chert (silica) residuum mantling the hilltops and slopes. As such, the author would propose the Grassy Knob Chert extends farther north than geological mapping indicates, and this was the formation Lewis observed and described as “a large bank of white clay that appears to be excellent Spanis whiting.”

## The “Grand Tower:” Geological Highlight of the Mississippi River Route

Lewis’ description of the geology of Tower Rock and its environs on November 26, 1803, is a near stream of consciousness narrative that often pivots from one geomorphic feature to another. As such, Lewis’ journal needs to be unpacked and dissected carefully to discern which of his descriptions correlates to a particular feature. This effort is aided greatly by two absolutely superb maps drawn by Clark, which have to be considered the best depictions of any expedition encampment.<sup>19</sup> Clark’s maps complement each other and analyses of both are necessary to obtain a coherent sense of the geography of the geological features at Tower Rock. For instance, Atlas map 3b benefits from an informative descriptive legend while Atlas map 3a graphically depicts the extent of some features that were only referenced with a legend number on Atlas map 3b.



Among the best maps ever produced of an expedition encampment, “Clark’s Map of the Grand Tower, route about November 25, 1803,” designated as *Atlas* map 3a, and used in conjunction with the informative descriptive legend on *Atlas* map 3b, allowed Lewis’ description of the geology of Tower Rock and its environs on November 26, 1803, to be corroborated and more accurately interpreted. The map has been annotated with both Lewis and Clark’s geomorphic descriptions, with present day nomenclature indicted in brackets.

Lewis began with a description of the isolated island of Tower Rock:

Hight of rock which forms the grand Tower is—92 Ft...  
I asscend it yesterday evening & measured the hight of it by  
a cord on the S. E. point.<sup>20</sup>

Lewis probably ascended Tower Rock on its more approachable northern face, but measured a vertical drop on the southeast side. Reviews of present-day topographic maps are somewhat indefinite in establishing an elevation of Tower Rock, but they appear to indicate a general height of between 60 and 70 feet above a normal river water level datum depicted on those maps; however, these estimates are notably shorter than the 92 feet Lewis directly measured. We could first consider that Lewis may not have been able to measure a completely vertical face (thus adding extra feet to the measurement). Yet Lewis was a fearless climber (and

this was before nearly falling to his death at Tavern Cave on May 23, 1804), and an exacting observer, so it is doubtful he refrained from taking a measurement at the most optimal spot. Perhaps a better way to account for this apparent discrepancy is to demonstrate that Lewis may have been measuring Tower Rock during unusually low river level (or stage height) conditions, thereby altering the elevation of the water level datum Lewis used to derive the 92-foot figure. To explore this possibility, we need to determine the approximate river stage height during the expedition’s stopover at Tower Rock on November 25-26, 1803.

Lewis apparently was conveying acquired information not reflective of the river conditions during the expedition’s visit when he described the navigation of high water conditions at Tower Rock in this riveting passage: When the river is high the courent setts in with great

violence on the W. side of this rock [Tower Rock] and being confined on that by a range of high hills is driven with much impetuosity through a narrow channel formed [formed] by the rock which composes this rock [again Tower Rock], and one which forms the base of the Sugar-loaf point, this current meets the other portion of the river which runs E. of the Tower and on the Tower side in an obtuse angle; these strong currents thus meeting each other form an immense and dangerous whirlpool which no boat dare approach in that state of the water; the counter current driving with great force against the E. side of the rock would instantly dash them to atoms and the whirlpool would as quickly take them to the bottom. In the present state of the water there is no danger in approaching it.<sup>21</sup>

Lewis' "present state of the water" suggests a relatively low stage height, which would account for the additional twenty feet in Lewis' estimated height of Tower Rock and enable us to potentially reconcile his 92-foot measurement with topography observable today.<sup>22</sup> This supposition may find support with Clark's note No. 1 on Atlas map 3b stating "Grand Tower" was "92 feet above low water Mark [emphasis added]." Lastly, internal journal evidence of the low stage height of the river can be found in Lewis' November 22, 1803, description of bank elevations of the Tywappity Bottom area (encountered the day before the expedition's arrival at Cape Girardeau) when he remarked "the present state of the water which was considered as very low."

Lewis described the geology of Tower Rock:

the rock is limestone & the same quality of the cliffs heretofore described (i.e.) intermixed with a considerable portion of Flint stone.<sup>23</sup>

Tower Rock is composed of the Bailey Limestone and it is, as Lewis correctly stated, "intermixed with a considerable portion of Flint stone," principally as lateral beds of smoky, medium dark gray to medium gray, minutely fractured, and microcrystalline chert nodules.

Lewis then describes the view from Sugarloaf Point, an isolated pinnacle of rock on the west bank just south of Tower Rock:

There is a most beautiful and commanding view from the summit of the sugarloaf point; it commands the top of the grand Tower about 60 feet and overlooks the low surrounding country: the view of the river above is particularly beautiful; as well as the range of hills which appear to the E. & stretching from the river below; from S. to N.<sup>24</sup>

It seems Lewis intended to convey that Sugarloaf Point

## Glossary:

**Microcrystalline:** texture of a rock consisting of small crystals that are only visible under the microscope

**Conchoidal:** a type of fracture in a rock (such as flint or quartz) with smooth, curved surfaces that resemble the interior of a seashell

**Nodular:** a small rounded or irregular shaped mass of a mineral or mixture of minerals usually harder than the surrounding rock or sediment

**Spicule:** a small, slender pointed structure that supports the tissue of various invertebrates such as sponges and corals

**Diatom:** single-celled marine or freshwater algae with cell walls containing silica

**Radiolarian:** single-celled microscopic animals possessing a spiny or perforated skeleton of silica

**Paleodepositional:** the physical, chemical, and biological environment associated with the deposition of particular types of sediments in the distant geologic past  
Microcrystalline: texture of a rock consisting of small crystals that are only visible under the microscope

**Residuum:** soil or rock debris that forms from the weathering of carbonate rocks (limestone and dolomite) that remains essentially in place.

was higher in order to "command" the top of Tower Rock, and by the author's estimation, it is marginally taller.<sup>25</sup> Sugarloaf Point, also composed of the Bailey Limestone,<sup>26</sup> does indeed have the gently rounded shape of a sugarloaf, the rounded cone in which sugar was shaped for distribution in Lewis' day. One can re-enact Lewis' climb to the apex of Sugarloaf Point by scrambling up a steep and densely wooded approach on the south side of the point. This is one of those rare, transcendent instances where you can be assured you are standing where Lewis once stood. The summit is a roughly twenty-foot by thirty-five-foot ellipse before falling away on all sides and the view today, even with modern intrusions, is no less beautiful. From this vantage point, Lewis then described a geomorphic transect west to east across the river starting with the cliffs that had been a consistent feature since departing Cape Girardeau:

A ridge of Hills 200 feet high make across the river at this place; and the Gd. Tower as well as the sugarloaf point, as



Lewis' "sugarloaf point," a rounded cone named for its resemblance to how sugar was shaped for distribution in this era, was a key reference point for both Lewis and Clark for measuring distances to the numerous geological and geographic features at Tower Rock.

also a rock detached from both these and likewise the hills, another side of the basin all appear once to have formed a part of the range of hills which cross the Mississippi at this place, and which in the course of time have been broken down by the river.<sup>27</sup>

The Devonian-age rocks Lewis described were not so much “broken down” as carried away by the river. The trend of the Mississippi River through the Tower Rock area may have been substantially aided by the presence of the Rattlesnake Ferry Fault Zone, part of the greater Ste. Genevieve Fault Zone. North and eastward of Tower Rock, this N50°W to N60°W trending fault zone displaced rocks on the Illinois side (to the east) hundreds of feet downward while opening up multiple fissures of weakness for the Mississippi River to exploit when finding her course downriver.

The “rock detached from both of these and likewise the hills” was then further described:

the last mentioned rock is detached from the hills about 400 yards, and about 300 from the Sugar loaf point; the rock thus detached measures 120 yards in circumference at its base, and is 40 feet in height perpendicular; its sides show

the water marks, and is so steep there is no possibility of ascending it without artificial aid.<sup>28</sup>

This feature is labeled as No. 4 on Clark’s Atlas map 3b and described as “A rock in the Woods 300 yards from the River & 400 from the high hills this rock is 120 yds. Round 50 feet high & nearly purpd? [perpendicular].”<sup>29</sup> The author believes this outcrop is the isolated, oval-shaped mound of probable Bailey Limestone located southwest of Sugarloaf Point and 160 feet south of a private road crossing over the Burlington Northern Santa Fe railroad tracks, which run a few feet east of the outcrop.<sup>30</sup> The discrepancy between Lewis’ 40-foot high estimate and Clark’s 50-foot height description add an element of interpretive confusion because another feature (labeled as No. 5 on *Atlas* map 3b) precisely matched the dimensions Lewis cited in his journal entry (120 yards round and 40 feet high), described as: “A rock in the river detached from the East Shore about 120 yds. round and abt. 40 feet high.” The author surmises this feature on the opposite (east) bank of the Mississippi River is just north (upriver) of a natural gas pipeline bridge that crosses over the river. This outcropping (termed Devils Bake Oven on



Now designated a Natural Area by the Missouri Department of Conservation, Tower Rock remains one of the essential sites on the Lewis and Clark Eastern Legacy Trail.

old topographic maps)<sup>31</sup> is approximately 4,800 feet northeast of Sugarloaf Point and, thus, cannot be the aforementioned, isolated, oval-shaped feature estimated by Lewis to be “about 300 [yards] from the Sugar loaf point.” The Devils Bake Oven outcropping is no longer detached from the mainland as Clark had depicted on Atlas maps 3a and 3b. It is primarily composed of the middle Devonian-age<sup>32</sup> Grand Tower Limestone, a younger sedimentary rock than the Bailey Limestone composing Tower Rock and Sugarloaf Point, but is present here at a similar topographic level as those older rock outcroppings because of the downfaulting displacement described earlier.

Lewis only made a passing reference to a narrow ridge on the east bank when discussing how the river should be navigated:

the passage through this difficult pass of the Mississippi in high water is on the E. side of the river to the point which it forms on that side with the high-land where stands a large rock.<sup>33</sup>

The “large rock” is presumably another reference to the Devils Bake Oven outcropping described above. The “high-land” on the eastern side of the river may be in reference

to a distinctively narrow feature called the “Backbone” or “Backbone Ridge” that is composed of middle Devonian-age Grand Tower Limestone and St. Laurent Formation. On Atlas map 3a, Clark drew an accurate representation of the tightly linear Backbone Ridge and the Devils Bake Oven (which he termed a “high Rock”) while also depicting highlands to the east that is today’s Walker Hill.

## Summary

The geological observations made by Meriwether Lewis along the Mississippi River above Cape Girardeau beginning on November 24, 1803, up to his separation from the Corps at Kaskaskia on the morning of November 28, 1803, revealed his ability to succinctly evaluate and describe important geologic features and outcroppings, aided substantially by William Clark’s detailed mapping of the Tower Rock encampment. It is a credit to Lewis that even though this stretch of river was relatively well-known, he diligently observed and recorded the key prevalent features. The combination of Lewis’ descriptions and Clark’s mapping set a high benchmark for future geological observations,<sup>34</sup>

but it would prove to be somewhat of an unsustainable standard (with some very notable exceptions). We acutely feel the absence of Lewis’ descriptive ability for the reach of the Missouri River through an extensive limestone terrain in the vicinity of present-day Jefferson City through



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Rocheport, Missouri, as well as other regions of geologic interest up to the Mandan villages. As such, we will need to rely upon William Clark and the other journal keepers for their observations and insights on the “mineral productions” encountered in the limestone-dominated terrain traversed between June 4-7, 1804. ■

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## Notes

1. Donald Jackson, ed., *Letters of the Lewis and Clark Expedition with Related Documents, 1783-1854*, 2nd ed., 2 vols. (Urbana: University of Illinois Press, 1978), 1:63. Jefferson included very specific mineralogical directions in the list of objects he considered worthy of note: “the remains or accounts of any [animals] which may be deemed rare or extinct; the mineral productions of every kind; but more particularly metals, limestone, pit coal, & saltpetre; salines & mineral waters, noting the temperature of the last, & such circumstances as may indicate their character; volcanic appearances.”
2. Gary E. Moulton, ed., *The Journals of the Lewis & Clark Expedition*, 13 vols. (Lincoln, Nebraska: University of Nebraska Press, 1983-2001), 2:101. Lewis or Clark journal quotations for November 1803 are from volume 2, by date. All Atlas citations in the ensuing text are from volume 1, by map number.
3. Moulton, *Journals*, 2:110.
4. Limestone is composed primarily of calcium carbonate ( $\text{CaCO}_3$ ), in the form of the mineral calcite. It can be a biological sedimentary rock that forms from the accumulation of calcareous remains of marine organisms, such as the shells of invertebrate animals (when such organisms are readily visible, the term “fossiliferous limestone” gets applied) in addition to calcareous algae debris that settles on the sea floor. Limestone can also form chemically via the direct precipitation of calcium carbonate out of seawater and certain freshwater environments. It should be noted that limestone can also be partially composed of calcium-magnesium carbonate  $\text{CaMg}(\text{CO}_3)_2$ , referred to as dolomite, a post-depositional alteration that occurs when magnesium replaces some of the calcite in the rock.
5. As mapped by Ira R. Satterfield, *Bedrock Geologic Map of the Cape Girardeau - McClure 7.5' Quadrangles*, Missouri Department of Natural Resources, Division of Geology and Land Survey, Geological Survey Program OFM-82-73-GI, 1982, and described in Ira R. Satterfield, *Bedrock Geology of the Cape Girardeau - McClure Quadrangles, Southeastern Missouri*, Missouri Department of Natural Resources, Division of Geology and Land Survey, Open-File Report Series, OFR-83-17-GI, 1983. A more detailed description of the Bailey Limestone will be presented below.

6. The Girardeau Limestone has been placed in the Richmondian Stage of the Cincinnati Series of late Ordovician age (448.57-444.68 Ma), the Sexton Creek Limestone is placed in the international Llandovery Series of early Silurian age (442.42-433.4? Ma), and the Bailey Formation is in the Lower Series of early Devonian age (419.2-393.3 Ma), all part of the Paleozoic era. Ma is a “million years,” as abbreviated from the Latin *mega-annum*. These age dates were determined by cross-referencing stage and series interpretations of the formations from various sources with the latest time scales, including Peter M. Sadler, Roger A. Cooper, and Michael Melchin, “High-Resolution, Early Paleozoic (Ordovician-Silurian) Time Scales,” *Geological Society of America Bulletin*, 121:5/6 (May/June 2009), 887-906, and K.M. Cohen, S.C. Finney, P.L. Gibbard, & J.-X. Fan, *The International Commission on Stratigraphy (ICS) International Chronostratigraphic Chart v2017/02* (2013; updated February 2017), Episodes 36: 199-204.

7. Broadly speaking, the future State of Missouri occupied a shallow water, Bahamas Platform-like setting offshore of an enormous land mass in central and eastern Canada. Sea level fluctuations and uplifts of adjacent land surfaces in the future Ozark region and elsewhere caused other rock units to be deposited amongst the limestone sequence (such as sandstones and shales). Large-scale tectonic forces perhaps combined with periodic glaciations also brought this area of Missouri above sea level for extended periods, resulting in erosion and non-deposition that created the extended temporal gaps between the Girardeau Limestone, Sexton Creek Limestone, and Bailey Limestone formations.

8. Moulton, *Journals*, 2:110. The author observed irregularly shaped nodules and beds of chert fitting Lewis’ description of “flint of yellowish brown colour” along the west bank of the Mississippi River along the former St. Louis – San Francisco Railway (now Burlington Northern Santa Fe) tracks at Old Cape Girardeau. It is uncertain which limestone formation with chert occurrences Lewis specifically inspected, but if he made his observations along the river’s edge before departing the expedition’s encampment at Old Cape Girardeau, then he may have been examining the Girardeau Limestone, a medium-gray to dark-gray sublitographic to finely crystalline limestone or the light gray to light brownish gray, medium crystalline Sexton Creek Limestone that contains light-bluish-gray and caramel-colored chert beds (Satterfield, *Bedrock Geology*, 5).

9. The colors of chert/flint come from the inclusions of organic matter or metal oxides and hydroxides. For example, inclusions of iron oxide will impart a red, yellow to brownish color to the chert/flint.

10. Diatoms had not yet evolved to be part of the Paleozoic era formations in southeastern Missouri, but radiolarians and sponges were present in these geological periods and, thus, could have been a source of the chert silica.

11. Moulton, *Journals*, 2:111.

12. Moulton, *Journals*, 2:112.

13. Moulton, *Journals*, 2:113.

14. The footnote in Moulton, *Journals*, 2:114, EN 9 posits this may have been an exposure of the Grand Tower Limestone, but the author’s research described herein will suggest it is neither the Grand Tower Limestone nor the Bailey Limestone.

15. The Bailey Limestone is an interbedded medium to light gray, grayish brown to light-yellowish brown, fine-grained to finely crystalline limestone, light-gray chert, and greenish-gray to bluish gray thinly-bedded shale, per Dewey H. Amos, *Geologic Map of the Altenburg 7½' Quadrangle, Perry County, Missouri*, Missouri Geological Survey, Missouri Department of Natural Resources, Division of Geology and Land Survey OFM-85-221-GI, 1985. The author has found this interbedded sequence in the Tower Rock area to be characterized by a thinly laminated, slightly undulating appearance.

16. X-ray fluorescence (XRF) involves bombarding a substance with high-energy X-rays or gamma rays, which results in the emission of X-rays that reveal the characteristics of the elements composing the analyzed material. The XRF results cited in this article were provided to the author in Activation Laboratories Ltd, “Whole Rock Analysis (XRF) of Grand Tower Whiting Outcrops,” *Certificate of Analyses Report No. A17-03095(i)*, 3 p.

17. The location of “Silica Mines” is no longer depicted on modern maps, but was shown on a 1925 U.S. Geological Survey (USGS) Altenburg quadrangle map as being 6,600 feet south of Tower Rock (and also south of the Patton Creek drainage); see USGS, Department of the Interior, *Altenburg Quadrangle*, Missouri-Illinois, Edition of 1925, Scale: 1:62,500. The author’s “bank of white clay” observed between 4,000 feet to 4,600 feet south of Tower Rock is both north of the creek and the former Silica Mines.

18. J.W. Whitfield and M.A. Middendorf, *Geologic Map of the Neeleys Landing 7½' Quadrangle, Cape Girardeau County, Missouri*, Missouri Department of Natural Resources, Division of Geology and Land Survey OFM 89-254-GI,

1989. At the time this map was published, the Grassy Knob Chert nomenclature was being proposed to replace the original Clear Creek Formation designation of the weathered chert at Silica Mines.

19. In Moulton, *Atlas*, both maps are labeled “Clark’s Map of the Grand Tower, route about November 25, 1803” and have slightly different depictions of certain features. Hereafter, the maps will be referred to by their *Atlas* map designations 3a and 3b.

20. Moulton, *Journals*, 2:115.

21. Moulton, *Journals*, 2:114-115.

22. Review of the last 34 years of USGS gauging data (1984-2018) at the USGS Gage 07020850 Mississippi River at Cape Girardeau indicate there have been some late November stage heights of less than eight feet (1989, 2006, 2012) that may represent the water level during the expedition’s visit. The individual photos in this article of Sugarloaf Point and Tower Rock were taken at a stage height of 27.8-27.9 feet (which may coincide with a normal river water level depicted on topographic maps) suggesting the possibility of a twenty-foot variation in the water level datum to reconcile Lewis’ measurement. Stage heights are localized water level measurements; to determine the true water elevation in feet above sea level, 304.27 feet would be added to the USGS Gage readings at Cape Girardeau.

23. Moulton, *Journals*, 2:114.

24. Moulton, *Journals*, 2:115.

25. What Lewis meant by “it commands the top of the grand Tower about 60 feet” is unclear. The author measured the height of Sugarloaf Point to be approximately 75-78 feet above the water line (at a river stage height of about 28 feet), making it no more than 10-20 feet higher than Tower Rock.

26. Tower Rock and Sugarloaf Point are specifically depicted as Bailey Limestone formation outcrops on both Amos, *Geologic Map of the Altenburg 7½’ Quadrangle*, and on Mary J. Seid, Joseph A. Devera, Allen L. Weedman, and Dewey H. Amos, *Bedrock Geology of Altenburg Quadrangle, Jackson County, Illinois and Perry County, Missouri*, Illinois State Geological Survey, University of Illinois at Urbana-Champaign, USGS-STATEMAP Altenburg-BG Contract Report, 2009, 2 Sheets, Scale 1:24,000, 3 p. The author has noted the Bailey Limestone atop Sugarloaf Point is more yellowish gray to grayish orange than other light gray Bailey exposures in this vicinity; however, it is similar in all other respects.

27. Moulton, *Journals*, 2:115.

28. Moulton, *Journals*, 2:115.

29. The abbreviated word at the end of Clark’s description is difficult to read, but the author believes it is an abbreviation of “perpendicular.” This supposition is not only internally consistent with how Lewis described features here at Tower Rock, but there are multiple other examples of the captains’ using the word “perpendicular” to describe the vertical face of outcrops over the expedition’s route. Dr. Gary E. Moulton (pers. communication, March 1, 2017) thought the author’s reading of this abbreviated word was credible and most likely what Clark had intended.

30. This isolated oval-shaped rock outcropping is not depicted on either of the Altenburg geological maps of this locale, but the author surmises it is composed of Bailey Limestone because its interbedded composition of medium to light gray to light brown to light yellowish-brown limestone, lime mudstone, and prominent nodules of chert fits within the defined Bailey Limestone descriptive parameters. The author measured the circumference to be roughly 230 feet (two-thirds of the captain’s 120-yard estimate), but it is possible the eastern face of the outcrop was pared back to construct the closely adjacent railroad tracks.

31. USGS, *Altenburg Quadrangle*.

32. The Grand Tower Formation is in the Eifelian Stage of the Middle Series of the Devonian (393.3-387.7 Ma) per a correlation between Seid, et al., *Bedrock Geology of Altenburg Quadrangle*, Sheet 2 and Cohen, et al., The ICS International Chronostratigraphic Chart.

33. Moulton, *Journals*, 2:115.

34. While providing comments to the *Extension Study, Lewis & Clark National Historic Trail* (Washington, DC: National Park Service, Department of the Interior), July 2016, 136 p., whose objective was to evaluate eastern sites and segments for inclusion to the existing Lewis and Clark National Historic Trail, the author recommended Tower Rock be added to the Inventory of Sites Associated with the Lewis and Clark Expedition Eastern Legacy and Recommendations for Further Documentation (Appendix C). *The Extension Study* opined that exclusions such as Tower Rock were because it was not among “sites of scientific inquiry.” On the contrary, in the author’s opinion, Tower Rock warrants inclusion with other “certified sites that were important in the planning or execution of the Expedition” given the merits of Lewis’ geological observations and Clark’s meticulous mapping.

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# Review

## *In the Wake of Lewis and Clark*

By Larry E. Morris  
Lanham, Maryland: Rowman & Littlefield, 2018, 272 pp., 19 illustrations and photographs, bibliography and index. Hardcover, \$39.

Reviewed by Jo Ann Trogdon

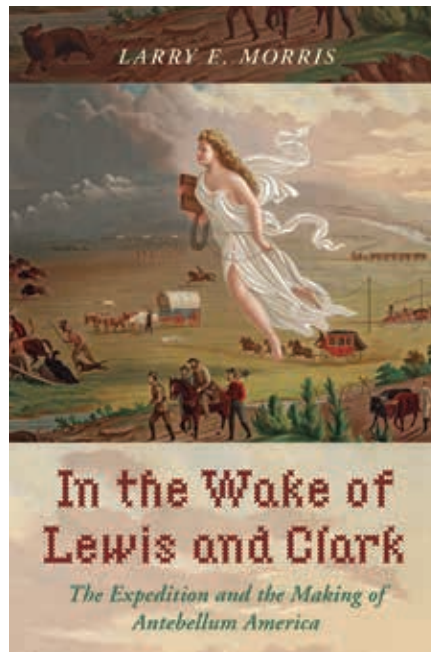
If the Lewis and Clark Expedition set forth the ripples Larry E. Morris doggedly follows and describes in his *The Fate of the Corps: What Became of the Lewis and Clark Explorers After the Expedition*, then his *In the Wake of Lewis and Clark: The Expedition and the Making of Antebellum America* retraces some of the larger, more remote undulations of that endeavor to put them in historical context.

Early in the book Morris explains:

To what extent the Lewis and Clark Expedition caused western exploration and expansion, trade wars, Indian conflicts, war with Britain, the rise of Jackson, or the colonization of Texas—and the subsequent combat with Mexico—is a complex and problematic question (more to the point, the wrong question)—but there is little doubt that the captains’ “tour of the Pacific” hastened the astounding series of events about to unfold.

Astounding indeed, but Morris never loses focus on that extraordinary tour as a major influence on, if not a cause of, those ripples (some of them so remote in time and space from the expedition as to be virtually unforeseeable during it).

Peopling his narrative, particularly the early chapters, are some of the members of the Corps of Discovery. In addition to Meriwether Lewis and William Clark, Morris pays special atten-



tion to Jean-Baptiste Charbonneau, John Colter, Pierre Cruzatte, George Drouillard, John Potts, Nathaniel Pryor, George Shannon, and Peter Weiser. To describe their connections to the post-1806 fur trade, western exploration, international relations, or the expansionist policy eventually known as Manifest Destiny, Morris in some instances relates information that can also be found in his *Fate of the Corps*, but such inclusion avoids repetition; it is instead the addition of material vital to this very different book. So capable is his prose and vivid are the tales he recounts, reading them—even those with outcomes we already know—gives pleasure nonetheless.

In the same spirit Morris reworks and expands episodes from his earlier book rather than drawing directly from it. For example, having included in his *Fate of the Corps* a contemporaneous account of Jean-Baptiste Charbonneau’s personality (“quaint humor and shrewdness in his conversation... garbed with intelligence and perspicuity”), Morris refrains from repeating that quotation here. Instead, on page 161 of *In the Wake of Lewis and Clark*, he adds nuance to our understand-

ing of Charbonneau’s character, by paraphrasing an incident Lieutenant Colonel Philip St. George Cooke recorded about leading the Mormon Battalion southwest in 1846 with the help of the then-forty-one year-old son of Sacagawea:

That night, well after dark, Charbonneau straggled into camp on foot. He was carrying his saddle, but his mule was nowhere to be seen. He reported that when... he had tried to bridle his mule, the stubborn animal kicked him and ran off. He followed it for several miles but could not catch it. Finally, to keep his saddle and pistols from falling into the hands of Apache Indians—and partly, conjectured Cooke, from anger—Charbonneau shot it.

Several Corps members appear in endnotes only, but more than a few others—presumably those whose post-Expedition lives had little or no effect on the forces listed above—are entirely absent.

In their place is a motley collection of characters not usually associated with Clark and Lewis, including:

- eloquent, charismatic Shawnee leader Tecumseh and his troubled, one-eyed brother Tenskwatawa;
- business magnate John Jacob Astor and his Pacific Fur Company partners Ramsay Crooks and Wilson Price Hunt;
- pugnacious proponent of westward expansion, Senator Thomas Hart Benton, and his self-promoting son-in-law, John C. Frémont (the “Pathfinder,” nevertheless guided through parts of the west by Kit Carson, another character in Morris’s diverse cast);
- hot-tempered, opportunistic General Andrew Jackson whose military massacres of southern Indians in the War of 1812 would provide the foundation of his political career;
- General Stephen Watts Kearny who, having wed Clark’s stepdaughter,

would reconnoiter the South Pass, take control of New Mexico for the United States during the War with Mexico, serve as military governor of California, and court-martial Frémont, his subordinate, for insubordination.

Morris intersperses his six chapters with numerous quotations, many of them in the rich, sometimes lurid but often lyrical prose typical of the nineteenth century. After offering Lewis' brief and bland account of Sacagawea's chance reunion with a friend of like age with whom she, as a child, had been kidnapped by the Hidatsa, Morris gives Nicholas Biddle's rendition of that event (eyewitness details no doubt furnished by Biddle's editorial consultant, George Shannon):

The meeting of these two young women had in it something peculiarly touching, not only from the ardent manner in which their feelings were expressed, but also from the real interest of their situation. They had been companions in childhood; in the war with the Minnetarees [Hidatsa] they had both been taken prisoners in the same battle; they had shared and softened the rigors of their captivity till one had escaped from the Minnetarees, with scarce a hope of ever seeing her friend relieved from the hands of her enemies.

To his credit, Morris often forbears paraphrasing succinct, stirring quotations and instead repeats them directly. Here are three examples of his obvious appreciation for expressive language, all of them from his narrative of clashes between Indians and white Americans during the War of 1812:

- Tecumseh, according to an Army soldier, "seemed to regard us with unmoved composure, and I thought the beam of mercy had tempered the spirit of vengeance which he felt against the Americans" (page 93);
- Davy Crockett, a young backwoodsman in Tennessee, having decided to volunteer in Jackson's forces to avenge a bloody attack by Creek Indians on Fort Mims (in what is now Alabama), overruled his wife's objection that his leaving to fight would put her and their children in a "lonesome and unhappy situation." "The truth is," explained Crockett, "my dander was up, and nothing but war could put it right again" (page 97);
- Once Jackson's forces retaliated by slaughtering hundreds of Indians near present-day Talladega, Alabama, his popularity soared far beyond his own territory. According to the *Missouri Gazette*, when the corpse of a white man "tomahawked, stabbed,

and scalped" was discovered in the Missouri River in May, 1814, "The BLOOD of our citizens cry [sic] aloud for VENGEANCE. The general cry is let the north as well as the south be JACKSONIZED!!!" (page 98).

That appreciation of original expression, however old-fashioned or overwrought it may now sound, happily carries into Morris's 41-page endnotes, some so impressive and informative as to merit reading for pleasure, with or without reference to the text. The book also includes a bibliography, index, and nineteen black-and-white images.

The result of thorough research and thoughtful writing, *In the Wake of Lewis and Clark* is a stand-alone complement to Morris's *The Fate of the Corps* and belongs on the shelf of anyone interested in the expedition and its long-term implications. ■

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*Jo Ann Trogdon is the author of The Unknown Travels and Dubious Pursuits of William Clark (2015) and two WPO articles about Clark. As Jo Ann Brown she has contributed to WPO "New Light on Some of the Expedition Engages" (August 1996), and "George Drouillard and Fort Massac" (November 1999).*

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Photograph of Trapper Peak, Bitterroot Mountains, Montana, courtesy of Steve Lee.



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