Prickly Pear Cactus: An Unexpected Adversary

Also “Lewis and Clark in the Age of Cook” and “Subsistence Diet Meant Survival”
Lewis and Clark at the Falls of the Ohio

Met at Falls
October 1803

Departed Falls
October 26, 1803

Enlisted nucleus of Corps at Falls

Returned to Falls
November 5, 1806

“The Sunny Side of Louisville”
Jeffersonville, Clarksville, New Albany, Indiana
Clark-Floyd Counties Convention-Tourism Bureau
812-280-5566
sunnysideoflouisville.org
## Contents

**Message from the President**  
2

**L&C Roundup:** Bob Scriverv’s Bronzes; Native American Dollar; Pawpaw for Food, Fire, and Rope; New Exhibit Opening at Encounter Center, Sioux City, Iowa  
4

**Letters:** Smallpox on the Upper Missouri, and a new book on Lewis’s death  
9

**Prickly Pear Cactus: An Unexpected Adversary**  
By Jack Puckett  
11

**Lewis and Clark in the Age of Cook:**  
An Essay on Enlightenment Exploration  
By David Nicandri  
15

**Subsistence Diet Meant Survival:**  
How the Expedition Solved its Food Problem  
John Toenyes and Phil Scriverv  
24

**End Notes:** Paddling the Missouri  
32

---

**On the cover:**  
"Under the Mid-day Sun," by Michael Haynes. As they struggled to portage around the Great Falls of the Missouri, the Corps of Discovery encountered the prickly pear cactus.

---

*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 (www.lewisandclark.org). Submissions may be sent to Robert Clark, WSU Press, P.O. Box 645910, Pullman, WA 99164-5910, or by email to robert.clark@wsu.edu.
A Message from the President

Having attended the 45th Annual Meeting of our Lewis and Clark Trail Heritage Foundation in Bismarck, North Dakota, I arrived home energized and ready to dig into the work of the foundation as your new president. It was my sixteenth annual meeting, and even though I have visited Bismarck twice, I still learned new lessons and most importantly, met many new people. I marvel at the diverse mix of interests and backgrounds of our members! I would never have had an occasion to meet the people I know now had it not been for this amazing organization.

During the meeting we visited Fort Mandan and the Lewis and Clark Interpretive Center, as well as nearby Fort Clark. I was particularly impressed by what has been accomplished since the Bicentennial by David Borlaug and the staff of the Lewis and Clark Fort Mandan Foundation, sponsors of our annual meeting. In 2006, following the Bicentennial, some naysayers declared Lewis and Clark over and done with. David and many others along the trail have proven those naysayers wrong. This interpretive center boasts impressive new enterprises and expansion: the acquisition and display of significant Karl Bodmer and George Catlin images of the people and lands of North Dakota; the addition of the extensive John Fisher collection; a home for Joe Musselman’s “Discovering Lewis and Clark” website, www.lewis-clark.org; and the creation of the Dakota Institute Press, which features books on new Lewis and Clark scholarship. These all speak to the power of the story and the importance of place to communities who are proud of their history.

This past year has been very a productive one for the Lewis and Clark Trail Heritage Foundation. Past President Dan Sturdevant worked closely with Lindy Hatcher, our executive director, and Ken Jutzi, to improve our membership and office systems. We have improved communications with chapters through Lindy’s conference calls with chapter presidents, while Lindy and Philippa Newfield continue to improve our newsletter, The Orderly Report, so that it can be sent electronically to members with e-mail addresses. Wendy Raney, Jay Buckley, and the Editorial Advisory Board kept to the production schedule for We Proceeded On while securing a contract with a new editor, Bob Clark of Washington State University Press.
Sue Buchel, Beverly Lewis, and intern Shelly Kath worked toward reconciliation of the library’s electronic catalog to improve access and accountability. Lynn and Doug Davis worked for weeks to organize the office files so we can locate important documents and maintain our organization’s history. We supported the work of Bryant Boswell and the Discovery Expedition of St. Charles at the Boy Scout Jamboree where thousands of Boy Scouts experienced the lessons of the expedition. Funding from the National Park Service allowed us to bring staff from interpretive centers and museums together for a networking workshop prior to the annual meeting.

One program of which I am particularly proud is our Bicentennial Trail Stewardship Grant Program. The Advisory Committee reviewed and approved twelve grants in 2013 totaling $50,000 for projects by nine chapters in eight states. Examples of projects include an exciting project by the California Chapter to produce a bilingual children’s book on the Lewis and Clark story and another by The Jefferson River Canoe Chapter to print a set of river maps showing Lewis and Clark sites and conservation information highlighting the need to protect the river from ever encroaching development and river use impacts.

In this coming year, I look forward to working with all the committees and dedicated members who contribute time and energy to the great work of the Lewis and Clark Trail Heritage Foundation. I will dedicate myself to striving for excellence in our service to our members, and in helping chapters in any way we can to carry out the mission of the foundation. It is time to focus some energy on communicating with a digitally savvy generation through a new website and Facebook page, and with spreading the Lewis and Clark story via smart phone “apps.” We are setting up We Proceeded On to be cataloged and included in Ebsco-host databases to which public and academic libraries subscribe to facilitate the use of WPO as a research tool for Lewis and Clark related topics.

If we focus our energies on getting people involved in community projects and events, on historic preservation, on educational events like those sponsored by the Boy Scouts and Girl Scouts, on scholarly research, and trail stewardship projects, people will join us because they believe in what we do, not just because we ask them!

At the annual meeting, we were treated to a video interview with Jim Ronda conducted by Clay Jenkinson. Dr. Ronda shocked some people by saying “it’s time to move on,” and that instead of obsessing over details of the story (have we discussed Lewis’s death enough for the moment?) we should “leave them be.” Well, I choose to take that comment and apply something else he said, that every generation assembles the pieces of history into a story for their time. He also encouraged us to look at the story from new angles, reminding us that “questions are the engines of intellect.” In that vein, I believe it is time for us to ask new questions so that we can piece together a new story for a new time. Heeding his advice, I challenge all the members of the foundation with these questions:

The scholarly giants of the past were Lewis and Clark Trail Heritage Foundation members and supporters of our work. How can we help “raise” a generation of scholars and bring students to investigate this story anew?

How can we broaden the conversation about trail stewardship and the conservation of natural and cultural resources to protect the natural and historic integrity of “The Trail”? As we approach our 50th year, how can we honor the work envisioned by “Ding” Darling and others who worked tirelessly toward the creation of the Lewis and Clark National Historic Trail?

The story of the Lewis and Clark Trail is a “big tent.” How can we be inclusive, bring other partners and organizations under our tent and join them in theirs to leverage each other’s strengths and make progress on common goals?

As we begin to discuss these questions and start to find answers, I believe we will go a long way toward defining a new future for our Lewis and Clark Trail Heritage Foundation, one that will take us strongly into the next fifty years of sharing the story and preserving the trail! If you are interested in working with me and with other members who are passionate about our mission, please contact the Great Falls office for information on how you can get involved!

—Margaret Gorski
President, LCTHF
[From the editor: At the annual meeting in Bismarck this past summer, our foundation sold the last of its bronze sculptures created by Bob Scrivner. One set has been retained by the foundation thanks to Ginny and Cliff Sichta. The proceeds generated by the sale of the bronzes were placed in the Bronze Fund that helps support We Proceeded On operations. In honor of that milestone, we asked board member and past president Barb Kubik to prepare a short history of our association with the artist and his work. These last bronzes were acquired by the Lewis and Clark Fort Mandan Foundation through the Alvera Bergquist Art Acquisition Fund.]

Robert Macfie Scrivner: Montana Sculptor

At the Lewis and Clark Trail Heritage Foundation’s eighth annual meeting in Great Falls, Montana in 1976, the foundation presented its Award of Meritorious Achievement to the Fort Benton [Montana] Community Improvement Association and the Lewis and Clark Memorial Commission for the two organizations’ outstanding contributions in bringing to this nation a greater awareness and appreciation of the Lewis and Clark Expedition.” The Association and the Commission were honored for their work developing, funding, and installing a heroic statue, “Decision at the Marias,” as the community’s tribute to the nation’s bicentennial
celebration. “Decision at the Marias” is a twelve-foot high bronze standing on a base of an additional four feet, and depicts the two captains and Sacagawea and her young son, Jean Baptiste Charbonneau, at the confluence of the Marias and Missouri Rivers. The sculptor was a well-known and respected Montana artist, Robert [Bob] Macfie Scriver.1

Robert Macfie Scriver was born on the Blackfeet Reservation in 1914. His parents Thaddeus Scriver and Ellison Macfie Scriver had come to Browning, Montana, from Quebec in the early 1900s. In Browning, Thaddeus Scriver and his partner Horace C. Willits owned and operated the Browning Mercantile Company, serving the families on the Blackfeet Reservation.2

The Scriver’s youngest son, Bob, was first a musician and a teacher, then a self-taught taxidermist, and by the mid-1960s, a largely self-taught sculptor. Scriver was a prolific and respected western artist, known for his works depicting the Blackfeet people and their culture, western wildlife, and professional rodeo cowboys.3 His works were realistic, historically accurate, and respectful of the Blackfeet culture. It was these qualities which led to his commission in Fort Benton, and to subsequent works depicting the Corps of Discovery, including a series of four belt buckles for the Lewis and Clark Festival in Cut Bank, Montana, and a second heroic bronze of the two captains, York, and Seaman in Overlook Park in Great Falls. Fundraising efforts to help defray the costs associated with heroic bronzes like Scriver’s often included the sale of maquettes—smaller, three-dimensional versions of the heroic-size bronze which are sold in a limited edition to aficionados and art collectors.4

For his work in Fort Benton, Scriver paid careful attention to what was then known about the Corps of Discovery; in creating “Decision at the Marias,” he did not hesitate to draw on the expertise of scholars across the country.5 In August of 1986, attendees at the foundation’s 8th annual meeting in Great Falls had the opportunity to view Scriver’s “Decision at the Marias” during a field trip to Fort Benton. Foundation members were impressed.
with his work. It was Scriver’s historic accuracy and detail, as well as the success of the sale of the maquettes and foundation members’ response to “Decision at the Marias,” that drew foundation president Wilbur Werner to Scriver for a second Corps of Discovery-related project.

In 1977, the foundation commissioned Scriver to create an 8 x 10 inch sculpture called “Meriwether Lewis and ‘Our Dog’ Scannon” as a way to raise money for the publication of _We Proceeded On_. Proceeds from the sale of the Scriver bronze were set aside in the “Bronze Fund;” subsequent board policies allowed 5 percent of the funds’ earnings to be withdrawn for publication expenses. Once “Meriwether Lewis” was made available to the Foundation’s membership for $950, Werner quickly sold 30 of the original 150 copies in just a few months.8

In 1980, Scriver received the foundation’s Award of Meritorious Achievement for his “outstanding contributions in bringing to this nation a greater awareness and appreciation of the Lewis and Clark Expedition.” The foundation felt Scriver’s work creating “Decision at the Marias” and “Meriwether Lewis and ‘Our Dog’ Scannon” were “outstanding contributions” to the nation’s appreciation of the expedition.9

The successful sale of the first bronze led the foundation’s board to commission a second one from Scriver, “Captain William Clark—Map Maker,” in August 1986. This bronze would also be a limited edition; the initial asking price for foundation members was $1,200. Following the foundation’s 18th annual meeting in Portland, Oregon, in August of 1986, Bronze Committee Chair Wilbur Werner walked away with 28 orders for “Captain William Clark—Map Maker.”10

According to Bob Lange, then editor of _We Proceeded On_, only nine “Meriwether Lewis” bronzes remained for sale in the winter of 1986. Together, the price for a pair would be $2,400; alone “Lewis” sold for $1,750.

For the foundation, the timing for “Captain William Clark—Map Maker” was good. Dr. Gary Moulton had just completed the second volume of _The Journals of the Lewis and Clark Expedition_, the first of the thirteen-volume series to contain journals—volume one had contained a portfolio of maps. And in August of 1987, the foundation would hold its 19th annual meeting in Billings, Montana, near Pompey’s Pillar, the site of William Clark’s signature inscribed during the expedition’s journey.

Bob Scriver died in 1999, leaving a remarkable legacy in the many sculptures he created. Following our 45th annual meeting in Bismarck, North Dakota, the last of the Scriver bronzes offered by the Lewis and Clark Trail Heritage Foundation was sold, ending a wonderful association and worthy fund-raising effort in support of our journal, _We Proceeded On_.11

Notes

3. Kirby Lambert, “Seeing Bob Scriver’s Artwork: An Intermountain Tour,” _Montana: The Magazine of Western History_ 51 (Summer 2001): 70-71. See also Bob Scriver webpage, www.bobscriver.com, accessed August 8, 2013. The website contains a long timeline of Scriver’s personal and professional life, his art work, and numerous awards. He was a generous man who frequently worked for a very small commission (as he did for the Lewis and Clark Trail Heritage Foundation), or who donated his works to fund-raising efforts for scholarships, community projects, and museum work.
4. See for example, Robert E. Lange, “A Unique Lewis and Clark Sculpture,” _We Proceeded On_ 6, no. 4 (November 1980): 12, for a similar fund-raising effort for Stan Wanlass’s heroic bronze at Fort Clatsop.
5. John G. Lepley, “Explorers at the Marias—Sculptor Scriver’s Mark on History and Artistry for the Lewis and Clark Memorial at Fort Benton, Montana,” _We Proceeded On_ 6, no. 1 (February 1980): 8-13. According to Lepley, Scriver purchased a vintage 1803 Harper’s Ferry rifle so he could be certain he could correctly sculpt the details of the rifle in Clark’s hands. As his model for Sacagawea and her son, Scriver worked with a young Shoshone woman, Patty Juneau, and her four-month old nephew, Shawn Gardipee, who lived in Browning, Montana.
7. Donald Jackson, “Call Him a Good Old Dog. But Don’t Call Him Scannon,” _We Proceeded On_ 11, no. 3 (July 1985): 5-10. It was not until Jackson’s research into the Corps’ naming of a Montana Creek, “Seamons Creek,” that it was learned the actual spelling of Lewis’ Newfoundland was Seaman, and not, as historians had long assumed, Scannon.
11. In addition to the resources listed in this article’s endnotes, readers wanting to learn more about Robert [Bob] MacFie Scriver may wish to check out these books: Bob Scriver, _An Honest Try_ (Kansas City, MO: Lowell Press, 1975); Bob Scriver, _No More Buffalo_, (Kansas City, MO: Lowell Press, 1982).
2014 Native American Dollar

By Michael Zielinski

At their most recent meeting, the Citizens Coinage Advisory Committee (CCAC) reviewed the seven design candidates provided by the United States Mint for the reverse of the 2014 Native American Dollar. The theme for the design is the Native American hospitality which helped to ensure the success of the Lewis and Clark expedition.

The Native American $1 Coin Program, authorized under Public Law 110-82, requires coins to be issued annually, with rotating designs honoring Native Americans and the important contributions made by tribes and individuals to the development and history of the United States. For each year of the series, the Glenna Goodacre depiction of Sacagawea and child has appeared on the obverse, while the reverse has carried the design for the given theme.

While introducing the design candidates, a representative for the United States Mint informed the CCAC of the preferences of other groups who had previously reviewed the candidates. The National Congress of the American Indian (NCAI) had expressed their preference for both design candidates #1 and #2. The first design commemorates the relationship between the Nez Perce and Lewis and Clark through the offer of horses. The second design depicted the friendship and mutual respect that developed between Lewis and the Mandan Chief. The NCAI did recommend some alterations to the designs. For #1, they requested that the link of the horse’s ears be corrected. For #2, they recommended that the pipe be removed, based on its relation to ceremonial and religious use.

The Senate Committee on Indian Affairs had preferred design #5, which depicts a Mandan woman offering provisions of fish, corn, roots, and gourds with her village in the background. The concept is intended to symbolize the Native people’s hospitality and willingness to provide aid and support for the expedition.

The Commission of Fine Arts had recommended design #6. This features a depiction of Chief Cameahwait warning Captain Lewis of the unpassable river route through the mountains and instead recommending a land route further north. The designer took artistic license in portraying both figures in more formal clothing to emphasize the importance of the occasion to the expedition.

Within the CCAC’s discussions, there was support expressed for design #1, although some members expressed misgivings about the lack of a specific link to Lewis and Clark. Early within the discussions, problems were noted with design #6, which might be difficult to understand on the smaller size of an actual coin. Support coalesced around design #3, which depicts a Native American man offering a pipe and his wife offering provisions. The background includes a stylized image of the face of Clark’s compass, highlighting the “NW.” The concept symbolizes the unity of families in offering aid, support, and friendship to those of the expedition.

In the end, the voting favored design #3 representing the official recommendation of the CCAC for the 2014 Native American Dollar.

The authority to make the final decision for the reverse design of the coin rests with the Secretary of the Treasury. He will consider the recommendation of the CCAC, as well as the input and recommendations provided by the U.S. Senate Committee on Indian Affairs, the Congressional Native American Caucus of the U.S. House of Representatives, the National Congress of American Indians, and the Commission of Fine Arts.

From Coin Update, Daily Coin Collecting News, August 30, 2013.
We Proceeded On November 2013

For those who live east of the Rockies, the pawpaw is a “must know” tree. It’s even a documented life-saver. While on the Missouri River, Lewis and Clark’s expedition survived by eating pawpaw fruit for roughly two weeks of their famous trek. Clark wrote: “By September 18 (1806), the party was within 150 miles of the settlements. It had run entirely out of provisions and trade goods... There were plenty of ripe plums, which the men called ‘pawpaws.’ Gathering a few bushels was the work of a few minutes only. The men told the captains ‘they could live very well on the pawpaws.’”

And pawpaw (Asimina triloba) isn’t just a tree that yields food. I will also look for it if I run out of cord or rope. The fiber in the tree’s bark is strong and has been used for centuries by native folks to make baskets, fishnets, rope, and other fiber goods. The live bark can be peeled in the spring when the sap is up, or it can be peeled at any time from dead wood that is slightly rotten. The bark can be used as flat, ribbon-like strips; twisted slightly into a round cord; and even be woven into two-ply cordage.

I’ll also seek pawpaw if I need to make a friction fire set. The tree’s dead, dry wood is one of my go-to materials for friction fires, and I’ll use it for the drill, fireboard, and bow. Occasionally, I’ll even use the bark fiber for a bowstring and tinder when fabricating bow and drill equipment.

How do you identify this oddly utilitarian tree?

When the fruit is dangling from it, it’s easy to spot. It resembles a chubby, green banana, grows 6 to 10 inches long, and can hang individually or in small clusters. These fruits have colorful common names like false banana, hoosier banana, custard apple, and dog banana. The sweet, custard-like pulp tastes of banana, mango, and honey; just don’t eat the seeds, which are not edible. Pawpaw fruit has 80 calories per cup, and is an excellent source of vitamin C. It also contains vitamin A, thiamine, riboflavin, and niacin. Similar to bananas, the pawpaw fruit is rich in potassium, calcium, phosphorus, and iron. The trees start producing fruit when they reach 10 to 15 feet in height (they can grow to 30 to 40 feet). The leaves are large, broad, and toothless and smell like asphalt when bruised. Pawpaw trees favor shady areas and damp soil. Riverbanks and floodplains are a great place to search for this useful tree.

Look for stubby banana-like fruits in August and September on trees near rivers in eastern Texas, Oklahoma, Nebraska, and most states to the east. Pick them when they are fragrant and almost mushy, but before they rot and turn dark.


New Exhibit Opening at Encounter Center, Sioux City, Iowa

“Tom Roberts and Dennis Leonard: Artists of the Discovery Corps,” an exhibition of twenty-five works inspired by the “Journals of the Lewis & Clark Expedition,” will open at noon Sunday, August 18 at the Betty Strong Encounter Center Gallery in Sioux City.

“Artists of the Discovery Corps” interprets events along the Lewis & Clark Trail, from January 8, 1804, when Pvt. Reuben Field killed a deer at Camp River Dubois in present-day Illinois, to August 11, 1806, when Capt. Meriwether Lewis and Pvt. Pierre Cruzatte encounter a herd of elk in present-day North Dakota. Both animals were important food sources for the Corps of Discovery.

The exhibition travels through events of late summer 1804 when the Corps of Discovery was in present-day Siouxland, including the August 20, 1804, burial service for Sgt. Charles Floyd at present-day Sioux City. The exhibit will be in place through November 3.

From the Sioux City Journal.com, August 9, 2013
Dear WPO Editor,

Rather than allow an obvious error to keep being repeated, I will step out of my comfort zone to discuss a subject that is not my immediate research area. Out of my area, perhaps, but I think that I know of other sources to bolster my argument. What I consider to be the error is that in his “Short Tempers and Long Knives (WPO May 2013), Jay H. Buckley repeats the inaccurate, historical cliché that the 1837 smallpox epidemic was spread to the Blackfeet by means of “infected trade goods.” Such an undocumented assertion ranks on the low end of probability—from somewhere around highly unlikely to almost impossible—especially when other, more rational and objective explanations are available.

Of the two recognized variants—variol for major and variola minor—the former is deadly for between 30 and 96 percent of individuals who are infected. Smallpox is an exclusively human disease. Smallpox is spread from human to human by personal or close contact between someone infected and susceptible person(s). The transfer mechanism is that the virus is carried by droplets or vapor which transports it from cells in an infected mouth, throat, or esophagus. While transference via an inanimate object, or formite, is not completely unknown (there is a hospital case in which a laundry worker was infected from a smallpox patient’s damp bedding protected from exposure to air and from direct sunlight), it may be more likely if the formite is a smooth, hard surface rather than soft and absorbent. Infection is followed by an incubatory period of ten to fourteen days, and then by two to four days of intense fever. The fever drops as skin eruptions develop. The infected individual may seem to feel better during the early eruptive stage but the fever does return. The skin eruptions fill with fluid and form pustules that eventually dry up and scale over. If fatal, death usually occurs between the eighth and tenth day of this stage. Overall, the course of smallpox lasts from thirty to forty-four days and a person can be contagious at any time during the course of the disease, but is most infectious for a week after beginning the fever stage. Such an abbreviated description could probably be found on any given medical web site.


The 1837 smallpox virus was transmitted by the crew and passengers aboard the steamboat St. Peters that was provisioning fur trade posts and Indian Agencies along the Missouri River. The disease was sequentially spread during stops at Council Bluffs Agency, Sioux Subagency, Fort Pierre, Fort Clark, and Fort Union. One of the St. Peters’s deck hands had contracted smallpox before the boat left St. Louis. A suggestion to the captain that he be put ashore was not followed. The disease was transmitted to others on board and then to the unsuspecting and much maligned “three Arikara women” who were aboard, possibly from around Omaha to their departure at Fort Clark. Jacob Halsey, Fort Union’s commandant, had come on board at Fort Pierre and was suffering from the disease when he arrived at his upriver post. Thus, there seems to be an unbroken chain of people infected with smallpox throughout the St. Peters’s voyage and a much more medically valid means of transmission than the “infected trade goods” story.

Although the disease was reported at posts lower on the river, it was not as devastating as it was to tribes on the Upper Missouri. A partial explanation for a lower mortality among down river Natives was that there had been an earlier smallpox outbreak in 1831. That outbreak resulted in a congressional act, The Vaccination Act of 1832, and a Native American vaccination program at Fort Leavenworth, Council Bluffs, Sioux Subagency, and Fort Pierre carried out by government contracted doctors M. Martin and D.H. Davis.

The vaccination program lasted from early August until early October and concentrated on Native groups who were in permanent or temporary residence along the Missouri River at or below Fort Pierre. They included the Otoe, Omaha, Iowa and several bands of the Pawnee among resident tribes and nomadic Yankton and Yanktonai Dakota and Teton Lakota. All in all, a number in the order of 3,000 individuals were vaccinated but some individuals among the Yankton and virtually all of the Santee Sioux refused for fear of the disease and also some of the Teton because of a lack of time. The vaccinated groups were much less...
severely affected by the 1837 smallpox outbreak than either the upstream village tribes—Arikara, Mandan, and Hidatsa—or the wandering Blackfeet and Assiniboine. Such an immunity probably affected the Native balance of power for the next forty years but that is definitely beyond the scope of this communication.

Kerry Lippincott, PhD
Consulting Archaeologist
441 Kirk Avenue
Casper WY 82601-3320

[A reply from Jay Buckley, author of the article:]

I agree with Kerry Lippincott’s assertion that at least one of the members of the *St. Peters* crew was infected with the active smallpox virus and contributed to the spread of the contagion through face-to-face contact with Indian peoples near the fort via contact with infected skin, or spread of saliva from coughing, sneezing, or breathing. Smallpox is highly contagious and can be spread by direct contact with infected persons and by indirect contact with contaminated objects such as bedding, clothing, and trade goods that transmit the disease through fine particle aerosols or inanimate objects. A few accounts indicate that Indians boarded the *St. Peters* and inadvertently took some of the infected clothes, bedding, and trade goods, not understanding why the boat had been quarantined and why the trade goods had not been brought onto shore. Both direct and indirect contact seem to have contributed to the unfortunate spread of the disease.

Jay Buckley
Provo, Utah

To The Editor:

I believe that Meriwether Lewis was assassinated and I am the co-author with James E. Starrs of *The Death of Meriwether Lewis: A Historic Crime Scene Investigation*. Although I am a murder theorist, Professor Starrs is neutral on the subject of murder or suicide, as are Lewis family descendants. They want an exhumation of Lewis’s remains in order to determine the cause of his death. Starrs, one of the leading forensics experts of our time, has the family DNA sample and will write the final report when the government once again grants permission for exhumation. Over 200 members of the Lewis family, including our own Jane Henley, past president of LCTHF, have requested exhumation. The Department of Interior, which is in charge of National Monuments, granted the family’s request in 2008 and the permit process was begun, only to be revoked in 2009 when the new administration took office.

The book, published in 2009, is now in a second “New Evidence Edition.” It contains evidence discovered by Tony Turnbow as well as other new evidence discovered by myself. It also includes dramatic new evidence concerning two competing conspiracies to invade Mexico in 1809; one organized by Aaron Burr and the Mexican Association of New Orleans, and the other by General James Wilkinson and his associate, John Smith T. (the “T” is for Tennessee). In this edition I continue to build the case for the St. Louis conspiracy being responsible for the assassination of Lewis. I propose a scenario for how an improvised assassination was carried out, based on the assumption they originally intended to kill him while he was on the boat, and had to change their plan when he decided to travel on the Natchez Trace.

The book contains a transcript of the 1996 Coroner’s Inquest held in Lewis County, Tennessee, which was organized by Starrs. The transcript, of which only a few copies were made, was found in the Library and Archives of the LCTHF. Some of the most prominent names in American forensic sciences gave fascinating testimony, as well as Arlen Large, past president of the LCTHF, and Ruth Frick, author of *Courageous Colter and Companions*.

One of the most important documents in the book is the 1850 report of the Monument Commission of the State of Tennessee. When they exhumed Lewis’s remains during the erection of the monument at his gravesite, they stated, “...it seems to be more probable that he died at the hands of an assassin.” I discuss all of these documents, as well as provide an 85 page narrative concerning Lewis’s life after the expedition.

Dr. Chuinard, the founder of *WPO*, was a murder theorist; the contemporary Lewis and Clark community needs to revisit these issues and support the family’s request for exhumation.

Sincerely,
Kira Gale
Omaha, Nebraska
kira@lewisandclarktravel.com

Kira Gale is the author of *Lewis and Clark Road Trips: Exploring the Trail Across America*. She was awarded the Meritorious Achievement Award of the Lewis and Clark Trail Heritage Foundation in 2007. She was the first president of the Mouth of the Platte Chapter, and organized the Lewis and Clark Study Group which has met weekly for 12 years at the Western Historical Trails Center in Council Bluffs, Iowa. She has appeared on C-Span Book TV and on the History Channel’s *Brad Meltzer’s Decoded* series discussing the death of Lewis.
Prickly Pear Cactus: An Unexpected Adversary

By Jack Puckett

"Under the Mid-day Sun," by Michael Haynes.

As members of the Lewis and Clark Expedition began their journey west, they expected to meet Indian tribes, perhaps some wild animals, and other obstacles unknown to civilization. However, they were unprepared for a trio of pests—mosquitoes, gnats, and prickly pear cactus—that not only made their journey unpleasant, but also physically challenging.

Prickly pear cactus caused the most suffering and was an unexpected adversary throughout much of the journey. On July 24, 1805, Captain Meriwether Lewis wrote, “our trio of pests still invade and obstruct us on all occasions, these are the Musquetoes eye knats and prickley pears, equal to any three curses that ever poor Egypt laiboured under, except the Mahometant yoke.”

The Corps of Discovery’s earliest encounters with prickly pear occurred September 19, 1804, near Chamberlain, South Dakota. Captain William Clark wrote of a creek that passes “thro a plain in which great quantities of the Prickley Pear grows. I call this Creek Prickley Pear Creek.”

A couple of days later Clark wrote, “The Prarie below & Sides of the hills containing great quantites of the Prickly Piar which nearly ruind my feet.”

As the corps moved west from Fort Mandan, the captains wrote of the large quantities of prickly pear they encountered whenever they walked on the plains above the river. Being a dry-land species, prickly pear would not grow in the moist river bottom.
The plains prickly pear, *Opuntia Polycantha*, is a member of the cactus family. The plants are succulent, leafless shrubs with smooth, flat, segmented stems about five inches long with numerous weakly barbed spines. Its flowers are yellow, pink or red, about six and half inches wide with numerous petals. They flower from May to July and grow on sandy plains, foothills, and lower mountains from British Columbia to Mexico.4

Journal notes include mention of the prickly pear in bloom and how difficult it was to travel in areas where it grew. While at the Marias River on June 4, 1805, Lewis wrote, “great abundance of prickly pears which are extremely troublesome; as the thorns very readily pierce the foot through the Mockerson; they are so numerous that it requires one half of the traveler’s attention to avoid them.”5

The eighteen-mile portage at the Great Falls of the Missouri proved to be one of the most difficult physical tests of the entire journey as the corps had to pass through an immense field of prickly pear. In *Lewis and Clark: Pioneering Naturalists*, author Paul Russell Cutright explains: “The abundance of prickly pear encountered here by Lewis and Clark may have a logical explanation. According to reliable sources, it was a natural step in the ecology of the area due to heavy overgrazing by buffalo. The soil was so thin and devoid of organic matter that even a small change affected it adversely. Thus, when the buffalo depleted the normal cover of prairie grass, it was a simple matter for the prickly pear to establish itself. Popular opinion to the contrary, overgrazing in the West was a problem in many places long before the advent of white men.”6

Movements of the immense bison herds followed a pattern. Wherever they went, they overgrazed the land. When this was repeated year after year, undesirable plants such as the prickly pear cactus multiplied. This explains why it was so ubiquitous. Additionally, the immense herds of bison spread parts of the cactus as they moved across the plains. The cactus took root and spread. The prickly pear proved a constant irritant to expedition members as they portaged the falls. The men did not have leather boots to protect their feet and ankles—by the summer of 1805 they wore moccasins.7

Cutright also wrote that the prickly pear, “which formed a thick spiny blanket over the portage route, contributed immeasurably to the hardship. Unless the men watched each step, it was impossible to avoid the spines of this plant; their thin-sole moccasins offered practically no defense. Though they later reinforced soles with buffalo rawhide (parfleche), this added protection failed to prevent spines from entering sides of feet and ankles. Each evening, as the portaging progressed, the men removed moccasins and suffered through the grim, painful experience of pulling cactus spines from hurting feet.”8

On July 15, 1805, Lewis made the following observation above the Great Falls of the Missouri: “the
prickly pear is now in full blume and forms one of the beauties as well as the greatest pests of the plains.9

Lewis wrote on July 19, 1805, “they have now become so abundant in the open uplands that it is impossible to avoid them and their thorns are so keen and stiff that they pierce a double thickness of dressed deers skin with ease. Capt. C. informed me that he extracted 17 of these briers from his feet this evening after he encamped by the light of the fire. I have guarded or rather fortified my feet against them by soaling my mockersons with the hide of the buffaloe in parchment.”10

As the Corps of Discovery approached the Three Forks of the Missouri, Lewis wrote a description of another cactus, the yellow pincushion cactus, Corophantha missouriensis. Though a pest if stepped upon, it was not as prolific as the plains prickly pear.

Proceeding on up the Jefferson River from the Three Forks, the men continued to write about encounters with prickly pear, though less frequently. On August 13, 1805, the party encountered another type of prickly pear and Lewis wrote, “the prickley pear are of three species that with a broad leaf common to the missouri; that of a globular form also common to the upper part of the Missouri and more especially after it enters the Rocky Mountains, also a 3rd peculiar to this country. it consists of small circular thick leaves with a much greater number of thorns. these thorns are stronger and appear to be barbed. the leaves grow from the margins of each other as in the broad leafed pear of the missouri, but are so slightly attached that when the thorn touches your mockerson it adhears and brings with it the leaf covered in every direction with many others. this is much the most troublesome plant of the three.”

This was the brittle prickly pear cactus, *Opuntia fragilis*, of which Clark wrote on September 8, 1805, “on this part of the river on the head of Clarks River I observe great quantities of a peculiar Sort of Prickly pear grow in Clusters ovel & about the Size of a Pigions egge with Strong Thorns which is so birded [bearded] as to draw the Pear from the Cluster after penetrating our feet.”12

There is little mention of prickly pear for the rest of the journey west except in an entry Clark wrote about observing the Chim-na-pum Indians drying prickly pear for winter fuel. The journey home included fewer
encounters with prickly pear as corps members rode horseback and journeyed by canoe down the rivers.

Much of the land where the Corps of Discovery encountered prickly pear is now under cultivation, but on areas of native vegetation across Montana the plains prickly pear still exists, the blooms remain beautiful and the thorns are as hurtful as those encountered by the Corp of Discovery. In the collection of plants that Meriwether Lewis acquired throughout the expedition there is no specimen of prickly pear. Perhaps it was a sore point with Lewis and therefore he didn’t collect it.

---

**Notes**

2. Ibid., 90.
3. Ibid., 3:92-93.
10. Ibid., 404.
11. Ibid., 5:78.
12. Ibid., 191.

---

**New Evidence Edition of**

*The Death of Meriwether Lewis: A Historic Crime Scene Investigation*  
by James E. Starrs and Kira Gale  
*Autographed copies available through Kira Gale, kira@lewisandclarktravel.com*

**New Evidence Edition:**  

**Also Included from the Original Edition:**  
CORONER’S INQUEST—THE EVIDENCE: DOCUMENTS & PHOTOS—THE CASE FOR MURDER
Lewis and Clark in the Age of Cook

An Essay on Enlightenment Exploration

By David Nicandri

Like the map of Cook’s voyages, Lewis and Clark’s track map, published with the official account in 1814, is a landmark map in itself, principally because it shows the labyrinthine nature of the northern Rockies. However, as a cartographic image it lacks the clarity of presentation found in the maritime charts of Cook and Vancouver.

James Ronda, in videotaped valedictory remarks at the 2013 Lewis & Clark Heritage Foundation annual meeting in Bismarck, ND, made two salient observations. The first was the re-statement of a point he had made in many of his essays for upwards of the last twenty years: that it was time, long past time, to put the Lewis & Clark Expedition in a comparative context. The second comment, emphasizing the main theme, was this: “It was not the age of Lewis & Clark,” he said, rather, “it was the age of Cook and Vancouver.”

By this Ronda means to encourage reversing the polarity of common perception of the Lewis & Clark story which, when studied in juxtaposition to other expeditions, is neither as triumphal or even the exceptional event it is often made out to be in the most popular interpretations. I tried my hand at this in River of Promise: Lewis and Clark on the Columbia, by pointing out not only the similarities between the voyages of Alexander Mackenzie and that of the captains, but that the American explorers were regularly reliant, up to and including plagiarizing text, on the Scotsman’s

This essay is based on the presentation by David Nicandri, recently retired director of the Washington State Historical Society, at the Forty-fifth Meeting of the Lewis and Clark Trail Heritage Foundation, Bismarck, North Dakota, July 31, 2013.
account of travels to the Arctic and Pacific Oceans in 1789 and 1793, respectively, on behalf of Canadian fur trading interests. Now, having moved on to the study of Captain James Cook's voyaging in the high latitudes, I can further attest to Ronda's maxim. Having studied Lewis and Clark, and Mackenzie, makes me a better student of Cook, and, for that matter, studying Cook provides even further insights into the meaning of the voyage to the Pacific commissioned by Thomas Jefferson.

A few key themes, among the many that I intend to address within a larger study on Cook and the evolution of the cartographic image of the Northwest Passage, will provide some flavor of what the Cook context of Lewis and Clark will yield by way of understanding and appreciation. Let’s start with historiography. Reading the literature of exploration I find that historians have been far too forgiving of Meriwether Lewis’s idiosyncrasies and too critical of Cook’s, at least in his third and final voyage. Lewis consistently seized upon or manufactured the circumstances that allowed him to “jump ahead” of William Clark in pursuit of exploratory glory. He did this by proceeding in a solitary fashion to the junction of the Yellowstone of the Missouri, then later to the Pacific ocean while Clark was marooned with the detachment at Dismal Nitch, and most notoriously, by venturing on the quest for the Shoshone and Continental Divide at Lemhi Pass. This last vanguard movement, which the journals of both captains unmistakably suggest Clark was intended to make, was compounded by Lewis’s outright expropriation of geographic information from Clark’s subsequent foray west of the divide which he did to make himself appear to be a more discerning explorer in narrative form than he was in practice. Even when Clark was the first to a noteworthy benchmark, such as the Three Forks of the Missouri, Lewis larded his account with such grandiose text about the long wished for spots and the naming of rivers after national leaders and their personal attributes, that historians have invariably gravitated to Lewis’s account of this accomplishment, not Clark’s.

Cook, on the other hand, has been victimized by the scholarly community’s fundamental misunderstanding of the third voyage’s mission, if not more generally by the strictures of what I call the “Polynesian Palm Tree Paradigm.” This model, which reached its pure crystallized form in Tony Horwitz’s Blue Latitudes: Boldly Going Where Captain Cook has Gone Before, intimates that the sum and substance and ultimate meaning of Cook’s exploratory ventures are to be understood within the context of the sandy beaches of Polynesia and the cross cultural encounters that took place on those shores, at the expense of his more extensive reach into and along the icy white, high latitudes of the Indian, Pacific, and Atlantic oceans, his looking for the rumored great southern continent (Terra Australis Incognita) during
the course of the first two expeditions, and then his quest for the equally elusive Northwest Passage in the north Pacific on the third. This has been compounded by the Antipodal Axis of Cook studies, grounded in Great Britain, the place of his birth and nationality approximate to the Greenwich meridian, and New Zealand and Australia on the exact opposite side of the globe. (Cook discovered and named the Antipodes, an island chain, southeast of New Zealand.) Cook delineated New Zealand’s insularity, and the east coast of Australia, and given his centrality to those dominions becoming, formerly, a part of the British Empire, much of the Cook documentary record is found in the cultural repositories of those countries. More importantly and characteristically, John C. Beaglehole, the editor of Cook’s journals and the author of the most oft-cited biography of the man, was a New Zealander. The Northwest Passage, by definition a North American geographic perplex, is a distant and alien place from the centers of Cook studies, perhaps explaining why it is frequently dispatched with brevity if not ignored entirely in books that purport to be a comprehensive analysis of the great navigator’s work.

What is worse, in his annotation of the journals and a biography of Cook, Beaglehole laid down the outlines of what has become a rigid interpretive orthodoxy about Cook generally and the third voyage in particular. Beaglehole considered Cook’s undertaking of the third voyage a mistake, if not a disaster. The specific shape of his critique takes the form of the three F’s: fatigue, friction, and failure, a typology that is mine but a lens through which we can see the effect of Beaglehole. Let us take these themes in turn.

Beaglehole was the first to hint that Cook was worn out by his first two voyages to the South Pacific and should never have allowed himself to be talked into taking command of what would prove his last voyage so soon upon returning from the second in 1775. Beaglehole saw the first inklings of fatigue in Cook during his last swing through the South Pacific when, near Tonga, having gleaned knowledge of the neighboring islands of Samoa and Fiji, he deigned not to explore them further. Beaglehole, as a Southwest Pacific “islander” himself, almost seems to have taken this as an affront, asserting that the Cook of old, the one from the first two voyages, wouldn’t have missed an opportunity to follow up on leads like this. What Beaglehole, and all who have followed him, have failed to appreciate, is how devoted Cook was to the notion of fidelity to mission. His third voyage instructions specifically advised Cook to avoid distractions, and the great navigator himself at the end of the second voyage recorded in his journal that he was “done” with the South Pacific. In a sense, he had moved beyond what had become the prosaic work of outlining insular groups in the vast Pacific, gravitating instead toward what might be called a continental framework, in the form of a passage through or above and around North America, a goal of Columbian proportions. Similarly, once off the Pacific slope of America, Cook, now to the dismay of historians of the Pacific Northwest, glided past the outfalls of what would later be denominated as the Columbia River and the Straits of Juan de Fuca. The frequently made charge, founded on Beaglehole’s premise, is that a diminished Cook “missed” these mid-latitude openings into the continent, this despite the fact that his instructions specifically advised him to avoid such attractive nuisances and not even begin to look for a Northwest Passage until he reached 65 degrees North latitude.

Secondly, and a concomitant aspect of Cook’s supposed fatigue, was his increasingly fractious relationship with fellow crew members and South Pacific native people. To take the last of these first, it may be fairly said the rigors of managing the cultural encounter in Polynesia took its toll on Cook during the third voyage, but there is nothing in the documentary record relative to his dealings with Native people in the Northwest, Alaska, and Siberia to conclude that there was an endemic lack of cross cultural sensitivity on his part. As for his shipboard colleagues, the conceit of Cook scholarship, as first put forth by Beaglehole but replicated endlessly since, is that
This map, prepared for inclusion in the official account of Cook’s third voyage and published after his death, is the first modern map of the world. Showing in its detail Cook’s track for all three voyages, it is noteworthy as a cartographic image not only because it is
recognizable as a realistic depiction of the globe’s surface, but for its rigorous adherence to the gridline of latitude and longitude, and in contrast to its many predecessors, offers a pristine, unvarnished view of the world.
the only variable on the final voyage is Cook himself. A fair reading and comparison of the journals from the first two to the third voyage is that Cook was dealing with a more fractious set of officers and seamen during the latter. Among other evidences of this are the increased attempts at desertion (anticipating the mutiny on the *Bounty* in the ensuing decade) plus the large number of illicit journals that crept into print in the wake of the last voyage, despite specific directives from the British Admiralty proscribing it. Also, it is worth noting that Cook left England for the last time in July 1776, when the rebellion in the colonies was both draining the pool of available talent and exemplifying the spirit of an anti-authoritarian era that would reach a crescendo with the French Revolution in 1789.

As to Cook’s third voyage “failure,” it is, first, necessary to stipulate that any expedition that ends with its commander dead is, by definition, less than fully successful. Still, Cook’s third voyage discoveries, once he vacated what to him was the worked over precincts of the South Pacific (Beaglehole’s protest notwithstanding), were extraordinary by any measure, and deemed by his contemporaries as the most noteworthy of his career: the Hawaiian Islands, the trend line of the northwestern quadrant of the North American coastline, and the specific delineation of the separation of Siberia and North America at the Bering Strait, which he transected in August 1778. The strategic value of the Hawaiian archipelago, from its first sighting by Cook in January 1778 to this very day is self-evident. His cartographic depiction of the coast north of California stands as a distinct accomplishment in contrast to the fanciful notions that predominated in geographic circles in the centuries, truly, in the few decades prior to his last expedition. Perhaps least appreciated of these major findings, drawing on the proximity of the continents at the Bering Strait, and the commonalities of Native people on either side of this watery divide, is that Cook laid the foundation for what has come down through time as the Bering Land-bridge theory for the populating of the western hemisphere. These were not small accomplishments, or ideas. And, as for not finding the Northwest Passage because he met with impenetrable ice: can a failure to find what does not (or, did not) exist be deemed, in fact, a failure? Disproving the existence of the great southern continent made Cook the toast of Europe; not finding a shortcut to Europe shouldn’t have diminished the man’s reputation. Besides which, Cook was never more vigorous or perhaps daring as an explorer as when he coasted along the Arctic ice pack and probed the depths of Alaska’s Norton Sound looking for a way around the ice and across the continent.

**Cook’s third voyage discoveries, once he vacated the precincts of the South Pacific...were extraordinary by any measure.**
My point, returning to James Ronda: there’s every bit as much of a need for a new look at Cook as there is for a widening of the scope with regard to the Lewis and Clark story. Ronda once perceptively averred that at its root exploration history is really environmental history and this, I think, is correct. It is also particularly relevant to Cook because if he was voyaging north through the Bering Strait and the archipelago of northern Canada in 2013 instead of 1778, he would likely have found his way through to Baffin Bay and out Davis Strait by Greenland and back to England. Global warming, without prejudice to the debate over the origins of same, is ineluctably creating the very same passage that eluded Cook, and the great navigator’s high latitude exploits amidst snow and ice is, for our time, far more relevant than sandy beach crossings and the anthropological debates that surround them.

In this way, seeing Lewis and Clark as part of the “Age of Cook” also puts the American voyage into the widest possible context: Enlightenment era exploration and more specifically, the search for the Northwest Passage, one of the two great concerns of that age, the other
being Terra Australis. It is frequently stated that the Lewis and Clark Expedition proved the non-existence of the passage, but this is a simplistic understanding. The concept of the Northwest Passage evolved over time, and, as adumbrated above, it continues to evolve. It was Captain Cook who proved, for his time, that a salt-water passage from the north Pacific to the north Atlantic did not exist. Per Ronda, Cook was followed by Vancouver, who had sailed on Cook’s last two voyages. Much like the Cook third voyage record has been accreted with myth, so too Vancouver’s expedition. The common interpretation is that Vancouver was sent to finish the survey and make up for the deficiencies the fatigued and lessened explorer that was the latter day Cook left uninvestigated. In fact, Vancouver was sent to find a western analogue to Hudson Bay, an old cartographic concept that was particularly popular in France. The thinking was this North American “Mediterranean ocean” would facilitate a communication with the lakes of Canada or Hudson Bay, creating a de facto passage dominated by British fur trading interests. Vancouver’s return to Great Britain in 1795 ended that dream, and thus the image of the passage evolved to a concourse of rivers, a vision first articulated by Peter Pond, to which Alexander Mackenzie responded. This phase of the Northwest Passage is, of course, the one in which Lewis and Clark are a part, having been dispatched in response to Mackenzie. Like Cook, Vancouver, and Mackenzie, Lewis and Clark failed to find a practicable version of the passage as well, their best efforts notwithstanding. It was not until the fourth version, the one instituted severally by the Northern Pacific, Canadian Pacific, and Great Northern railroads, that the functional equivalent of a passage was finally realized. Of course, as intimated above, in our time a new, and now fifth, Northwest Passage is becoming real, one which, in a few centuries, if the pace of warming continues, will truly serve as the “Northern Mediterranean.”

I have one last reflection on Cook and Lewis and Clark’s mentor, Thomas Jefferson. In one of the great coincidences in history, Cook was preparing to leave Portsmouth for the last time the same month that Jefferson inscribed the Declaration of Independence. Indeed, Cook saw the ships in the neighboring slips filling up with arms and men with the intended destination of the Atlantic side of America at precisely the same time he was preparing to venture to the far Pacific coast of the same continent. Historians, generally, have done a bad job of introducing “contingency” to their narratives and the attendant perspective such sensibility can bring. So, to conclude, let us hark back to Beaglehole and his premise that Cook should have sat out the war with the

For a free brochure about River Dance Lodge, Missouri River trips, ROW’s whitewater rafting trips, as well as international adventures including history-oriented yacht cruises in Croatia, Turkey or Greece, barging in France and more, call 800-451-6034.

www.Rowadventures.com

PO Box 579-WP, Coeur d’Alene, ID 83816 • E-mail: info@Rowadventures.com
colonies? The implication of Barbara Tuchman’s *The First Salute*, is that from John Paul Jones’ first significant battle off Cook’s native Yorkshire coast (of “we have not yet begun to fight” fame) early in the war, to the British naval debacle in the run up to Yorktown that brought it to an end, the British needed only one more capable, energetic naval leader to effectively counter the Americans and the French and the rebellion might have been put down, or concluded in a fashion distinct from outright American independence. Either way, it seems, James Cook was destined to make history in the last half of the 1770’s. It was, truly, the Age of Cook. 🪑
To survive you must often break the rules and make new ones as you go. Work as a team and extend the hand of peace to your traditional enemies. Carefully record what you see and do, and particularly, where you go.

What we commonly call the Lewis and Clark Expedition was so much more than that. A better way to consider the Lewis and Clark Expedition is to think of it as a well-organized, military work detail that was given clear and distinct instructions of where to go and what to do, given the unknowns of the early nineteenth century.

The Corps of Discovery was a major departure from anything previously attempted by the still-young federal government. They were well financed, organized, and had a clear plan of action. Their intentions were not to conquer the land, but to study it. Therefore, they would be in the field as long as was required to get their job done.

The expedition did not know how long the trip to the ocean would take or how they would return. They only knew that there was a possibility the expedition might be re-supplied by trade ships from the Sandwich Islands after they reached the Pacific. Lewis carried a letter of unlimited credit signed by the President of the United States.

Jefferson planned for a military unit composed of one good officer and a dozen enlisted men. Although the unit that departed Camp Dubois was three times that size, it was still a military unit. Military units survived on what the quartermaster could provide. On the frontier that frequently meant contracting with local farmers, but once the expedition left their winter quarters at Camp Dubois there would be no local farmers or other re-supply points, only the native people they encountered. Additionally, military units were forbidden by orders from foraging for food. They ate what was provided or went hungry. Since they did not know where they were going or how long they were to be gone, they could not possibly carry enough food for the entire trip. How was the expedition going to get its food?

Jefferson’s response was a stipulation that the men recruited for the expedition must be “accustomed to life on the frontier.” Those six words sound simple, but they speak volumes.

A good starting point for understanding these few words is to read a modest-size book, The Hunting Pioneers written by Robert Holden. The author discusses the first settlers in the Eastern Woodlands as settlement moved westward from the Atlantic seacoast to the Mississippi River. During this period, starting in 1720 and lasting until 1840, one of the most well-known of the hunting pioneers was Daniel Boone.

These hunting pioneers are frequently referred to as “backwoodsmen” or “white Indians.” They generally lived in rough log cabins with dirt floors and split log roofs. Furniture was almost nonexistent, but what they had was crafted from rough logs. Buffalo robes and
black bear hides served as a bed. These people placed a high premium on courage, hardiness, individualism, and personal freedom, and dreaded anything that appeared to be a constraint. Essentials for living were a rifle, ax, and knife.

They chose to live in the wilderness for the solitude, so when the neighbors got too close (too close was when you could see the smoke from your neighbor’s chimney) they pulled up stakes and moved farther into the wilderness and away from people. This pattern repeated itself every few years. Because life for these people was the most basic of subsistence living, much of their time was spent hunting. The hunter and his family simplified their needs to the barest essentials. With no desire to own land, they simply occupied a spot in the wilderness. If they couldn’t make something, they did without. If the hunt was unsuccessful, they went hungry.

When these hunters went on an extended hunting trip, which they often did, they took some salt and corn meal as their only food; anything else had to be harvested from the land. Like the wild animals his life closely mirrored, the hunter was indifferent to fatigue and hardship. When trailing his quarry he would track it several days if necessary until he caught it. When nighttime overtook him, he simply lay down and slept. Food was a matter of eating when it was available and going hungry when nothing could be found.

By the time of the Lewis and Clark Expedition, the Kentucky recruits and many of the frontier military men had lived all their lives in this environment and knew nothing else. This was the heritage President Jefferson referred to when he set the requirement that the men of the expedition must be good hunters and accustomed to life on the frontier.

Almost as soon as the Corps of Discovery left their winter camp near St. Louis on the journey up the Missouri, we see a change in their eating habits as well as their diet. The captains’ detachment orders for May 26, 1804, specified that cooking will only be done in the evening. Other meals will be leftovers from the night before. Although not stated, it is presumed that while at Camp Dubois all meals were cooked since that was typical for the army in garrison. This order also specified what provisions would be issued each day. From examining that order and later statements in the journals, the captains knew they had to conserve the food they brought with them to make it last as long as possible. So the corps depended more heavily on the fresh meat and other foods they could get along the way. As they progressed up the Missouri more wild fruits and berries became part of the men’s diet.

During the summer and early fall of 1804 the Corps of Discovery ate well, mixing a variety of game animals, fish, and wild edible plants such as fruits and berries with some of the cornmeal, flour, lard, and occasionally pork they had brought with them. By the time they reached the Mandan Villages in late October the changing seasons forced a diet that had a much greater reliance on meat from the deer, elk, and buffalo...
How Much Meat?

One of the most commonly heard comments about the expedition's food is that they ate nine pounds of meat per day. This idea seems to have its roots in a comment Lewis made on July 13, 1805, about requiring one buffalo, or four deer, or a deer and an elk to feed the men for a day.

Ken Walcheck used the concept of “ration units” developed by Paul Martin and Christine Szuter that had given rise to the notion of nine pounds of meat per day in his We Proceeded On article addressing the expedition's food consumption. (“Fishing in an Angler’s Paradise, 1805,” We Proceeded On, 32:4 (2006):22-29.) He took a different approach to determine the expedition's daily food intake by trying to figure out how many calories were needed to do the work the men were performing.

His lab work developing formulas for determining the average amount of meat on each animal is compelling. He used the four most commonly shot animals—deer, antelope, elk, and buffalo. He then worked with Dr. Susan Raatz at the University of Minnesota to determine calories per pound of meat from each of these animals. The result agreed with the theory of nine pounds of meat per day. These meats ranged from 650-750 calories per pound, thus nine pounds yields approximately 6,000 calories per day, which was the calories required to do the daily work they were performing.

It was admirable lab work, but we found while working in the field that those lab theories do not stand up to the tests of reality. The lab work reflects current-day attitudes and current-day methods. To understand the Corps of Discovery's food intake we must think like they did two hundred years ago and as a group on the move, taking what the land offered at the time they passed through.

To determine average meat intake the researcher needs to establish how many of what kinds of animals were killed. In spite of the formulas on percent of use and average weight, the basic number of animals cannot be meaningfully determined. Furthermore, the amount of meat actually used from a number of kills is virtually impossible to know. Variables, including how much the wolves got, how much spoiled, how much the hunters were able to carry with them, can only be guessed at. Read the two captains’ journal entries for December 1804 through February 1805 to get a better understanding of this problem.

Lack of modern day storage and preservation techniques meant that on many days excess meat was killed. The explorers took what they could eat and carry, then left the balance for the wolves. Three men can’t eat and carry an entire buffalo, but how does one kill half a buffalo?

The next lab work to consider was determining calories in the meat eaten and how many calories were needed to do the job. Walcheck notes some other foods, but calls them minor and discards everything except the four game animals noted above. With this act he discards a total of ninety-two other foods the corps ate including the initial forty-days rations carried when they left Camp Dubois. Additionally they took six hundred pounds of hog lard, and rendered untold gallons of animal fat along the way. Thousands of fish were added to their diet, many bushels of corn, and so it goes.

The basic report of the number of calories in the meats mentioned is fine but rather meaningless. We know how a food is prepared impacts the caloric content. Our field testing showed us that the only way the expedition could meet the time deadline for their stop at suppertime while traveling was to boil their food in oil. Today we call it deep fat frying, which adds considerable amounts of calories to the foods.
Caloric requirements as Walcheck established do not consider how people worked at the time of the expedition when most everything was done manually. Most people lived a subsistence or near-subsistence diet, except for those in the cities. The amount of work accomplished is a result of the amount of food, or energy, available. Walcheck’s lab work turned this around by stating that for the objective, or amount of work, what energy was required. An example would be that Walcheck wanted to show the calories required for a marathon runner to run a two and one-half hour marathon. For the Corps of Discovery, reality was that the time taken to travel the twenty-six-mile marathon distance depended upon the energy available.

A group living on a subsistence diet and continuously traveling through an ever-changing landscape will see their diet constantly changing in keeping with what food is available from the landscape at the time they are there. We know that at one particular time while the corps was on the prairies Clark noted the number of animals they were consuming each day. Three months later in the Rocky Mountains, when the only thing between them and starvation was a few gallons of portable soup, those prairie animals were only a fond memory.

Although the basis for their diet was most often meat, it was not exclusively so. The expedition ate, as we would expect, a wide variety of foods and a wide variation in quantity. The idea of determining a daily average amount of meat eaten is basically meaningless. In particular, when concentrating on a particular aspect of the diet, an average hides the wide variation in quantity and all the other foods consumed. The average becomes another obstacle to overcome before we can find how the expedition actually fed itself.

During the winter of 1804–1805 at Fort Mandan, corn and other foods from the Indians in exchange for blacksmith work became more important as fresh meat became scarcer. As the fall harvest of wild fruits and berries gave out, along with the availability of game animals, the corps’ diet changed to one of basic subsistence consisting of what little meat, corn, and squash they could get. The Mandan Chief Big White (Sheheke-Shote) summed up the situation best by saying the Indians and the corps must share their foods when they had any, “If we eat you shall eat, but if we starve you too shall starve.”

At Fort Mandan food was frequently shared between the Corps of Discovery and their Indian neighbors. Both Indian and corps visitors almost always gave gifts of food to their hosts during the many visits between the two groups. Joint hunting trips were the order of the day. It was common to see Indians join several of the expedition hunters in a united effort to get meat for everyone. Indian horses and expedition guns combined for much greater success than either group had alone in this austere winter landscape and scarce game.

Spring 1805 brought a new abundance of food for everyone, primarily in fresh meat from the deer, antelope, and buffalo that returned to the plains. As the Corps of Discovery continued their journey west toward the Rockies they ate well. Clark commented the plains were like a commissary where they could select almost at their leisure what they wanted to eat. He was referring to the variety of animals available for meat, but the prairies also provided a variety of plants for their diet. Sacajawea often dug roots when the corps stopped to dry baggage or wait for the wind to subside. With vast herds of buffalo, elk, deer, and antelope as well as many bighorn sheep and beaver so readily available, both captains cautioned to only take what was needed. Fish was also a part of the expedition’s diet whenever they stopped long enough for several of the men to have time to catch some. Ken Walcheck wrote an article in *We Proceeded On* that “the expedition caught fish by the score as they passed through Montana.” Fish remained a definite part of their diet from the start of
the journey until they reached Travelers Rest. Lewis lamented at the Upper Portage Camp that they hadn’t had any fish since they passed by the Great Falls.9

The next big change in diet was made as the corps made its way through the Rocky Mountains. The captains carefully expended the provisions they brought from Camp Dubois to make them last as long as possible. They knew when they reached the Rockies they would not have the readily available supply of meat that they enjoyed on the plains so the corn, flour, and pork would be needed.10 They also had to save some of these staples for their return trip. Several barrels of these provisions were cached at the Marias River.

The expedition laid in a good supply of “jerked” meat and continued actively hunting, but by the time they were in the heart of “those terrible mountains” game was almost nonexistent, with only an occasional meal from fresh meat. The last few days in the Rockies were an ordeal of near starvation. All the fresh meat, jerked meat, provisions from St. Louis, and even the portable soup was gone. Portable soup had given the expedition six meals in the Rockies. Survival had meant eating three horses.

Diet during these days in the Rockies was bare subsistence, eating whatever precious little food came available. They never really had enough to satisfy their hunger. Instead, it was just enough to survive until something else could be found to eat. Early snows added to the problems of finding food. The list of what was eaten included mainly meats since the snow made the roots and berries impossible to find.

Arrival at the Nez Perce camps on the Weippe Prairies of Idaho meant the expedition again had food. Their diets became much like that of the Indians in the area: dried salmon and camas roots with an occasional deer. This was the most dramatic diet change
the expedition faced and the results were immediate and telling. Camas root is an emetic as well as a purgative until the system adjusts to it.11 The men had almost nothing in their systems so they felt the fullest effects of the camas roots’ medicinal values. Within hours everyone was cleaning their systems from both ends. It took several days before they adjusted to the new diet. Everyone’s systems had adjusted to the camas roots by the time the canoes were completed and the expedition set off from their Canoe Camp, down the Clearwater River. The whole process of adjusting to this new diet was made worse by the entire expedition getting extremely sick when they first arrived at the land of the Nez Perce.12

Traditional theories say that the men got sick from the severe change from red meat to fish and roots. However a close study of symptoms and circumstances make it readily apparent that the Corps of Discovery suffered from salmonella poisoning. The natives had developed an immunity to salmonella found in the dried salmon after centuries of eating it, but it was new and almost deadly to the men of the expedition.

From their arrival at the Nez Perce villages until the expedition reached the Pacific Ocean, their diet remained dried salmon, camas root, and dog meat. This period of time must have been particularly difficult for Captain Clark, since he did not like or eat dog meat. He commented, somewhat wistfully, that Lewis would eat anything if it had enough salt on it, but he wasn’t much concerned about salt and could never manage to eat dog.

Once construction of the winter camp at Fort Clatsop was completed, the expedition was able to turn their attentions to finding their own food, rather than trading with the Indians of the area. Their diets once again became dominated by meat as the hunters managed to regularly find a limited amount of elk to add to the dried salmon and camas root. The corps responded to the increased quantity of food with increased strength. Captain Clark vividly illustrated the fact that their strength was not nearly what it had been while they enjoyed the plentiful foods harvest of the plains. When he led a group to get some of the blubber from a whale that had been washed up on the beach, they
met a group of Indian women climbing a steep hill. Clark took the load from a woman who had slipped. To his surprise, he was barely able to lift the one hundred pounds she carried.

The expedition ran into a new limitation placed on their diet that winter. Although the Indians had a variety of roots, berries, and fish and they were willing to trade with the Corps of Discovery, the prices they wanted for these food items were very high. Since the expedition had very little to trade with, most of the time no deal could be reached. Consequently, they had to depend upon their rifles to supply enough elk meat.

The abilities of the expedition hunters were definitely tested during the winter, but they apparently passed the test. Clark, somewhat wistfully, noted in his journal as they bade farewell to Fort Clatsop that they had eaten three meals every day they lived there.

The Corps of Discovery’s diet was dominated by dried fish, roots, and elk or deer meat during their trip from Fort Clatsop up the Columbia, then to the Nez Perce and over the Rockies to Travelers Rest. They had the same basic diet during their winter at Fort Clatsop. There were variations, in the quantity of meat, instead of elk or deer it was fresh fish or dog. While they were camped with the Nez Perce waiting for snow in the Rockies to melt, the hunters shot several bear that were not only used for their meat, but the bear oil was used in preparing their dried roots.

When the expedition left Travelers Rest, Clark headed towards the Yellowstone and Lewis overland to the Great Falls. Their diets changed to be primarily meat—deer, buffalo, or elk. They had eaten most of the roots and other dried foods obtained from trade with the Indians and fresh plant foods were not yet available. The provisions they had cached were at the mouth of the Marias, which Clark completely bypassed on his Yellowstone route and Lewis did not reach until July 28. However, they varied their meat diet by including goose, beaver, rabbit, and catfish. Clark drew the lucky route since his entire trip from the time he left Travelers Rest until the two groups reunited in western North Dakota ran through an area thickly populated with game.13 They did not want for food at any time.

Lewis’s easterly trip to the Great Falls was also through land well populated with game. His party ate well on much the same foods that Clark’s group had. At the Falls Lewis split his group, taking three others north with him to the far reaches of the Marias River. Those that remained at the Great Falls continued to eat well, but Lewis ran out of food in an area that had very recently been heavily hunted by Indians. Consequently his group spent several days with very little food. They had a small quantity of roots, the last of the supply from the Nez Perce, one small trout, several pigeons and a small piece of buffalo meat.

Lewis’s party returned to the Missouri River and recovered the corn, flour, pork, and salt from their cache at the mouth of the Marias. Since they were back in the land of plentiful game, they ate well the rest of their trip downriver to their reunion with Clark.

As the journey continued, the Expedition eventually left the lands of plentiful game animals and entered an area of a much reduced meat supply. The area was home to a larger population of Indians who also depended upon the game for their meat. Diets now were much more dependent upon the corn the expedition got from the Mandans through trade and gifts, wild fruit and berries, and other birds and animals such as turkey, pelican, prairie dogs, and a few rabbits. The men had enough to eat to curb their hunger, but not to fully satisfy their appetites.

By early September the expedition was about two weeks travel away from St. Louis. Their diets again changed as they started meeting traders coming upriver. From these traders the expedition got a limited amount of flour, biscuits, chocolate, sugar, beef, and pork. That, along with plums and pawpaws, satisfied the men who were more interested in reaching civilization than what they were eating. They had stopped hunting altogether, preferring to use the time and effort getting downriver and home. They had entered an area heavily populated by various native tribes who depended upon the same game animals the expedition sought. Therefore, hunting required a greater amount of time than the Corps of Discovery could afford.

Throughout the journey the Corps of Discovery showed they were accustomed to life on the frontier.
The expedition’s journals record they incorporated successful food gathering into their daily routines. These journals also record how they adapted a key element of the journey to aid in their food gathering. A primary objective Jefferson instructed Lewis to do was to develop trading partnerships with tribes in the lands west of the Mississippi River. To accomplish that, the expedition took considerable quantities of goods to give as presents and for trading and gifting purposes. But what would these native groups trade or gift in return? These people did little manufacturing since they were more nomadic, subsistence living cultures. Jefferson hoped in the long run for a brisk fur trade, but if these groups could provide food for trade now, two objectives could be advanced: establish a trade relationship and help feed the expedition.

Whether he realized it or not we don’t know, but Jefferson added a second food-related task to his list of instructions. He instructed Lewis “in all your intercourse with the natives treat them in the most friendly and conciliatory manner which their own conduct will admit.” The expedition quickly learned to emulate the longstanding custom of the native groups they interacted with along their route. That was the custom of sharing food through gifting and trading. By tying friendly relations to successfully getting adequate food supplies, Jefferson ensured the expedition had a very personal need to develop good rapport with native groups it met. Good relations with the native population were a must for establishing trade, both short term and long term.

The Corps of Discovery ate a classic subsistence diet “and lived as well as we had any right to expect” as they harvested plants and animals and traded with natives along their route. They undoubtedly ate better than the normal frontier garrison, recording in their journals ninety-six different foods eaten during the journey.

The Corps of Discovery and the native groups they met shared a common bond—their subsistence diet culture. The expedition built on that commonality and laid the groundwork for a successful trading relationship. Numerous tribes were looking forward to their return to establish the promised trade.

Food was the common denominator to the success of the expedition.

John Toenyes is a retired restaurant owner. Phil Scriver headed the committees that created two Lewis and Clark statues, Explorers at the Marias and Explorers at the Portage. Both have been living history re-enacters and members of the LCHTF for 30 years. They recently co-authored a book, Edge of Survival, that examines what the Corps of Discovery ate and how it was prepared.

Notes

2. Robert J. Moore and Michael Haynes, Lewis and Clark: Tailor Made, Trail Worn (Helena: Far Country Press, 2003), 38. The authors give a good description of life in the frontier forts and how they were fed.
3. Moore and Haynes, Lewis and Clark: Tailor Made, 38. Stoddard’s order was typical of commanders forbidding their men from foraging for food.
7. Ibid., 225.
10. Ibid, 379.
12. Research by the authors while writing their book Edge of Survival shows the traditional notions of the men getting sick from the recent change in diet is probably wrong.
Shortly after sunrise on June 7, 2013, I launched down the Missouri River. My attention was focused on the rocks just a foot or two below the water as I got used to paddling with the weight of my gear. After years of dreaming and months of planning, the trip was happening. I built a wooden, stand up paddleboard (SUP) with the intention of taking it down the Missouri, from the headwaters in Three Forks, Montana, to St. Louis.

I could have taken a canoe or kayak, but I enjoyed the extra element of balance that a SUP offers. That, and no one had done the Missouri on one before. I had been paddleboarding since 2008 and have gotten used to the large waves of Lake Michigan by my home in Chicago.

An adventure was what I was after. I yearned to see a vast swath of America and travel at a pace slow enough where I’d be immersed in a place long enough to gain experiences that otherwise wouldn’t come my way. Five years out of college, the daily grind had gotten to me and I decided it was now or never, and I knew I’d regret not doing it.

My first test came on day three. Thirty mile per hour wind gusts halted progress as I headed out onto the first dammed lake. The only way forward was to walk along shore with the board. With 700 miles of lake ahead, this could be a long trip.

The first 200 miles were filled with sights that I can’t even begin to describe. Stone walls rose 1200 feet from the river side at times and the river showed no signs of its signature muddy ways. Life on the river was pure and simple as eagles soared during the day and coyotes howled at night.

I learned that when the conditions are good, don’t stop paddling. If I ever had that rare tailwind I’d paddle until the sun set. On the flip side, I had to learn when it wasn’t worth it to paddle and just wait out the wind and rest. At least running with the current when there was one. Doing this trip makes it very apparent how challenging the Lewis and Clark journey was.

When I started I only had a vague sense of the Corps of Discovery Expedition. I knew their route and their general purpose, but I was hoping to learn more along the way.

I started reading Undaunted Courage on those wind-bound days and picked up knowledge along the way at various interpretive centers and historical sites. My interest has been fueled and I’ll continue to learn for years to come.

I am currently 1,400 miles in and just above the Nebraska state line with one dam remaining. Crossing that last dam will be a euphoric moment. Lewis and Clark didn’t have to deal with the lakes but it is almost appropriate that the way downstream is now harder. It brings the trip just a little closer to the difficulties that they had to deal with. Refreshing current will soon carry me at a pace I’ve almost forgotten as I’ve traversed lake after lake.

There have been hail storms and damaged gear, amazing sunsets, and incredible people. I can’t even imagine how it must have felt for Lewis and Clark to reach St. Louis after more than two years. It’ll be about 107 days if I hit my planned arrival date and it’s been an incredible journey. There is still a lot to come. Unlike Lewis and Clark, I have been able to share the trip in real time through my Facebook page, “Missouri River SUP Adventure,” and blog, “www.missouririversup.com.”
Met at Falls
October 1803
~
Enlisted nucleus of Corps at Falls

Departed Falls
October 26, 1803
~
Returned to Falls
November 5, 1806

Lewis and Clark at the Falls of the Ohio

Enjoy the history!

Published by The Dakota Institute of the Lewis & Clark Fort Mandan Foundation

Distributed by:

UNIVERSITY OF OKLAHOMA PRESS
2800 VENTURE DRIVE • NORMAN, OK 73069
800 627 7377 • OUPRESS.COM
Gerry Metz recreates the highlights of the historic Lewis and Clark Expedition in his new book *The Improbable Journey*. Metz spent 8 years retracing the trail based on their journals, gathering reference, sketching and photographing. It's their story from St. Louis to the Pacific and back and is a book that belongs in every library. *The Improbable Journey* contains over 60 of Gerry's paintings and numerous sketches along with photos of his experiences.

Signed linen bound edition, 13.5" x 11.25". 
$100.00 includes shipping.

Also Available: Leather bound Limited Edition encased in a mesquite wood slip case adorned with 2 Bas Relief Bronzes of Lewis & Clark.
Check website.

Send check to: 
Gerry Metz, P.O. Box 1753, Cave Creek, AZ 85331 • 480.994.9260 
www.gerrymetz.com