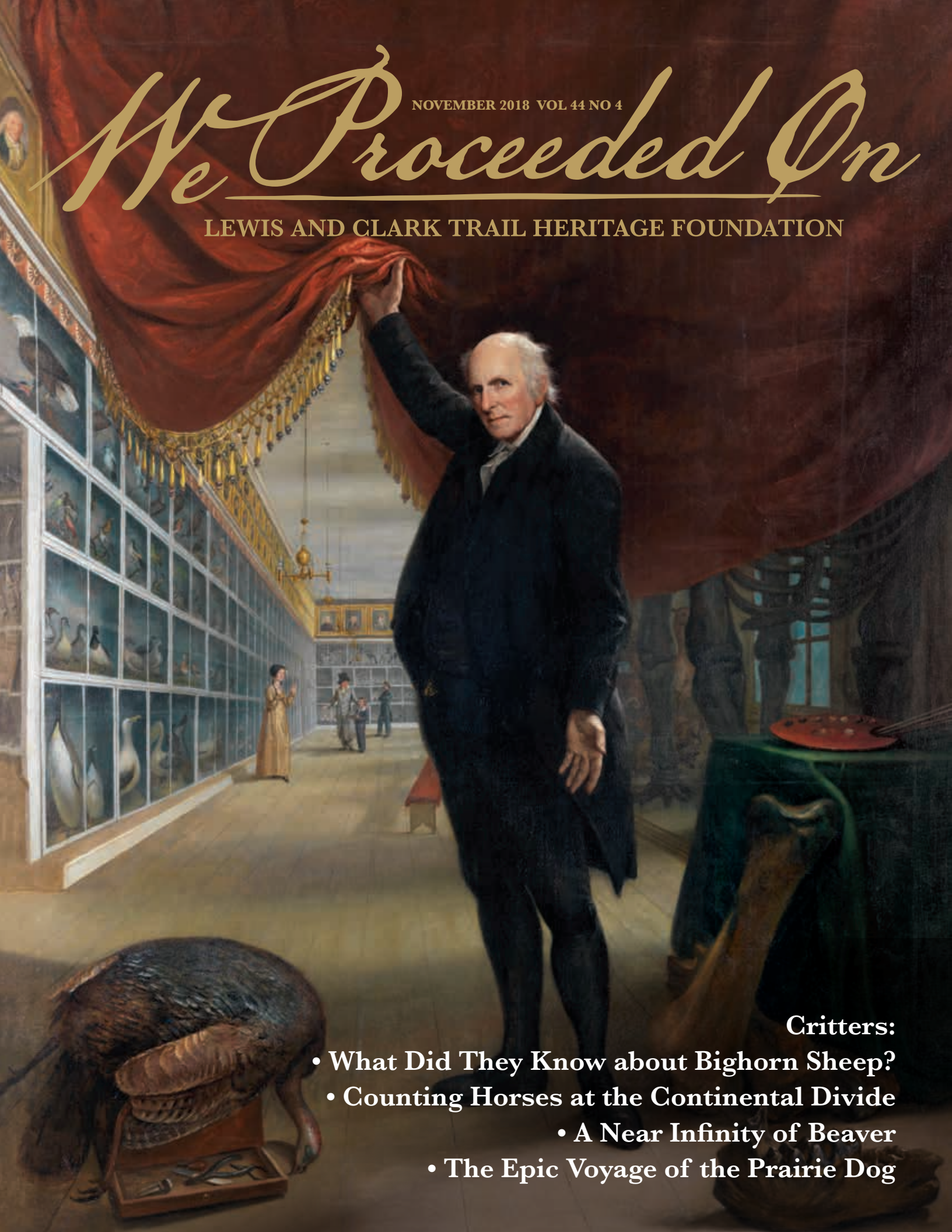
NOVEMBER 2018 VOL 44 NO 4

We Proceeded On

LEWIS AND CLARK TRAIL HERITAGE FOUNDATION



Critters:

- **What Did They Know about Bighorn Sheep?**
- **Counting Horses at the Continental Divide**
- **A Near Infinity of Beaver**
- **The Epic Voyage of the Prairie Dog**

The Critters They Killed

On July 13, 1805, Meriwether Lewis wrote, "we eat an emensity of meat; it requires 4 deer, an Elk and a deer, or one buffaloe, to supply us plentifully 24 hours. meat now forms our food prinsipally as we reserve our flour parched meal and corn as much as possible for the rocky mountains which we are shortly to enter, and where from the indian account game is not very abundant."

Biologist Raymond Darwin Burroughs tallied the quantity of game killed and consumed during the course the expedition:

Deer (all species combined)	1,001
Elk	375
Bison	227
Antelope	62
Bighorn sheep	35
Grizzly bears	43
Black bears	23
Beaver (shot or trapped)	113*
Otter	16
Geese and Brant	104
Grouse (all species)	46
Turkeys	9
Plovers	48
Wolves (only one eaten)	18
Native American dogs	190
Horses	12

The expedition killed every bear they could, not for meat, but because they regarded them as a dangerous nuisance.

(From Burroughs, ed., *The Natural History of the Lewis and Clark Expedition* (East Lansing, MI: Michigan State University Press, 1995).

Further Reading about the Natural History of the Lewis and Clark Expedition

- Daniel B. Botkin. *Our Natural History: The Lessons of Lewis and Clark*. 1995.
- Raymond Darwin Burroughs, ed. *The Natural History of the Lewis and Clark Expedition*. 1961.
- Paul Russell Cutright. *Lewis and Clark: Pioneering Naturalists*. 1969.
- Daniel Flores. *American Serengeti: The Last Big Animals of the Great Plains*. 2016.
- Paul A. Johnsgard. *Lewis and Clark on the Great Plains: A Natural History*. 2003.
- Dorothy Hinshaw Patent and William Munoz. *Animals on the Trail with Lewis and Clark*. 2002.
- Paul Schullery. *Lewis and Clark among the Grizzlies: Legend and Legacy in the American West*. 2002.

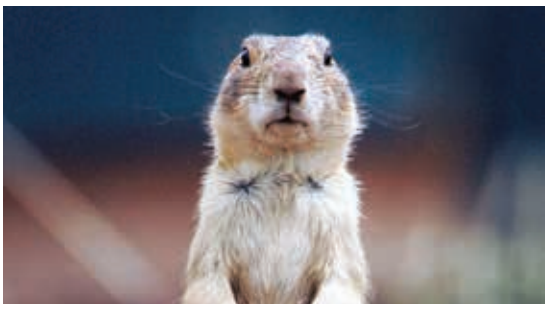
** Kenneth C. Walcheck counts 201 beaver.* *See page 5.*

In this Issue:

"The Beaver Abounds in These Rivers:"

Did Lewis and Clark Know That Bighorn Sheep Existed?

How Many Horses Did They Beg, Borrow, and Buy?



Voyage of the Prairie Dog

To read Clay Jenkinson's September 2018 interview with Dan Flores ("Montana in 1805, Montana Today"), visit Jeffersonhour.com and Clayjenkinson.com, and also the LCTHF website, lewisandclark.org.

Covers

Front: Charles Willson Peale, "The Artist in His Museum," 1822. Oil on canvas. 103 ¾ x 79 7/8 in. Courtesy of the Pennsylvania Academy of the Fine Arts, Philadelphia. Gift of Mrs. Sarah Harrison (The Joseph Harrison, Jr. Collection).

Back: Glen Allison (Thomas Howard) stokes the fire at the salt works at Seaside, OR, while Sid Stoffels (Alexander Willard) brings on more salt water, and DeWayne Princhett (John Collins) provides commentary. 2018 Trail Heritage Foundation Annual Meeting, Astoria, OR. Photo by Clay Jenkinson.

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. Submissions should be sent to Clay S. Jenkinson, 1324 Golden Eagle Lane, Bismarck, North Dakota 58503, or by email to Clayjenkinson2010@gmail.com. 701-202-6751.

We Proceeded On

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Founder, *We Proceeded On*
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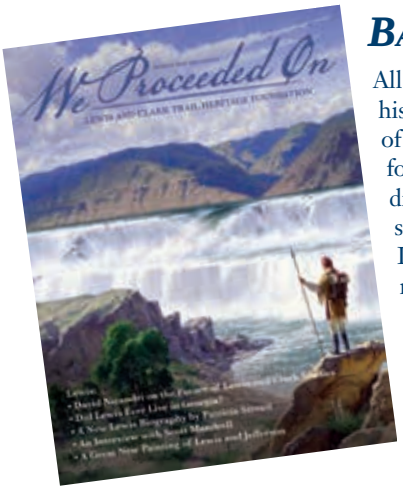

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Our mission:

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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A Message from the President

LCTHF President Louis Ritten

It is with great pride, excitement, and humility that I assume the presidency of the Lewis and Clark Trail Heritage Foundation (LCTHF). I thank the board and my fellow members for the opportunity to lead our organization and for the trust you are placing in me. I stand on the shoulders of so many great leaders who have guided LCTHF over the years, and I will do my level best to carry on their legacy and to ensure that your trust in me has not been misplaced.

A word about me and my background. I was born in Minneapolis, Minnesota, and am the oldest of six children. I attended the University of Notre Dame and moved to Chicago shortly after graduation. I traded financial securities for most of my career and retired in 2014. My wife Carolyn and I have been married for 34 years and we have two adult children: Steve, an architect living in New Orleans and who recently married Ericka; and Christie, an actuary living in a northern Chicago suburb. I have held leadership positions in many volunteer endeavors in my community through the years. In so many ways I have been blessed beyond all understanding.

History has always been a passion of mine, with the Lewis and Clark story holding particular fascination. I joined LCTHF in 1998 and have been active in it since 2006, when I attended my first LCTHF activity, a regional meeting in Kansas City, Missouri. There I had the good fortune of becoming acquainted with several people who have become close friends--Ken and Terri Hobbs, Mary Lee and Dan Sturdevant, and Diane Pepper. I learned quickly the underappreciated side benefit of LCTHF membership—getting to know so many absolutely wonderful people, of whom those five ended up being just the tip of the iceberg! I could go on mentioning others from throughout the country but that would take up the rest of my space. I consider my involvement with LCTHF to be another great blessing in my life.

I enter office while we as an organization are in the midst of celebrating our 50th anniversary. We have enjoyed many successes over the decades, culminating in the national commemoration of the Lewis and Clark bicentennial in 2003-6. Recognition of their accomplishments as well as membership in LCTHF have slipped a bit since those years, however, and I see it as my principal task to reverse this trend, both for the good of the nation and for our foundation itself.

I count myself lucky to be following as president Dr. Philippa Newfield, who has presided over a time in which we have begun to gather positive momentum once again. Our membership has risen by about ten percent in the past year, our endowment funds are at record highs, and the Discovering Lewis and Clark website, managed by former board member Kris Townsend, averages roughly a quarter million views per month. Under the esteemed editorship of Clay Jenkinson, *We Proceeded On* continues to be a premier publication. All these indicators point in the proper direction and I thank Philippa for her example and inspired leadership.

Joined on the Board by Philippa as Immediate Past President along with two other past presidents, Barb Kubik and Margaret Gorski, as well as with the rest of our dedicated and talented returning officers and regular board members, we welcome new board members Lee Ebeling, who was elected along with two incumbents, and Mike Loesch, who fills a vacancy created when a current board member was appointed an officer. We thank two other past presidents whose board service has just ended, Steve Lee and Clay Smith, and are comforted by the fact that they will remain engaged in the foundation in other ways.

LCTHF has a marvelous staff led by Executive Director Lindy Hatcher. We enjoy a devoted group of members who volunteer their time, talent, and treasure to help spread the gospel of Lewis and Clark through committee or other work, and some thirty local chapters whose activities are myriad. I respectfully ask you to consider joining with them in furthering

LCTHF's impact.

As the landscape changed its face while the Corps of Discovery made their way west, so too has the environment through which LCTHF must navigate changed over the past fifty years. As LCTHF embarks on its second half-century, we must emulate our mentors and be flexible as we surmount difficulties in this new and sometimes alien environment. We must be open to new discoveries and methods. In doing so, we may be as pleasantly surprised as Lewis and Clark were when they encountered species of wildlife new to science. A barking squirrel? A type of sheep that can jump nimbly from one dangerous spot to another? A kind of antelope that can run over forty miles per hour? How wondrous! But where were the megatheriums, the woolly mammoths, and the mastodons that Jefferson found so fascinating? Sadly, gone extinct, no matter how long and successfully they had once ruled the land Lewis and Clark traversed.

The recent member survey, thoughtfully filled out by an astounding thirty percent of our membership, has provided us with much new information and many insights into member opinion. We will make results available at a future time and will use them to help us chart a path going forward. The members also overwhelmingly approved two bylaw changes in June that we hope will provide stability as we forge ahead and take advantage of opportunities before us. Thank you for voicing your opinion.

Such a high level of membership engagement is an indication of how important the Lewis and Clark story is, how valuable LCTHF is, and how much fun our members can have when we interact with one another and get out on the trail. If you feel strongly about something, if you have a great idea, if you have a skill to offer, if you want to join a committee, let me know. I want to hear from you. 708-354-7778, lritten01@yahoo.com

Let us proceed on, make new discoveries, and have fun together!

Lou Ritten
President
Lewis and Clark Trail Heritage Foundation

Lewis and Clark Roundup

2018 Lolo Trail Work in Idaho

Volunteer Carl Stone stands on the left while Steve Ford saws on the right.

This year's Lolo Trail work week in late July was the ninth year of helping maintain trails including the Lewis and Clark Trail in the Lolo Trail National Historic Landmark. The Lolo Trail is the land "bridge" over the Rocky Mountains between the Columbia Basin and the Great Plains used by many people including American Indians, the Corps of Discovery, trappers, missionaries, and the US Army. Rather than a single trail, the Historic Landmark is a collection of routes and historic sites used by early travelers. The route chosen varied by traveler, by season and over time. Today the historic route that is maintained is the trail tread built in 1866 and used by both the Nez Perce and the Army in the 1877 war (Chief Joseph), then maintained as a pack trail by the Forest Service after 1900. That route followed the 100-mile-long historic ridgeline route followed by Lewis and Clark and other travelers before the 1866 trail construction. The Idaho Chapter of the Trail Heritage Foundation has taken on the responsibility of annually maintaining a 20-mile section together with several side trails in the heart of the high country.

This year our focus was again on the Nee-Me-Poo and Lewis and Clark trails. We completed clearing work on the trail between Weitas Meadows and the Smoking Place with a smaller crew and in less time than previous years, leaving us more time to explore and enjoy this area that nearly spelled the end of the Corps when they came through here in 1805. Of this year's fifteen crew members fourteen were returning "veterans;" the fifteenth was the daughter of two members. Three more veterans resupplied us on Wednesday and four US Forest Service employees were with us at various times. Our camp just east of "Spirit Revival Ridge" was at NoSeeUm Meadows.

Our schedule, set a year in advance, put us on scene as early as we can depend on being snow free. If we're too early the Motorway is still blocked by downed trees and snow. If we're late there's a higher risk of fire or fire restrictions. We were happy to have fewer mosquitos than some years and only about ten minutes of rain early one morning. We were sorry that we were so early in the huckleberry season; our collection was much smaller than some years! At least one curious moose visited camp, and a bold fly-and-mosquito-catching bird hopped among our camp chairs encouraging us to swat flies and feed it.

As we walked "our" miles of trail we concentrated on roughly 100 logs fallen over the trail, removing the ones we could handle with hand tools. Since we are not OSHA certified to use chainsaws, we reported their locations to Adam Muscarella from the Forest Service who cut them. We also cleaned water bars and noted places where the trail tread needed improvement; those areas will receive attention in 2019. Encroaching brush was much less prevalent because of our work in past years. This gave us more time for pleasure trips (with trail clearing of course) to the Smoking Place and Sinque Hole, to Sherman Peak, Willow Ridge, and Bald Mountain Lake.

In 2017 the group refurbished large Lewis and Clark interpretive signs along the Lolo Motorway at five locations. This year we found that a flaw in our design, which is causing the top rail of some signs to pull away from the base. This will be corrected when we visit next year.

Lolo Work Week volunteers tend to be retirees and empty-nesters. After ten years many of our veterans are in their late 70s and are indicating a need to "retire," so we are seeking new, "younger" volunteers. Our volunteers come from

across the country and each year brings a new and interesting group. If you are interested in becoming a volunteer, check out the photos and write-ups on the Idaho Chapter web site at lewis-clark-idaho.org. The 2019 work week will run from Wednesday July 24 through Tuesday July 30. For more information contact Geoff Billin at loloworkweek@gmail.com. ∎

Geoff Billin

Discovery Expedition Activities Summer 2018

Bud Clark displays some of his LC artifacts. Courtesy of Betty Kluesner.

The Lewis & Clark Discovery Expedition of St. Charles (LCDESC), though the Bicentennial has long since concluded, is still teaching, educating, & entertaining folks wherever you can find them on the trail. "Proceeding On" as mandated by Captain Clark over 200 years ago, these living history re-enactors have dedicated their time and treasure to the legacy of Lewis and Clark.

This summer was no exception with two August events completed, both in St. Charles just one week apart. The first was the Festival of the Little Hills (FOTLH). This event has been happening in St. Charles for over 40 years and for the first time LCDESC was invited to participate. FOTLH is mostly a craft and arts show, but the whole town is "all in" on this festival. Main street was shut down with tents full of arts and crafts for several blocks while Frontier Park was packed with tents as well. An estimated 300,000 people attended this festival. There were beer gardens, arts and crafts, live music, and now our beautiful keelboat was on center stage during the three-day event. We actually had lines of people to look inside the keelboat and ask questions. During this event we were featured on a St. Louis TV program aired "live" from the keelboat on Friday morning with the host dressed in uniform.

The following week our iconic keelboat was anchored in the river in front of Frontier Park in St. Charles, supporting two events which were occurring simultaneously. The first was for the Bass Pro "*Outdoors Days Festival*," which is a large partnering program with Bass Pro, the USACE, DNR, Missouri State Parks, and Missouri Department of Conservation. The other event is the annual Greenway Network "Race for the Rivers." This is canoe trip from Washington, MO, to Frontier Park. During the "Race for the Rivers" Bass Pro "*Outdoors Days Festival*," the keelboat marked the finish line on the river.

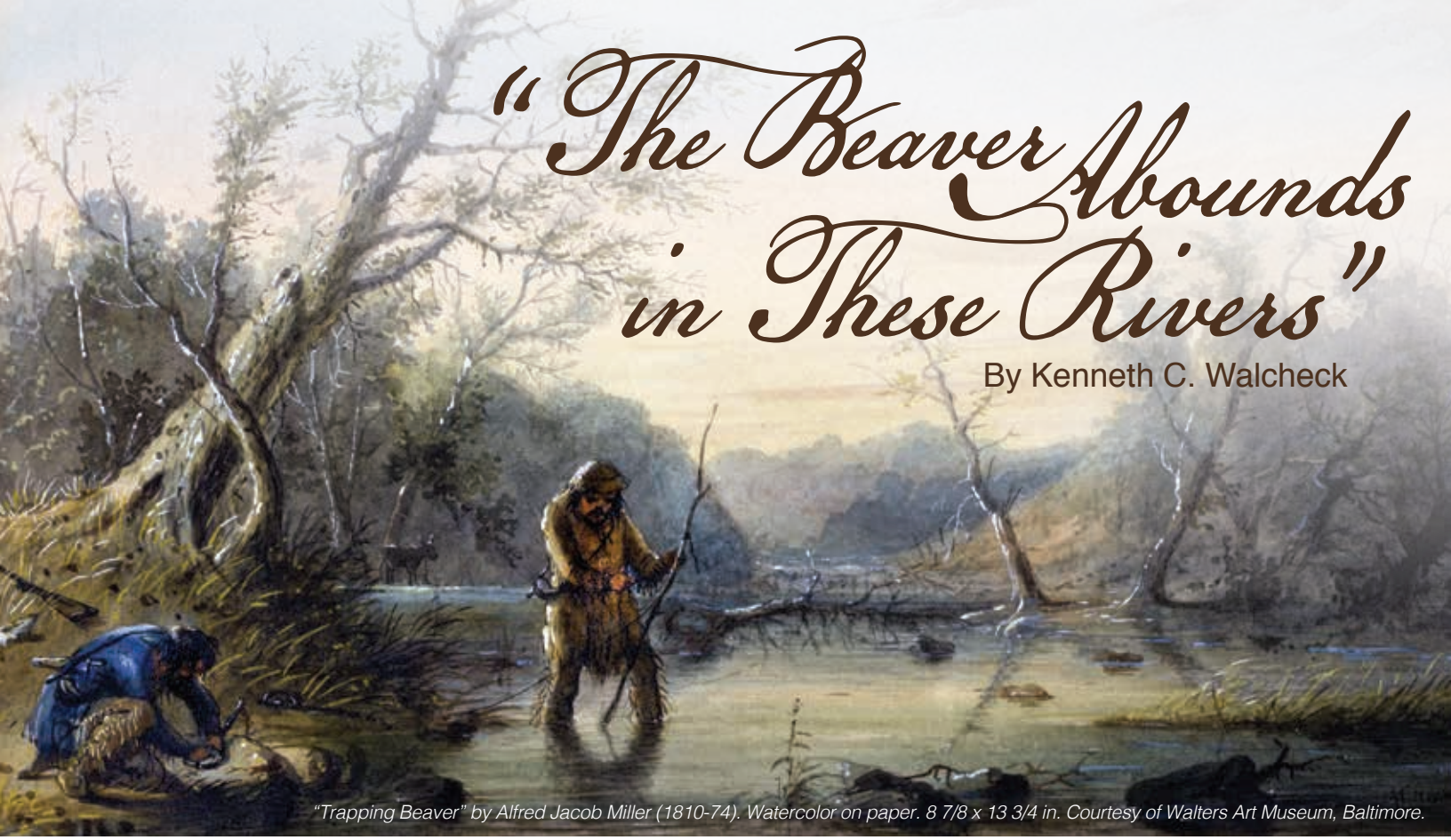
We had our encampment with demonstrations, which included a wonderful exhibit Bud Clark brought—blacksmithing and fire starting, among other primitive life skills of the time. We also had the Discovery Tent which has many great interactive displays for kids. Many of these displays have been enhanced with grants from the LCTHF.

LCDESC had the pleasure of hosting Jennings Middle School, whose students for the first time heard the about a heroic member of the Expedition, York, as told by Bud Clark, appropriately portraying his ancestor William Clark. Bud related the many contributions York made to make the expedition a success.

Jan Donelson (Lewis) salutes his men. On the left, Tom Young, on the right Bud Clark and Ed Eller. Courtesy of Betty Kluesner.

Today, we find ourselves talking about conservation of our natural resources. It's a hot topic that Bass Pro has committed to by becoming a leader in this national effort. Ironically, Lewis and Clark, as mandated by Jefferson, were the first of conservationists into the western frontier, through their documentation and recording of both plants, animals and the mapping of the interior. What a natural partnership between yesterday and today. ∎

Jan Donelson



"The Beaver Abounds in These Rivers"

By Kenneth C. Walcheck

"Trapping Beaver" by Alfred Jacob Miller (1810-74). Watercolor on paper. 8 7/8 x 13 3/4 in. Courtesy of Walters Art Museum, Baltimore.

Lewis and Clark Documentation of Beaver in the American West

The 1804-1805 Lewis and Clark journals provide the first reliable biological documentations of beaver *(Castor Canadensis)* for the Missouri and Columbia River corridors between St. Louis and the Pacific Ocean.[1]

A primary objective, among others, of the Lewis and Clark Expedition as envisioned by President Thomas Jefferson, dealt in the realm of economic nationalism. With commerce being the primary objective, Jefferson was especially interested in advancing US participation and expansion in the fur trade, the major economic enterprise of the day, and one of the principle forces that had generated competitive imperial rivalries for control of the North American fur trade dominated at the time by the British. Jefferson wanted detailed information as to how Americans could take over the fur trade by learning more about British trade practices and trading methods used with Missouri River tribes.

From the collective effort of the expedition emerged an impressive compilation of detailed information on beaver distribution, relative abundance, scarcity, beaver kills, beaver signs, dens, dams, food, observations, habitats, and trade items, in the Upper Missouri and Columbia River corridor regions. Prior to the middle of the nineteenth century, beaver exemplified the Upper Missouri country. When trappers and fur traders referred to the Upper Missouri as "beaver country," they were actually admitting to a physical, biological, hydrological, and geographic reality that bonded mountain to plain, sky to water, and cottonwood-willow bottomlands to beaver. The Lewis and Clark Expedition would superbly document that the Upper Missouri basin provided for a dynamic biological landscape that was nurtured and sustained by the heartbeat of the main arterial stem of the Missouri and its interlacing network of perennial tributaries. The unfolding picture we visualize, thanks to Lewis' observant eye and active pen, is one highly colored with enlightening biological happenings.

Beaver, which have historically been traced back to the Cenozoic Eocene Series, some 55 million years ago, are believed to have crossed the Bering Strait from Eurasia into North America. Before their near extirpation by trapping in North America, the beaver's geographical home range extended from the arctic tundra to the deserts of northern Mexico, and from the Atlantic to the Pacific Ocean. One may assume with reasonable certainty that the beaver population in North America during pre-European times numbered in the millions, quite probably in the tens of millions. Some historians have speculated that beaver demographics

ranged from 60 to 200 million, which seems impractical, especially when such estimates did not take into consideration the variability of suitable habitat present throughout their extensive range or fluctuating climatic changes.

Decades after the Lewis and Clark Expedition, 25 subspecies of beaver were identified by taxonomists in North America, with each subspecies having superficial morphological differences (size, shape, color) and geographical isolation at the time of discovery.[2] Of these subspecies, the Missouri River beaver, *Castor canadensis missouriensis* would have been the one observed and documented by the Lewis and Clark Expedition.[3]

The following is a sampling of beaver observations, harvest data, and related pertinent information for various travel segments of the 1804-1806 outward and return trips. Harvest data for three major segments of the trip are shown in Table 1.[4]

Camp Wood to Fort Mandan (May 14, 1804–April 7, 1805)

After departing on May 27, 1804, from the small hamlet of La Charette, the first fur trader encountered by the expedition was Regis Loisel, who was returning to St. Louis from his fur trading post in today's central South Dakota. Before June 15, the expedition would meet several additional parties of fur traders heading downstream, whose rafts and canoes were loaded with beaver and otter pelts after a winter's trading with the Sioux, Oto, Pawnees, Osage, Omaha, and other tribes. The various parties encountered represented the vanguard of thousands who would follow. With beaver fur in continuing demand for felt hats and fur trim on outer clothing, and the potential market values, there remains little doubt that trapping served as an incentive for some expedition members to tap a resource that, in the words of one writer, was "as rich as if sands of gold covered the bottoms."[5]

As the expedition traveled north and west of the Platte River after leaving the deciduous hardwood forests of the East, they entered a major terrestrial grassland ecosystem, consisting of a distinctive combination of plants and animals characterized by a sub-humid and semi-arid climate. Early explorers named this landscape "prairie" from the French, meaning "grassland." The Platte marked the beginnings of the transition to the great treeless and semi-arid plains. This grassland community was not yet a full-fledged component in American images of the western interior. Climax grasslands, worldwide, have in common a climate characterized by high rates of evaporation and periodically severe droughts, a rolling-to-flat terrain, and animal life that is dominated by grazing and burrowing species. The transition Platte ecosystem marker called for an adjustment in the biotic community with differences in species composition, habitat, geographic distribution, and total species biomass.[6] Ecologists now know that while ecological fitness furnishes the clue to many of the problems of animal distribution, including beaver, especially on the local level, the historic forces of climatology, geology, and evolution must be invoked to explain many of the large-scale patterns of animal distribution.

The grassland ecosystem above the Platte was a land of mystery, designed and ready for a person like Lewis, blessed with alertness, curiosity, and a flair for recording to unlock some of the high plains' hidden biological secrets. It was in this reach of the Missouri that Lewis would discover and document numerous plants and animals new to the scientific community. The first beaver trapped on the Missouri, as reported in the journal of Patrick Gass, occurred on July 22, 1804, near present day Council Bluffs, Iowa. A total of 38 beaver were trapped and killed (shot) by expedition members between Camp Wood and Fort Mandan during 1804. George Droulllard, the leading expedition trapper, accounted for eighteen of the beaver taken.

The beaver trapped on July 22 was the first of many to be eaten by expedition members. Lewis gave the beaver high marks for its excellent flavor: "the men prefer the flesh of this animal, to that of any other which we have, or are able to procure at this moment. I eat very heartily of the beaver myself, and think it excellent; particularly the tale, and liver."[7] One beaver, according to Lewis, provided enough meat for two men. The abundance of beaver in the Missouri River plains country would become acutely meaningful when, during the following year, members of the expedition looked back with hunger pangs from the limited game animals, including beaver, in the Bitterroot-Cascade mountain ranges, and the sterile plains of the Columbia Basin.

During the expedition's stay at Fort Mandan, four beaver were killed on October 28 and November 3, 1804. Due to an extremely cold winter, no additional beaver were taken until April 9 of the following year. During the expedition's winter stay at Fort Mandan, Lewis and Clark gained valuable information from the British fur traders concerning the internal workings and extent of the British fur companies, including the tribes involved. The traders, likewise, attempted to learn all they could of the purpose and motives of the expedition, especially the extension of US authority and trade. Despite a limited and guarded degree of friendliness that had developed between the two groups, the two captains recognized that British traders did their best to stir up trouble between the Americans and the Native Americans at the mouth of the

Knife River, including several instances of violence. Because of the existing animosity, Lewis drafted a diplomatic letter to the head of the Department of the Assiniboine for the North West Company, asserting both United States national sovereignty and the purpose of their exploratory mission, which served to alleviate some of the existing tension.[8]

Fort Mandan to the Great Falls of the Missouri (April 7-June 13, 1805)

The journals document that 97 beaver were harvested from this reach of the Missouri. Comments such as "these anamals are now very abundant," "beaver is in every bend," and "emence number of beaver" are frequently encountered in the journals for this segment of the trip. Lewis was assuredly correct in his statement, "these anamals in consequence of not being hunted are extreemly gentle, where they are hunted they never leave their lodges in the day.…"[9] Lewis also stresses the high quality of the beaver's fur. "The beaver of this part of the Missouri are larger, fatter, more abundant and better clad with fur than those of any part of the country that I have yet seen … their fur is much darker."[10]

An inherent attribute that proved extremely helpful in Lewis' numerous faunal documentations was his astute perception in noticing an animal's specialized structural adaptations, molded through years of natural selection, to cope with its physical and biotic environment. Lewis conscientiously counted, weighed, and measured at every opportunity. When describing a zoological specimen, he undoubtedly felt that by accurately recording measurements, he could add further credibility to his documentation. I find it surprising that Lewis did not document that the nail on the next-to-outside toe of each webbed hind foot of the beaver is split horizontally, allowing it to be used as a comb in grooming the fur.

Lewis' comment on beaver being "larger" and "fatter" provides for an interesting ecological note. Evolutionary selection for geographic subspecies has provided for heat conservation by insuring that animals living in colder climates have larger bodies than their relatives living in warmer climates. Large animals in northern climates have comparatively small surface areas, and consequently lose less heat per unit of weight than their smaller southern relatives, who have comparatively large surface areas. Thus, a large body is advantageous in a cold climate because of the thermal economy of its more favorable surface-volume ratio.[11]

The expedition's westward route of travel from the Mandan villages took them into a complex and diverse landscape dominated by a plains river-bottom, prairie uplands, dispersed timbered bottomlands, each with distinct topographic, climatic, vegetative features, and microsites. The area served as a living dynamic entity with a biological diversity, including beaver, nurtured and sustained by the main arterial stem of the Missouri and its interlacing network of perennial tributaries. Diagnostic river characteristics consist of floodplains, oxbows, meandering braided channels with alluvial-bar formation, and vegetation (primarily willow-cottonwood) occurring in bands or zones reflecting past alluvial deposits. Numerous river bends and lateral movements, unlike the lower Missouri River, further contribute to the ecological diversity by creating riparian habitat, pockets of fertility and biodiversity.

After departing from Fort Mandan, expedition members observed beaver to be numerous wherever bottomland cottonwood and willow were sufficiently abundant in providing an adequate food supply. "[B]ark is their only food," writes Lewis on April 16, 1805, "and they appear to prefer that of the Cotton wood and willow; as we have never met with any other species of timber on the Missouri which had the appearance of being cut by them."[12] At a later June 11 date, Lewis, with an observant eye, was quick to note that the narrow-leaf cottonwood (*Populus angustifolia*—a new discovery to science) was the beaver's preferred species of cottonwood, due to its having a deeper and softer bark than the other two species of cottonwood (*Populus deltoids* and *Populus trichocarpa*).

On May 6, Lewis provides the scientific community with further information on beaver den sites. They consist of "cilindric" shaped holes burrowed into the side of "abrrupt" river banks with entrances situated above the normal water level. Den sites of this nature are common on large river systems where beaver dams are not suitable.[13] Despite the high abundance of beaver reported in the journals between Fort Mandan and the Great Falls of the Missouri, there were stretches of the Missouri that held few beaver due to the absence of cottonwoods and willow. On May 24, while traveling through Fergus County, Montana, Lewis noted, "game is becoming more scarce, particulary beaver, of which we have seen but few for several days the beaver appears to keep pace with the timber as it declines in quantity they also become more scarce."[14] It appears apparent that the disciplined, keen-eyed observer was well aware of the fact that the quality and quantity of the habitat strictly controls the quality and quantity of animals and that plant distribution, therefore, determines animal distribution.

The expedition's month-long stay at the Great Falls, which included a grueling portage, apparently left little time for beaver trapping. Despite the abundance of beaver in the area, just six were killed, with only one being trapped.

Great Falls of the Missouri to Traveler's Rest (July 13-September 11, 1805)

At the south end of present-day Townsend, Montana, we see Lewis' observational competency being expressed in his July 24, 1805, journal entry. We gain the distinct impression that his sensitivity to natural systems harbors the vibrant stirrings of an ecological awareness. It is here where he classically describes how beavers serve as nature's hydraulic engineers and as keystone animals in the shaping of stream ecosystems and surrounding landscapes.

> [W]e saw many beaver and some otter today; the former dam up the small channels of the river between the islands and compell the river in these parts to make other channels; which as soon as it has effected that which was stoped by the beaver becomes dry and is filled up with mud sand gravel and drift wood. the beaver is then compelled to seek another spot for his habitation wher he again erects his dam. thus the river in many places among the clusters of islands is constantly changing the direction of such sluices as the beaver are capable of stoping or of 20 yds. in width. this anamal in that way I beleive to be very instrumental in adding to the number of islands with which we find the river crouded.[15]

"[A]dding to the number of islands" is Lewis' way of saying how beavers act as agents in promoting topographical succession, thereby paving the way for increasing plant and animal biodiversity through such expansion. Lewis was actually viewing--seen as a time-lapse video--the dynamic view of a species range expansion that would, through the years, appear something like a gigantic squid extending its tentacles as it slowly invades suitable adjoining habitat due to its own active movements. The sequence begins with beaver arriving, building a dam, creating a pond, digging canals, creating a lodge, thus creating a niche-filling habitat. Small increases in stream flow spread water and nutrients beyond the stream banks to widen riparian zones and increase riparian vegetation, providing for fresh water meadows.

It has been well documented that during their many eons of existence, beavers have modified almost every watershed in the North American continent. Flooding is the key ecosystem process creating suitable sites for seed dispersal and seeding establishment, and controlling vegetation succession. Beaver made an especially dramatic contribution to northern landscapes by recolonizing ice-gouged valleys after glacial retreats. On numerous occasions, geologists and ecologists have found that the first layer of organic matter lying above glacial deposits was an ancient beaver pond with twigs and stems, showing markings of beaver teeth.

The journals document that the Three Forks of the Missouri headwaters, the Jefferson River, and its numerous tributaries functioned as a loadstone of exceptionally high-quality beaver habitat. "[A]ll the water courses in this quarter emence number of Beaver & orter maney thousand enhabit the river & Creeks near the 3 forks," writes Clark who is impressed with what he has observed on July 25.[16]

Based on the large numbers of beaver, otter, and other game observed in the Three Forks area, Lewis recommended the Three Forks as the location site of a trading post. In year 1810, a party under Colonel Pierre Menard, representative of trader Manuel Lisa and the St. Louis Missouri Fur Company, was to establish a post at the Three Forks, but Blackfeet hostility forced its abandonment that same year.[17]

On July 30, 1805, an exhausted Lewis waded through an extensive maze of scattered beaver ponds, dams, and lodges while ascending the Jefferson River.[18] As he waded through a series of ponds with water up to his waist, he had no knowledge that with each step he was walking over a deep layer of anaerobic muck consisting of decomposed organic matter (wood and bark) provided by beavers. The bacterial and biochemical decomposition of the organic material produces nitrogen and phosphorus and other pond nutrients which are made available to a wide variety of single-celled organisms, thereby increasing a stream's fertility and capacity at the lowest food web level to support everything from microbes to mammals. Beaver serve as a keystone agent in strengthening the food web at every level and increasing the fertility of entire river systems.

At this point of the expedition's journey, one would expect to find Private Silas Goodrich's name mentioned in the journals. Goodrich, the Corp of Discovery's most experienced and enthusiastic fisherman, surely would have been vividly impressed with the fishing potential the Jefferson River beaver ponds offered. The braided Jefferson River flows for 81 miles before combining with the Madison and Gallatin Rivers at the headwaters of the Missouri River and is an excellent trout fishery. Did Goodrich ever drop a fishing line with a deer spleen baited hook into one of the large beaver ponds? We now know from numerous research studies, and angler's logs, that beaver ponds can hold more and larger fish than riffled sections of a stream.

While ascending the Jefferson River on August 2, Lewis comments on the beaver's environmental engineering skills during his inspection of a beaver dam.

> [W]e saw some very large beaver dams today in the bottoms of the river several of which wer five feet high and overflowed several acres of land; these dams are formed of willows brush mud and gravel and are so closely interwoven over that they resist the water perfectly. the base of this work is thick and rises nearly perpendicularly on the lower side while the upper side or that within the dam is gently sloped. the brush appear to be laid in no regular order yet acquires a strength by the irregularity with which they are placed by the beaver that it would puzzle the engenuity of man to give them.[19]

When the expedition entered the Lemhi River country, game became exceedingly difficult to find and Clark expressed concerns of starving in a country where little game of any kind could be found. On August 25, expedition member Shannon brought in to camp a beaver "which the party suped on Sumptiously."[20] The word "Sumptiously" raises the question of how much ideal boneless meat (maximum amount of meat obtainable with no waste in butchering) would a 40-pound trapped beaver provide for eating? On average a field-dressed beaver carcass constitutes 48.6% of beaver body mass, consisting of 62.8% meat, 14.5% fat and 22.4% bones. Using these figures, a 40-pound beaver would yield 19.5 pounds of mass producing about 12 pounds of ideal boneless meat after removal of fatty tissue and bones. A realistic meat yield from a shot-killed beaver (the amount of boneless meat one can reasonably expect to get after subtracting the amount of meat lost from bullet tissue damage) would yield about 8 ½ pounds. Lewis was correct in his usage of the word "Sumptiously," as a beaver provides for a nutritious meal, but falls far short of enough calories for a 33-member expedition.

Despite the increasing abundance of beaver in the Missouri River headwaters and its tributaries, only one beaver was killed on July 26 between the Great Falls and the Three Forks of the Missouri, and only two were taken between Three Forks and Lehmi Pass. An additional five beaver were taken between Lemhi Pass and Traveler's Rest (August 18, 19, 20, 25, and September 10). Presumably, these beaver helped fill the expedition's rapidly diminishing rations due to an absence of big game animals.

Traveler's Rest to Fort Clatsop (September 11-December 7, 1805)

Climatic transitions dictate vegetative and biotic transitions. This was duly noted by the Corps members during their passage over the rugged, heavily timbered Bitterroot Mountains, and the arid, heavily dissected Columbian bunchgrass-sagebrush plain. Also, clearly apparent was a noticeable lack of game animals, including beaver, unlike the Missouri River plains country that teemed with a wide variety and plentiful numbers of easily-obtained game. Any lingering thoughts that the transition country they now entered could continuously furnish a sustaining supply of game meat, including beaver, was totally erased.

The Cascade Mountains provided another climatic transition zone for the Corps, the transition from a dry, sterile Columbian plain to an environment where meteorological, vegetative, biotic, and topographic features differed dramatically. West of the Cascades, the expedition would enter an environmental moisture-laden Pacific coastal region, which would again differ considerably due to climatic differences.

On the expedition's departure from Traveler's Rest, the journals are essentially void of any information on beaver until they reach the Pacific coast. After the expedition's last beaver kill on September 10 while at Traveler's Rest, no beavers were observed or killed until January 7 of the following year when Drouillard trapped a beaver at Fort Clatsop. Three additional beaver would be taken in the Fort Clatsop area on February 3, 9, and 14. The trapped beavers, undoubtedly, were well received as a welcome change from a steady diet of "pore" elk, pounded fish, and roots.

During their stay at Fort Clatsop, Lewis provides a brief and generalized overview of both the beaver and otter's fur quality, which he classifies as "extreemly good," and their relative abundance in the coastal and northwest river systems. He further emphasized that beaver and otter "are by no means as much so [abundant] as on the upper part of the Missouri."[21]

Based on the number of recorded trading voyages to the Pacific Northwest coast, it is apparent that coastal Indian contacts were both numerous and intensive preceding the expedition's arrival on the coast. At the mouth of the Columbia River, trade exchanges included elk, beaver, otter, fox, and bobcat skins for guns, tobacco, beads, blankets, cooking utensils, axes, and knives. Lewis and Clark traded with coastal Indians mainly for dressed sea otter and beaver skins for making robes.

Fort Clatsop to Traveler's Rest (March 23-June 30, 1806)

The expedition's 1806 return passage to Traveler's Rest was essentially a repeat of their westward 1805 passage to the Pacific in reference to beaver documentations. Three beaver kills are reported in the journals for the 100-day pas-

sage from Fort Clatsop to Traveler's Rest. Since game was difficult to obtain during their passage, the beaver kills undoubtedly were well received and appreciated. Of the harvested beaver, only one was trapped. Harvested beaver were taken on the following dates: April 4, 30, and May 1, 1806.

Traveler's Rest to St. Louis (July 3–September 23, 1806)

Based on the prior travel plans formulated at Fort Clatsop the previous winter, two groups (Lewis and Clark contingents) would separately explore previously unexplored country. Lewis would head east to the Great Falls of the Missouri, then explore the Marias River and then return to the Missouri. Clark would head southeast to Camp Fortunate, then down the Beaverhead and Jefferson rivers to the Three Forks of the Missouri. Part of the party headed by Sergeant Ordway would travel down the Missouri to reunite with Lewis below the Great Falls. Clark and his party would then head east and down the Yellowstone and meet with Lewis at the mouth of the Yellowstone River. The inspection of two new river systems would allow for additional beaver documentations as well as additional priorities.

The Lewis Marias River Exploration July 3-August 12, 1806

Lewis' primary objective for examining the Marias River was to see if the Marias drained northern reaches, and if so, would give further territorial claims to the United States under the Louisiana Purchase. Documentations of beaver activities, although important, would not be a high priority. This was evident from only one journal report (July 20) on beaver. "[T]here is much appearance of beaver on this river, but not any of otter."[22] Lewis was hoping that the Marias would provide Americans with access to the Saskatchewan River country and its fur trade. Lewis' encounter with eight Piegan Blackfeet on July 26 provided information that the tribe traded with whites on the Saskatchewan, trading furs for guns, ammunition, liquor, and blankets.

Upon returning to the Missouri after their hastened departure from the Marias, and joining the Ordway-Gass detachments, Lewis dispatched Colter and Collins on July 29 to hunt. Both hunters rejoined Lewis on August 12 and reported killing six buffalo, thirteen deer, five elk, and 31 beaver. The assumption can be made that that the beaver skins would be taken back to St. Louis to be sold or traded.

The Lewis and Clark-Ordway journals report a total of 44 beaver harvested from the Missouri.

Clark's Exploration of the Yellowstone (July 3-August 12, 1806)

Clark's primary objective was to explore the Yellowstone and make contact with any additional Indian tribes. Clark, unlike Lewis, would fill his diary with numerous beaver observations. He provides many descriptive remarks in his journal entries on the abundance of beaver and otter in the Jefferson, Beaverhead, Gallatin, Shields, and Yellowstone River systems.

-July10	"innoumerable beaver and otter on them …"[23] (Beaverhead and Jefferson Rivers)
-July14	"emence quantities of beaver"[24] (east Gallatin River)
-July15	"Great numbers of beaver the river also abounds in those animals as far as I have Seen."[25] (Shields River)
-July 29	"Beaver is very plenty on this part of the Rochejhone" (Yellowstone, in the vicinity of the mouth of the Tongue River)[26]
-August 3	"like all other branches of the Missouri which penetrate the Rocky Mountains all that portion of it lying within those mountains abound in fine beaver and Otter, it's streams also which issuing from the rocky mountain and discharging themselves above Clark's fork inclusive also furnish an abundance of beaver and Otter and possess considerable portions of small timber in their vallies."[27]

On July13, Sergeant Ordway and nine men separated from the Clark party and pushed down the Missouri from the Three Forks to rendezvous with the Gass detachment at the Great Falls on July 20. Two beaver were killed on July 13 and 14. Six beaver were killed on July 12 and 27, by the Clark party.

The Lewis and Clark journals record a total of 201 beaver harvested for the entire 1804-1806 journey. The recorded beaver kill (Table 1) is undoubtedly lower than the actual number taken due to some journal entries not providing exact kill numbers. Journal keepers (Lewis and Clark, John Ordway, and Patrick Gass) often used words such as "some" or "several" which makes it impossible to determine how many beaver the expedition harvested. On some occasions, journal recorders made different counts on the same day, making it difficult to determine how many were taken. It is also reasonable to assume that due to illness, travel difficulties, and other incidents, journal entries were sometimes entered at a later date, resulting in an inaccurate recording.

The journals provide no information on how many beaver skins taken by expedition members made it back to St Louis to be sold to commercial buyers. It would have been inappropriate for Lewis to mention the sale of private property in a US military journal.

Although there is an almost limitless variety of natural habitats along the Lewis and Clark transcontinental route of travel, the Upper Missouri River segment provides a combination of the necessary components (climatic, topographic, and vegetative) for suitable beaver habitat. Altogether, 155 beavers or 77% of the total expedition beaver kill were taken in the Upper Missouri River segment. Beaver harvested in Montana totaled 118 or 58% of the total kill. It is crystal clear from the Lewis and Clark beaver harvest data that beaver exist in a dynamic Upper Missouri ecosystem that has the ability to support a large concentration of biomass.

Journey's End—Arrival in St. Louis (September 23, 1806)

At the completion of the Lewis and Clark Expedition, a letter to Jefferson from Lewis, dated September 23, 1806, carried word of an extremely rich Rocky Mountain fur resource. It outlined the potential advantages of a Rocky Mountain fur trade, and the establishment of an extensive commercial empire that would eventually make the United States a continental nation, as well as resolving the imperial conflict of jurisdiction over the Oregon Country. Even though the long-hoped-for all-water Northwest Passage simply did not exist, the journals when revealed to the public, and their message of "inexhaustible wealth," including "emence" numbers of beaver, would serve as a catalyst in further opening the door to the Rocky Mountain fur resource.

Author's remarks

In reference to Jim Hardee's trapping article, "Moonlighting on the Lewis and Clark Expedition" (*We Proceeded On*, November 2008), I found it ironic that the expedition members involved in trapping beaver would unknowingly provide a wealth of biological information in reference to beaver geographic distribution and relative abundance. Neither President Jefferson nor Lewis, it appears, had formulated any plans to use beaver trapping as a tool for collecting biological data. Military regulations do not permit any moonlighting endeavors while engaged in a military operation. If this ruling had been enforced, a considerable amount of detailed information would have been lost to the scientific community.

Thomas Jefferson was particularly interested in advancing the nation's participation in the fur trade, which was a major economic enterprise at the time, and one of the principal forces that had generated the longtime imperial rivalries for control of North America. Therefore, it was imperative that Lewis and Clark collect as much information on beaver

TABLE 1. Expedition beaver harvest data by geographic travel segments (1804-1806).

Wood River to Fort Mandan
(May 14, 1804-April 7, 1805)
Total kill 38

Fort Mandan to the Great Falls of the Missouri
(April 7-June 13, 1805)
Total kill 97

Great Falls of the Missouri to Traveler's Rest
(July 13-Sept 11, 1805)
Total kill 8

Traveler's Rest to Fort Clatsop
(September 11-December 7, 1805)
No beavers were harvested during this travel segment.

Fort Clatsop Winter stay
(December 8, 1805-March 26, 1806)
Total kill 4

Fort Clatsop to Traveler's Rest
(March 23-July 3, 1806)
Total kill 4

Traveler's Rest Expedition: Separation and reunion of the Lewis and Clark contingents
(July 3-August 12, 1806)

- Clark's exploration of the Yellowstone and reuniting with Lewis on the Missouri
(August 12, 1806)
Total kill 6
- Ordway detachment from Clark at the Three Forks (July 13-28, 1806)
Total kill 2
- Lewis' travels from Traveler's Rest—exploration of the Marias and reuniting with Clark on the Missouri
(July 3-August 12, 1806)
Total kill 42

Outward 1804-1805 journey
Total kill 143 (71.14% of the expedition total)

Return 1806 journey
Total kill 58 (28.86%)

Total recorded expedition kill of beaver
Total kill 201
(75 trapped, 125 shot, 1 killed by other means).

as time and circumstances permitted. The captains collected a wealth of information on the distribution and abundance of beaver, as well as additional beaver activities of interest. Limitations as to why additional data was not collected can be summarized as follows:

- Beaver are nocturnal and secretive in their activities. In addition, they spend a high percentage of their time underwater and a limited time on land, which makes them a difficult animal to study.
- The 1804-1806 journey, as documented, resulted in physical hardships, meshed with periods of extreme fatigue and sickness, adverse weather conditions, navigation mistakes, and food shortages. Under these conditions it is difficult to collect biological information. Collecting valid biological data while constantly on the move also presents problems. Unexpected events may have prompted an altered course of action from a designated objective, which limited the collection of biological data.
- The captains were charged by President Jefferson with a complex and diverse array of assignments, which makes it difficult to focus on one specific assignment, such as collecting data on beaver. Designated presidential assignments had to be prioritized in order of importance, and I am sure the captains were well aware of this. Lewis and Clark regarded these presidential orders as a mandate and responded with energetic brilliance and dedication in fulfilling their assignments.
- Meriwether Lewis, despite his inherent objective, systematic, and philosophical approach to better understanding the natural world, was not, by today's scientific academic standards, a fully educated and seasoned biologist. Despite this educational deficiency, one cannot emphasize enough his unselfish dedication in gathering a diversity of biological information, and in some situations under extraordinary circumstances. ∎

Kenneth Walcheck, retired Montana wildlife biologist and frequent WPO contributor, remains active in researching Montana natural history documentations with a main focus on the Lewis and Clark journals and the explorers' natural history discoveries.

Notes

1. Through decades of intensive scientific research since the Lewis and Clark Expedition, the beaver has been studied extensively in a wide geographic range from tree to sea level and the subarctic to the tropics. They have been documented as significant controlling agents in shaping ecosystems throughout their distribution, especially their role and impact on shaping the direction of plant succession, species composition, and structure of plant communities.

2. Species--the kind of animal--usually is the smallest unit recognized in zoological field work, but specialists working closely with many individuals of the same species from different parts of the species' range often can sort them into geographic groups--eastern, western, southern, desert and coastal--and designate them as geographic races or subspecies. These subspecies may differ only in superficial characteristics such as size or intensity of color, but still are capable of interbreeding with each other.

3. Distinctions among the 25 subspecies of beavers are based primarily on slight morphological differences and geophysical isolation at the time of discovery. Today, modern taxonomic techniques use genetics rather than morphology to distinguish between subspecies. Currently the Integrated Taxonomic Information System does not recognize any subspecies of *Castor canadensis*. Such an analysis would be difficult since substantial genetic mixing of populations has occurred due to numerous reintroductions intended to help the species recover following extirpation from many regions.

4. The author has found Jim Hardee's Lewis and Clark's 1804-06 beaver harvest documentations as the most accurate data published to date. Hardee's beaver trapping article, "Moonlighting on the Lewis and Clark Expedition," was published in the November 2008 issue of *We Proceeded On*.

5. N.M. Chittenden, *The American Fur Trade of the West*. 2 vols. (Stanford: Academic Reprints, 1954), 11.

6. At the Platte River, the expedition entered the tall-grass prairie. Big bluestem was the dominant grass and occupied the valleys of rivers and streams and the lower slopes of hills. West of the tall-grass prairie, the expedition entered the mixed-grass prairie which embraced the needlegrass-wheatgrass, grama grass community. Further south and west, the plains graded into the short-grass prairie with blue grama and buffalo grass dominating.

7. Gary E. Moulton, ed., *The Journals of the Lewis and Clark Expedition*, 13 vols. (Lincoln: University of Nebraska Press, 1983-2001), 4:48. Beaver meat is similar tasting to lean beef, but care must be taken to prevent contamination from the beaver's strong scent gland secretions. It is usually slow cooked in a broth. Beaver tail was considered a delicacy by early trappers.

8. Robert G. Ferris, *Lewis and Clark: Historic Places Associated with their Transcontinental Exploration (1804-06)* (Washington, DC: US Government Printing Office, 1975), 114.

9. Moulton, *Journals*, 4:200.

10. Moulton, *Journals*, 4:53-54.

11. This surface-volume ratio principle, known as Bergman's Rule, has wide geographical and ecological implications.

12. Moulton, *Journals*, 4:46. "[B]ark is their only food" needs clarification. Beaver are herbivores and eat a variety of woody and herbaceous species. Willows, cottonwood, mountain alder, and aspen are important foods. Aquatic plants such as water lilies and cattails, and other aquatic vegetation are eaten, especially in the spring months.

13. Moulton, *Journals*, 4:118.

14. Moulton, *Journals*, 4:190.

15. Moulton, *Journals*, 4:422-23.

16. Moulton, *Journals*, 4:428.

17. Ferris, *Historic Places*, 21.

18. The upper Jefferson watershed area encompasses approximately 734 square miles in Jefferson and Madison Counties. Much of the river is braided and has a natural tendency to migrate within the flood plain.

19. Moulton, *Journals*, 5:32.

20. Moulton, *Journals*, 5:169.

21. Moulton, *Journals*, 6:161.

22. Moulton, *Journals*, 8:119.

23. Moulton, *Journals*, 8:175.

24. Moulton, *Journals*, 8:182.

25. Moulton, J*ournals*, 8:186.

26. Moulton, *Journals*, 8:248.

27. Moulton, *Journals*, 8:277-78.

Did Lewis and Clark Know That

Bighorn Sheep Existed?

By Brett Bannor

"Big Horn Ridge" by Valerie Jones. Acrylic on canvas. 36 x 30 in. Courtesy Valerie Rogers.

In the fall of 1800 Duncan McGillivray, an agent for the North West Fur Company, accompanied a surveying expedition in Alberta, Canada, close to present day Calgary. At midday on November 30, the party paused to take readings and to allow their horses to graze. While so occupied, a herd of large mammals appeared some distance ahead; the men assumed these were deer. McGillivray and a Native American guide moved in to shoot the animals, but when they got close enough to identify the herd they saw that these were not deer at all. They were, McGillivray later wrote, animals "utterly unknown to me."[1] This revelation did not change the men's intentions, however; they shot five of the beasts. Boasted McGillivray, "I had the satisfaction to shoot a large male, whose motions appeared to guide the flight of the rest—his superior size, and enormous horns, made him the particular object of my pursuit, and I have preserved his skin, with a view of presenting it to the Royal Society of London." The strange animal was the bighorn sheep.

The Alberta surveying party in late 1800 did not discover the bighorn; this was simply the first event in the sequence that led to the official description of the species in scientific literature. Naturally, bighorns were familiar to indigenous Americans long before McGillivray raised his rifle—as he himself acknowledged. He noted that the Cree tribe called the wild sheep a word he transcribed as "MY-ATTIC," which he translated to mean "ugly rein deer." A comparison of bighorns to deer was not peculiar to the Cree; McGillivray took the same approach. The most vivid portion of his description reads: "The horn is of the circular kind, proceeding in a triangle from the head, like that of a ram. In short, this animal appears to be a compound of the deer and the sheep, having the body and hair of the first with the head and horns of the last."[2]

Nor was McGillivray the first person of European descent to report seeing bighorns; there were narratives dating back nearly a century prior to the Alberta hunt.[3] Accordingly, the bighorn was in no sense an unknown animal before 1800, but there had been no previous specimens at hand to be examined and described in formal zoological texts. To McGillivray, then, goes the credit for collecting the material needed for scientific inquiry.

True to his word, McGillivray later sent the skin of the big ram he shot to Britain for study and report by the Royal Society. It did not arrive overseas until 1803, however.[4] Awareness of what happened to that bighorn specimen prior to crossing the Atlantic is critical to comprehending what America's natural history experts knew about the species as preparations were made for the Lewis and Clark Expedition. An earlier article published in *We Proceeded On* (2008) takes note of the bighorn shot by McGillivray in 1800 and mentions that it was not sent to London until 1803. Based on this timeline, but neglecting consideration of the fate of

McGillivray's specimen prior to its journey to Britain, the author of the article declares: "Meriwether Lewis was the first to provide detailed information on bighorn sheep… to the fledgling American scientific community."[5] This is inaccurate. Misinformation on the matter is found in other sources as well—one scholarly book inexplicably states that Lewis and Clark "made the first known records, in English at least of the… Rocky Mountain bighorn sheep."[6] Indeed, as will be shown, the bighorn was well-known to the "fledgling American scientific community" during the planning stages of the Lewis and Clark Expedition—and presumably by Lewis himself—before the men headed west.

To be clear, the bighorn had not received official scientific description in 1803, the year Lewis and Clark's Corps of Discovery was commissioned. This did not happen until the following year when British naturalist George Shaw and his French counterpart A. G. Desmarest separately published descriptions of bighorn that are now accepted as the earliest accounts of the species in the scientific literature. (Both men based their descriptions on the specimen obtained by McGillivray.)[7] But as we shall see, there was considerable knowledge of bighorns among learned Americans in 1803, even though the animal was not yet "official."

McGillivray's Bighorn Travels to New York City

Before McGillivray's bighorn sailed overseas, he traveled with it to New York City, where in 1802, the bighorn skin resided in a private museum and art gallery owned by Edward Savage. Savage made drawings based on both the specimen and McGillivray's descriptions of the animal in life. These were published in an article entitled, "A Description of the My-Attic or Mountain Ram," that appeared in a New York newspaper, the *Daily Advertiser*, on December 4, 1802.[8]

Besides displaying and drawing McGillivray's bighorn ram, Edward Savage also tried to make certain the President of the United States knew about it. No doubt Savage was aware that Thomas Jefferson had a keen interest in natural history.[9] In February of 1803, Savage sent a short note to Jefferson stating, "I have taken the liberty to Enclose to you a description of an non Descript [sic] animal."[10] Savage was not using "nondescript" as we normally mean it today—i.e., not easily described or belonging to no particular class. He instead meant nondescript in its original definition, which came from natural history, meaning a species not yet described by scientists.[11] Savage did not say in his letter what the strange animal was, certainly figuring that the enclosed article would speak for itself.

The letter reached Jefferson but not the enclosures. He replied to Savage telling him this on March 4, 1803.[12] Jefferson's letter said nothing about bighorns, since without the enclosures all he knew about the animal Savage alluded to was that it was undescribed. This was not correspondence between strangers; Jefferson knew of Savage and his work. The two men had a cordial business relationship and the previous year had exchanged several letters in relation to Jefferson's order of frames for his artwork.[13]

Savage tried again. This time he wrote, "I am very Shure of Enclosing to you a description of the mountain Ram…"[14] This letter was endorsed as received by Jefferson, but the enclosures have not been found and if the president penned a reply to Savage it has been lost.

But Jefferson was not the only statesman that Savage communicated with concerning the bighorn. In late November 1802, before Savage contacted the president, he also forwarded McGillivray's narrative to Samuel Latham Mitchill, a New York physician and the editor of the journal *Medical Repository*. In that journal, Mitchill published McGillivray's bighorn account early in 1803, probably in January.[15] McGillivray's description of the bighorn has already been mentioned, but it should be noted that the *Medical Repository* article also carried Edward Savage's illustration of the quadruped.[16] There is no mistaking the animal in this drawing; the large circular horns characteristic of rams are vividly shown.

At this time the multi-talented Mitchill was also a member of the House of Representatives; in 1803 he would move to the US Senate.[17] A colleague in the House, John Randolph of Virginia, called Mitchill "'The Congressional Library'… on account of his wide and profound erudition."[18] Mitchill was also a close political ally of Jefferson, who also gave him a nickname: "The Congressional Dictionary."[19] One historian has declared that next to the president, Mitchill was possibly the person most interested in exploration of the lands west of the Mississippi River, an assertion based on Mitchill's role as chair of the House Committee of Commerce and Manufacture, which recommended the exploration of the Louisiana Territory.[20]

It is easy to see why Jefferson would be drawn to Mitchill—they were similar in their politics and both men cultivated a wide range of interests, including natural history. Jefferson's relationship with Mitchill was so warm that he frequently invited the congressman to dine at the White House—Mitchill had dinner there three times between October of 1803 and March of the following year, just a few months before the Lewis and Clark expedition got underway.[21] In a letter to his wife, Mitchill described the pleasantries of an evening in the President's company:

> He has generally a company of eight or ten persons to dine with him every day.… You drink as you please

and converse at your ease. In this way every guest feels inclined to the digestive or the social point, and no further.[22]

Mitchill then listed the guests at a recent dinner he attended, concluding the roster with the comment that "The President and his secretary, Captain Lewis, completed the party."

Jefferson and Mitchill remained fond of each other the rest of their lives; when Jefferson died in 1826, it was Mitchill who delivered a eulogy to the New York Lyceum of Natural History highlighting the late president's contributions "as a Promoter of Natural and Physical Science." On the title page of the published version of this eulogy Mitchill prominently identifies himself as "a Supporter of (Jefferson's) Administration."[23]

Given the camaraderie and the common interests of the president and the New York congressman, it is highly likely that in 1803 when they conversed at the White House or elsewhere, the two men probably discussed matters of natural history and of the unknown American West both wished to see explored. The bighorn, being fresh in Mitchill's mind—and on the pages of his journal—would be a natural topic to pop up in a dialog on either of those two matters.

The question arises whether Jefferson had read Volume VI of *The Medical Repository* containing McGillivray's account of the bighorn; certainly Mitchill would have happily provided him a copy. Unfortunately, the catalog of Jefferson's library does not show this item, although Jefferson did own other works by Mitchill including pages from a later volume of *The Medical Repository* that Mitchill sent the president prior to their publication.[24] In summary, we just do not know what Jefferson knew, if anything, about the bighorn sheep.

In 1803, Jefferson and Mitchill's shared interests in western exploration and natural history were about to bear expression in a milestone of American history—the Lewis and Clark Expedition. It would provide additional information about bighorns, as well as more specimens—but as we have seen, not the first—to be scientifically examined.

Jefferson Champions the Lewis and Clark Expedition

Because of Thomas Jefferson's fascination with the American West, in the 1780s and 90s he supported four proposals to explore the region. All of these projects either were aborted or never got off the ground.[25] It was not until Jefferson was in the first term of his presidency that the expedition he desired finally came to fruition. Coincidentally, the election of 1800, which made Jefferson the President of the United States, took place just four days after Duncan McGillivray shot the bighorn in faraway Alberta.[26]

In June of 1802, Jefferson received a letter from Casper Wistar, a Philadelphia physician and professor at the University of Pennsylvania who regularly corresponded with the president.[27] Wistar called Jefferson's attention to the recently published account of the journey of Alexander Mackenzie, a Scotsman, across Canada to the Pacific Ocean. Jefferson promptly ordered a copy of Mackenzie's book, which concludes with a call for Great Britain to establish a permanent presence in the Pacific Northwest—particularly at the Columbia River basin.[28] It may have been his reading this—and as a result fearing that the British would shut out United States claims to the region by taking Mackenzie's advice—that revived Jefferson's earlier advocacy for an American exploration of the West.[29]

Jefferson sent a confidential message to Congress on January 18, 1803, proposing the reconaissance that became Lewis and Clark Expedition. The following month Congress approved an appropriation for the endeavor.[30] The planning stages now commenced.

To lead the effort, Jefferson chose his private secretary, Meriwether Lewis—the same Captain Lewis that Samuel Latham Mitchill mentioned in the letter to his wife. Two years earlier when the new president wrote Lewis to offer him the secretarial position, Jefferson stressed that Lewis' knowledge "of the Western country, of the army and of all its interests & relations has rendered it desirable for public as well as private purposes that you should be engaged in that office."[31] Lewis warmly accepted that offer. Now he was handpicked by the president for a bigger challenge.[32] Later, Lewis asked William Clark to join him as co-commander of the expedition.[33]

Jefferson knew that to gather the necessary information on the journey, Lewis would need to hone his skills in surveying, astronomy, and natural history. Accordingly, the president dispatched Lewis to Philadelphia where, for about a month beginning in early May of 1803, Lewis was tutored by several experts in their respective fields. Prior to Lewis' departure from Washington, Jefferson wrote letters to the Philadelphia savants—with all of whom he was well acquainted—requesting their assistance. These letters also asked the scientists to keep their efforts confidential, as the details of the expedition had not been made public.[34] In other words, Jefferson was relying not only on the help of experts, but experts he knew well enough to trust with a state secret.

One of these men who instructed Lewis was Caspar Wistar. As we have seen, he earlier wrote the letter telling Jefferson about Mackenzie's book. In July, more than a month after Lewis left Philadelphia, Wistar penned another letter to Jefferson, emphasizing a point he felt important—the

exploration Lewis would lead should determine once and for all the orientation of the Missouri River. Here again, the bighorn is mentioned:

> What is the real direction of the Missouri? 'till the publication of Mackenzie's book I believed it to be nearly west & if I am not mistaken M. Pirroux spoke of it in the same way for 2000 miles of its extent—but McKenzie's account is confirmed by the Gentleman who gave the account of the Wild Sheep….[35]

Recall that it was almost a year earlier that Wistar brought Mackenzie's travel memoir to Jefferson's attention. Now Wistar referenced it again, but more significantly, he also brought up McGillivray's account of the "Wild Sheep" without giving any citation. It seems that he assumed that Jefferson had read about the bighorn specimens collected in Alberta and curated by Edward Savage in his New York City museum. It might have been more than an assumption—Wistar could have known as fact that Jefferson was aware of the bighorn reports. It is easy to picture the president in the spring of that year lamenting to Meriwether Lewis about how little was known about the West and using the wild sheep—a large mammal having just come to the attention of science—as a dramatic case in point. Indeed, since Jefferson later wrote that his relationship with Lewis at this time was very close, it is more difficult to conceive the possibility that such a conversation did not take place.[36]

If such a dialog between Jefferson and Lewis occurred, Lewis could then have relayed the gist of these discussions to Wistar in May or early June when the two men met face to face in Philadelphia.[37] Unfortunately, there is no extant reply letter from Jefferson that might shed light on why Wistar took it for granted that the president had read of the wild sheep.

Shortly after Lewis returned to Washington from Philadelphia, he received from Jefferson carefully drafted instructions for the expedition (June 20, 1803). One of the assigned tasks was for the men to note "the animals of the country generally, & especially those not known in the U.S." and "the remains or accounts of any which may be deemed rare or extinct."[38] As we have seen, the bighorn by now was not unknown, but it at that point it still could be thought rare, and thus certainly worthy of further account. Lewis and Clark dutifully provided more information on its natural history. The Corps of Discovery first encountered bighorns near the mouth of the Yellowstone River on April 26, 1805, and regularly thereafter. Expedition records show that 35 of the animals were shot to provide food for the hungry explorers. Skins and horns were preserved for shipment back east.[39] Scientists then had specimens to supplement those provided earlier in the decade by Duncan McGillivray.

Bighorns in the Jeffersonian Circle

In *Jefferson's Shadow: The Story of His Science*, Keith Thomson states that Jefferson in his time was America's most knowledgeable naturalist.[40] Charles Miller, in *Jefferson and Nature*, declares that "Jefferson promoted the study of nature through correspondence, which in many ways took the place of modern conferences, periodicals, and the circulation of studies in draft form."[41] A similar idea was promulgated by Daniel Boorstin, who wrote extensively about the "Jeffersonian Circle," that coterie of men who constituted an informal—but serious—council of knowledge in early America.[42]

Insights such as these are helpful for understanding why in spite of the incomplete paper trail it is virtually inevitable that Thomas Jefferson knew about bighorn sheep in 1803, and that he shared his knowledge of the animal with Meriwether Lewis—a man who, because of his close association with the president and the tutorials he received in Philadelphia, had become part of the Jeffersonian Circle. To be sure, it is frustrating that we have no note from Jefferson to Edward Savage discussing the bighorn article Savage forwarded, or a letter from Jefferson to Caspar Wistar remarking on that account of the "Wild Sheep" Wistar referred to, or a correspondence from Jefferson to Samuel Latham Mitchill telling him that the details about the bighorn in *The Medical Repository* were fascinating and a good indicator of how little was still known about the lands beyond the Mississippi River.

Nevertheless, it is known that Jefferson in 1803 received letters referencing the bighorn from two different acquaintances—Savage and Wistar—and that he spent a significant amount of time in the company of Samuel Latham Mitchill, whose journal first introduced the bighorn to the American scientific community—a community of which Jefferson was an integral part. Among other things, Jefferson was the president of the American Philosophical Society. It seems inconceivable that "America's most knowledgeable naturalist" would not have been excited by the reports of this big mammal from the Rockies; it is equally unlikely that he would not have discussed the bighorn in some detail with Meriwether Lewis, his personal secretary and the man he handpicked to explore the West. It is also known that Lewis conversed directly with Wistar, and he probably also spoke regularly with Mitchill at those White House dinners. Either of those men could have spoken about bighorns with the young army captain who would soon lead the expedition to the animals' habitat.

Lewis and Clark scholar Donald Jackson wrote, "It is possible that Lewis and Clark already knew of the mountain sheep before coming to the West."[43] As we have seen, however, when

the relevant dates, correspondence, and events taking place in the Jeffersonian Circle are considered, they lead readily to a stronger—if tentative—conclusion. Not only was it possible Meriwether Lewis and William Clark were aware of the mountain sheep prior to their expedition, it is almost unthinkable that they could have been ignorant of its existence.

Lewis and Clark were not the first to provide detailed information on bighorn sheep. Duncan McGillivray did this with considerable assistance from Edward Savage and Samuel Latham Mitchill. But Lewis and Clark deserve credit for adding to the scientific knowledge of the animal, very much in line with Jefferson's goals for their expedition. All these men played a role in calling attention to the bighorn and putting it in the place in America's mind it occupies to this day—one of the most distinctive species of wildlife found in the vast American West. ∎

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Notes

1. J. A. Allen, "Historical and Nomenclatural Notes on North American Sheep" (*Bulletin of the American Museum of Natural History*, Vol XXXI, 1912), 2-3; Duncan McGillivray, "Memorandum Respecting the Mountain Ram of North America" (*The Medical Repository*, Vol VI, 1803), 238-39.

2. McGillivray, "Memorandum," 239.

3. Allen, "Nomenclatural Notes," 17-20; Donald Jackson, ed., *Letters of the Lewis and Clark Expedition with Related Documents*, 2nd ed. (Urbana: University of Illinois Press, 1979), 1:240-41.

4. Allen, "Nomenclatural Notes," 9-10.

5. Kenneth C. Walcheck, "Big-Horned Anamals With Circular Horns," *We Proceeded On*, 34:26 (2008).

6. Keith Thomson, *Jefferson's Shadow: The Story of His Science* (New Haven, CT: Yale University Press, 2012), 224.

7. Allen, "Nomenclatural Notes," 9-10; David M. Shackleton, *Ovis canadensis: Mammalian Species No. 230* (The American Society of Mammalogists, 1985), 6. Shackleton notes that historically there has been disagreement over whether Shaw or Desmarest should be credited as first to officially name the bighorn, with Shaw's description generally accepted as having priority.

8. Allen, "Nomenclatural Notes," 4, and Julian Boyd et al., eds., *The Papers of Thomas Jefferson* (Princeton, N.J.: Princeton University Press, 1950-present) 40:27-28.

9. On the extent of Jefferson's interest see Keith Thomson, *A Passion for Nature: Thomas Jefferson and Natural History* (Monticello, VA: Thomas Jefferson Foundation Monticello Monograph Series, 2008), especially 109-120 on his involvement with the Lewis and Clark Expedition; also I. Bernard Cohen, *Science and the Founding Fathers: Science in the Political Thought of Thomas Jefferson, Benjamin Franklin, John Adams & James Madison* (New York: W.W. Norton & Company, 1995), 61, noting that Jefferson was one of two American presidents having "an abiding and primary interest in natural history." Theodore Roosevelt was the other.

10. Boyd, ed., *Papers of Jefferson*, 39:475.

11. John Simpson and Edward Weiner, eds., *The Oxford English Dictionary* (Gloucestershire, U.K.: Clarendon Press, 1989).

12. Boyd, ed., *Papers of Jefferson*, 40:9.

13. Boyd, ed., *Papers of Jefferson*, 36:666; 37:361; 36:350; 37:149; and 37:572-73.

14. Boyd, ed., *Papers of Jefferson*, 40:27-28.

15. Allen, "Nomenclatural Notes," 5; McGillivray, "Memorandum," 238.

16. McGillivray, "Memorandum," plate facing 237.

17. Courtney Robert Hall, *A Scientist in the Early Republic: Samuel Latham Mitchill 1764-1831* (New York: Russell & Russell, 1962), 112.

18. E. Millicent Sowerby, *Catalogue of the Library of Thomas Jefferson* (Washington, DC: The Library of Congress, 1952), 1:315.

19. Hall, *Scientist*, 14.

20. Aubrey Diller, "An Early Account of the Missouri River," *Missouri Historical Review*, 45:150-55 (1951), 150; 13 Annals of Congress, 8th Cong., 1st sess., 1036.

21. Boyd, ed., *Papers of Jefferson*, 41:550.

22. Hall, *Scientist*, 140c-d.

23. Samuel L. Mitchill, *A Discourse on the Character and Services of Thomas Jefferson, More Especially as a Promoter of Natural and Physical Sciences* (New York: G. & C. Carvill, 1826).

24. Sowerby, *Catalogue*, 1:442; see also 1:315 and 4:192. The pre-publication article Mitchill sent Jefferson was on yellow fever in the ancient Greeks, again showing the breadth of the shared interests of the two men.

25. Donald Jackson, *Thomas Jefferson & the Stony Mountains: Exploring the West from Monticello* (Norman: University of Oklahoma Press, 1981) 1:42-56, 74-78; Paul Russell Cutright, Lewis & Clark: Pioneering Naturalists, 2nd ed. (Lincoln: University of Nebraska Press, 2003), 10-13.

26. John Ferling, *A Leap in the Dark: The Struggle to Create the American Republic* (New York: Oxford University Press, 2003), 463.

27. Boyd, ed., *Papers of Jefferson*, 37:564-66.

28. Sir Alexander Mackenzie, *The Journals of Alexander Mackenzie: Voyages from Montreal, on the River St. Laurence, Through the Continent of North America, to the Frozen and Pacific Oceans; in the Years, 1789 and 1793. With a Preliminary Account of the Rise, Progress, and Present State of the Fur Trade of that Country* (Santa Barbara, CA: The Narrative Press, 2001), 417-418. Oddly enough, Mackenzie's journals do not contain any descriptions of encounters with bighorns, although "a white horn in the shape of a spoon" given to him by natives on June 9, 1793, was likely from a bighorn. See Mackenzie, *Voyages from Montreal*, 263; Allen, "Nomenclatural Notes," 17.

29. Jackson, *Stony Mountains*, 94-96, 121-124; James P. Ronda, *Jefferson's West: A Journey with Lewis and Clark* (Monticello, VA: Thomas Jefferson Foundation, 2000), 26-27.

30. 12 Annals of Congress, 7th Cong, 2nd sess., 24-26; act of February 28, 1803, ch. 12, 2 United States Statutes at Large 206.

31. Boyd, ed., *Papers of Jefferson*, 33:51-52.

32. Boyd, ed., *Papers of Jefferson*, 33:238-39.

33. Jackson, *Stony Mountains*, 137-39.

34. Jackson, *Stony Mountains*, 134-37; Cutright, *Pioneering Naturalists*, 19-29.

35. Jackson, *Letters*, 1:108. Before the Lewis and Clark Expedition there was a prevailing notion that the Missouri River headed southwest. See Cutright, *Pioneering Naturalists*, 394.

36. Jackson, *Letters*, 2:589.

37. On the indeterminate nature of the actual dates Lewis was in Philadelphia, see Cutright, *Pioneering Naturalists*, 27.

38. Jackson, *Letters*, 1:63.

39. Raymond Darwin Burroughs, ed., *The Natural History of the Lewis and Clark Expedition* (East Lansing: Michigan State University Press, 1995), 171-76, 283, 286. See also the entries on the bighorn in Gary E. Moulton, ed. *The Journals of the Lewis and Clark Expedition*, 13 vols. (Lincoln: University of Nebraska Press, 1983-2001).

40. Thomson, *A Passion for Nature*, 38.

41. Charles A. Miller, *Jefferson and Nature: An Interpretation* (Baltimore, MD: The Johns Hopkins University Press, 1988), 42.

42. Daniel J. Boorstin, *The Lost World of Thomas Jefferson* (Chicago: The University of Chicago Press, 1993), 8-26.

43. Jackson, *Letters*, 1:240.

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

Lewis & Clark Trail Heritage Foundation, Inc.

Annual Report 2017—2018

Photo of Columbia River by Steven G. Lee

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Below: Tom Elpel and Churchill Clark of the Jefferson River Canoe Trail Chapter bring their dugout canoe to the Lewis and Clark Interpretive Center in

In canoe: Tom Elpel, Lindy Hatcher, and Austin Haney. **Out of canoe** left side: Alice Kestler and Louie Maillet. Right side: Chris Maillet, Karlene Faulkner, and Churchill Hinds

Message from the President

It is fitting that we gather for this 50th Annual Meeting of the Lewis and Clark Trail Heritage Foundation (LCTHF) in Astoria, Oregon. We are celebrating the 50th anniversary of our first meeting where we as an organization began and remembering where Lewis and Clark achieved their endpoint as expressed, in Clark's words, by "Ocian in view! O! the joy." Lewis and Clark had almost five months to look back upon their travels as we are looking back now upon this past year of our foundation's achievements.

As Keepers of the Story and Stewards of the Trail, the LCTHF has achieved much in these areas. We initiated the Dr. Gary E. Moulton Lecture series to honor Dr. Moulton for his work as editor of the Journals of the Lewis and Clark Expedition. Dr. Jay Buckley was our first speaker at the event hosted by Mark Weekley, superintendent of the Lewis and Clark National Historic Trail, at the trail's headquarters in Omaha, Nebraska. We worked with Clay Jenkinson, the new editor of WPO, to broaden the scope of our journal and attract new audiences. We increased our membership by 10%. Our mission to protect and preserve the trail was furthered by the grants we awarded from the Bicentennial Trail Stewardship Endowment and the Burroughs-Holland Education Fund. And many of us had the personal experience of actually following in the footsteps of Lewis and Clark through such activities as guiding tours along the Lewis and Clark National Historic Trail, floating the Upper Missouri River Breaks, and exploring the Eastern Legacy.

The 50th Annual Meeting is also the beginning of our foundation's three-year celebratory continuum. From the 50th anniversary of the first meeting of people dedicated to publicizing the story of Lewis and Clark and creating a Lewis and Clark Trail, we look ahead to our next celebration in St Louis at the invitation of Karen Goering and the Missouri History Museum from September 22 to 25, 2019. With the 51st Annual Meeting, we will be observing the 50th anniversary of the signing of the articles of incorporation that formalized the establishment of the Lewis and Clark Trail Heritage Foundation, Inc.

In 2020, the third year of our celebration, the LCTHF has been invited by Alexandria Searls, Becky Gildersleeve, and the Board of the Lewis and Clark Exploratory Center to hold the 52nd Annual Meeting in Charlottesville, Virginia, from August 2 to 5, 2020. Not only did Jefferson's vision at Monticello set it all in motion, but June 27, 2020, will mark 50 years after the organizational meeting that formed the LCTHF as we know it today. Before this it had been the non-profit arm of the Missouri State Lewis and Clark Commission.

The meeting in Charlottesville will also be our foundation's opportunity to look forward – once all our 50th anniversaries have been commemorated – to our next steps during the next 50 years. This is the real challenge. We hope you will join with your officers and Board in charting that all-important course.

Respectfully submitted

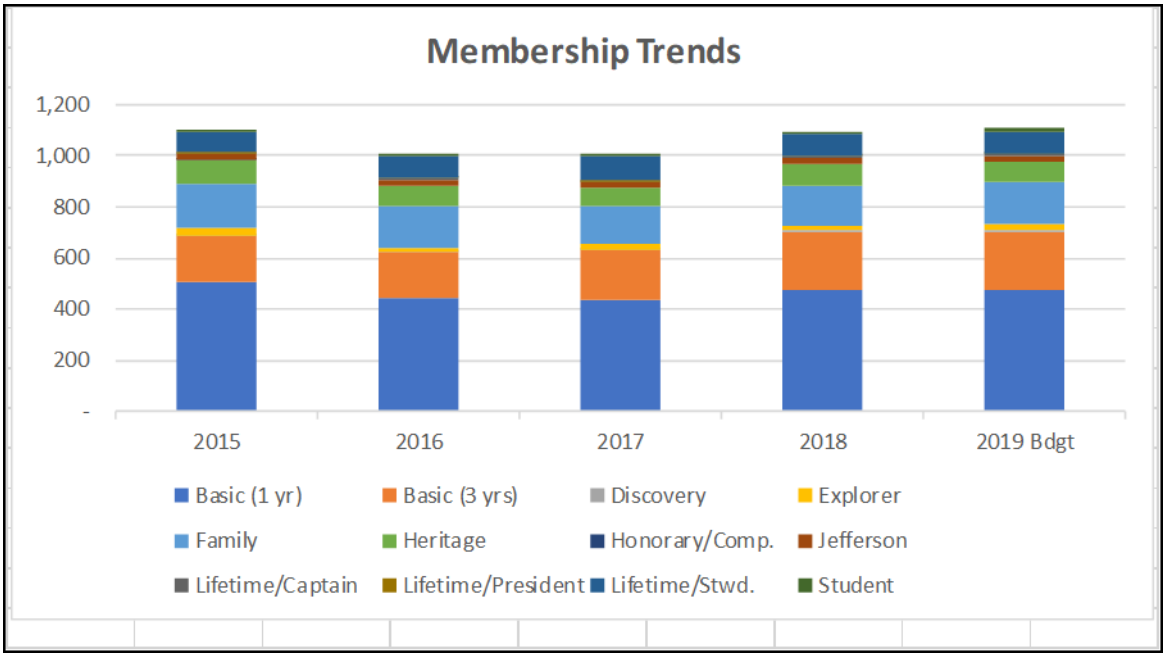
Philippa Newfield MD

Philippa Newfield, M.D.

Members of the LCTHF and Portage Route Chapter on a canoe/float trip through the Wild and Scenic Upper Missouri Breaks in August of 2018

Lewis & Clark Trail Heritage Foundation, Inc.
Statement of Financial Position

	For Periods Ending	
	30-Aug 2018	30-Sept 2017
Assets		
Cash	$ 96,231	$ 103,097
Investments	3,094,489	2,922,508
Other Current Assets	10,866	12,894
Fixed Assets	1,424	1,424
Library Books and Collections	97,082	97,082
Total assets	$ 3,300,093	$ 3,137,005
Liabilities and net assets		
Accounts payable and accrued expenses	13,834	17,677
Deferred revenue	32,485	65,391
Deferred memberships	65,227	58,124
Total liabilities	$ 111,545	$ 141,192
Net assets		
Unrestricted / Board restricted	378,724	225,353
Temporarily restricted	47,496	45,736
Permanently restricted	2,762,327	2,724,724
Total net assets	$ 3,188,547	$ 2,995,813
Total liabilities and net assets	$ 3,300,093	$ 3,137,005



Lewis & Clark Trail Heritage Foundation, Inc.

Statement of Activities

	For Periods Ending	
	30-Aug 2018	30-Sept. 2017
Revenues and other support		
Contributions, gifts, donations and grants	$ 141,607	$ 46,042
Merchandise sales and publications	8,264	16,510
Memberships	59,657	60,951
Investment return	242,744	329,373
Miscellaneous income	1,852	891
Total revenues and other support	454,125	453,767
Expenses		
Program services		
Library	32,358	22,878
Trail/Field programs	70,136	30,722
Merchandise/Publications	36,830	46,240
Membership operations	2,500	8,102
Total program services	141,824	107,942
Supporting services		
Management and general	116,107	133,695
Total supporting services	116,107	133,695
Total expenses	257,930	241,637
Increase in net assets	$ 196,194	$ 212,130

Lewis and Clark Trail Heritage Foundation Endowment Fund by Fiscal Year End

Date	Market Gain/Loss	Contributions	Withdrawals	Dividends & Interest	Fees	Portfolio Ending Qtr.	Management Fee %	Portfolio Change %	Rolling 5 yr Average
9/30/14	101,229	9,230	(72,260)	55,994	26,927	2,746,811	0.98%	1.38%	$ 2,357,790
9/30/15	(192,656)	8,936	(127,032)	50,956	27,319	2,550,266	1.07%	(1.79%)	$ 2,495,628
9/30/16	145,651	18,980	(134,547)	58,010	25,542	2,689,574	0.95%	1.35%	$ 2,565,677
9/30/17	228,054	34,665	(120,766)	52,631	27,218	2,922,508	0.93%	2.13%	$ 2,670,092
6/30/18*	127,464	37,385	(129,777)	43,549	22,098	2,965,907	0.74%	0.50%	$2,745,595

* Note: 2018 numbers are through June 30, 2018.

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L to R: Philippa Newfield, Gary Moulton, and Jay Buckley at the inaugural Moulton Lecture at the Lewis and Clark NHT headquarters in Omaha, NE

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Native dancers at LCTHF-sponsored Little Shell PowWow in Great Falls, MT. Photo by Lindy Hatcher.

2017—2018 Lewis and Clark Trail Stewardship Endowment Grants

During the Lewis and Clark Bicentennial, the U.S. Mint issued and sold Lewis and Clark Expedition Bicentennial Commemorative Coins. Some of the proceeds from the sale of coins were provided to the LCTHF to create an endowment for the purposes of preservation, protection, and interpretation of the natural, historic, recreational, and cultural resources along the Lewis and Clark National Historic Trail and Eastern Legacy states. Trail Stewardship Endowment Grants awarded in 2018 are listed below.

Beaver County Historical Research and Landmarks Foundation	PA	Interpretive signage for the Lewis and Clark Trail in Allegheny County, PA	$4,100.00
Center for Archaeological Investigation at Southern Illinois University	IL	Archaeology and Public Outreach at Fort Kaskaskia, IL	$5,000.00
LCTHF National Office	MT	Funding for Forest Service Trail Stewardship Agreement, MT	$990.00
Lewis and Clark Society of America	IL	Reconstruction of Camp River Dubois, IL	$3,340.00
Missouri River Relief	MO	Connecting Communities to LCNHT, MO	$2,500.00
Mouth of the Platte Chapter	NE	Triumphant Return of the Lewis and Clark White Pirogue	$3,000.00
Lewis & Clark Foundation	MT	Children's Discovery Exhibit, Great Falls Airport, MT	$5,000.00
The Language Conservancy	ND	NHA Summer Institute 2018, ND	$5,000.00
Montana Wilderness Association	MT	Lewis and Clark Pass Interpretive Sign and Trail Maintenance, MT	$2,210.00
Travelers' Rest Preservation and Heritage Association	MT	Travelers' Rest Crossroads Interpretive Plaza	$7,000.00
Oregon Trails Preservation Trust	OR	Lewis and Clark Oregon Trails Partnership	$5,000.00

Left to Right: Paige Cruz and Peggy Crosson with Eastern Legacy Site Marker; Native language participants at The Language Conservancy's Summer Institute 2018; and Travelers' Rest Preservation and Heritage Association's Crossroads Interpretive Plaza.

2017-2018 Montana Lewis and Clark Bicentennial Sign Maintenance Fund Grants

Grants awarded from this fund are specifically used to replace or maintain interpretive signs along the Lewis and Clark National Historic Trail in Montana. The Fort Benton Community Improvement Association received a $2,000 grant to replace Lewis and Clark Botanical Garden signs in need of repair. Park County, Montana, received a grant to replace signs at Riverfront Park and Meyers River View Trail parking lot.

Burroughs/Holland Bicentennial Education and Scholarship Grants

Grant monies from three funds were merged to provide Education grants: Raymond Darwin Burroughs Fund for youth and education, National Lewis and Clark Bicentennial Council for education, and Leandra Zim Holland fund for research topics of interest to Holland. This year, $1,000 dollar grants were disbursed to the Confluence Project for signage along the Sandy River Delta near Troutdale, OR, and Sacajawea State Park, Pasco, WA, for the Sacajawea Heritage Days event.

Lewis and Clark Trail Heritage Foundation Grant Distribution: Seven Year Total by Program

Trail Stewardship Grants	# of TS Grants	Education Grants	# of Ed Grants	MT Sign Fund Grants	# MT Sign Grants	Total All Grants Awarded	Total # of All Grants
$344,465	83	$12,700	7	$16,968	11	$374,133	101

How Many Horses Did They Beg, Borrow, and Buy?

By Dr. A. G. Wesselius

"Shoshone Horse" by Oneka M. Jones. Courtesy Trickster Art Gallery, Schaumburg, IL.

This article draws upon information from the journals of the Lewis and Clark Expedition to determine the number of horses used in the Corps of Discovery's crossing of the Continental Divide.[1] It corrects misconceptions of past historical research on the number of horses used in the Rocky Mountains portage. I have tabulated the number of horses employed by the expedition by comparing daily journal entries pertaining to the Corps' horses with the periodic journal herd size inventories conducted by the co-captains.

Noted Lewis and Clark Expedition historian Paul Cutwright was deeply concerned about literature responsible for perpetuating errors in the history of the expedition. "Needless to say, a mistake once committed to print may be repeated and if it is repeated often enough may become fixed in the minds of readers as established fact in Lewis and Clark Expedition literature."[2] He admonished historians of the expedition to expose and correct errors when the opportunity arises.

Expedition members provided minimal references in their journals pertaining to the horses employed during their mission. Horses were so customary that the journalists often omitted details that would clarify many of today's questions on particulars pertaining to their horses. Additionally, the expedition's journals are riddled with inconsistences and confusing information regarding the number of horses used in the expedition. This article attempts to establish the actual number of horses the Corps used in the portage the Rocky Mountains to reach a navigable drainage.

Commencement

The chronological record of the Corps of Discovery's portage begins at the Continental Divide in August of 1805. Leading a detachment of three corpsmen Captain Lewis left the main party under the command of Captain Clark and hiked westward to make contact with Shoshone Indians with the intention of obtaining horses. Following a trail to a pass across the "Dividing Range," he was confronted with a range of mountains still to the west that was covered with snow. A traditional portage from a navigable drainage with a short overland transport of cargo to another navigable drainage was not possible in the Rocky Mountains.

President Jefferson had written detailed instructions for the expedition but did not include horses in his planning. It was assumed that separate watersheds from the mountains could be easily portaged with minimal need for horses. Although pre-expedition planning for the mission did not foresee any compelling need for horses and horse tack, the co-captains had to make contingency plans as they learned about their exploratory route. Captain Lewis first reported to President Jefferson that transport of their cargo over the portage would be "easy and expeditious." Information from their Hidatsa and Mandan hosts suggested a long but easy portage of their cargo with horses. Charbonneau was hired as an interpreter to help with aboriginal communications and his wife, Sacagawea, was acknowledged for her likely usefulness as an interpreter when the expedition reached her homelands.

Portaging the "Dividing Range"

Captain Lewis' detachment crossed the Continental Divide, continued westward, approached a group of three foraging Shoshone women the next day and was shortly met by sixty mounted warriors. The detachment was escorted to an encampment where Lewis observed a great number of horses grazing around the camp. His spirits were raised by the prospect of borrowing horses for the acquisition of provisions and acquiring horses for the transport of the expedition's cargo. Arrangements were made with the leader of the small band to help in the portage of the Corps' cargo. The following day, he was escorted by the men of the village, plus a number of women, and proceeded back across the Continental Divide to rendezvous with the main party. He had reached the conclusion that horse transport would be critical for the portage. The transition from watercraft to pack stock severely reduced the amount of cargo the Corps transported for the remainder of the journey to the Pacific Ocean.

At "Camp Fortunate" Captain Clark and the main party joined Captain Lewis with the waiting Shoshone and through a remarkable coincidence Sacagawea met her brother, Cameahwait, leader of the Shoshone band. Information obtained from council with their hosts was unfavorable for continuing westward by navigable water after the portage. Arrangements were immediately made to send Captain Clark and eleven corpsmen, plus Charbonneau and Sacagawea, to cross to the west side of the Continental Divide. Sacagawea was sent with the detachment to hasten the Shoshone to bring their horses to help with the transport of the Corps' cargo while Captain Clark conducted a reconnaissance to investigate the westward drainage.

Captain Lewis negotiated the purchase of three horses for the immediate need of the Corps; two horses to accompany Clark and one for the hunters. For trade goods valued at $20, Lewis traded a uniform coat, a pair of leggings, a few handkerchiefs, three knives, and some small trade items for the three horses. Two unspecified corpsmen bought another horse to carry their baggage. This transaction involved an old checkered shirt, a pair of old leggings, and a knife.

In 1805 horses on the lower Missouri River frontier sold for $50 to $200—between $775 and $3000 in today's currency, for a non-registered horse.[3] Native Americans were shrewd traders and drove a hard bargain when holding an advantage; it was a Shoshone seller's market. Captain Lewis noted that the Shoshone at first were as pleased as he was with the exchange of trade goods worth ten dollars for a horse. Different cultural values between Euro-Americans and Native American determined the value of exchanged goods. Things of comparatively little value to one culture may be prized by another, and vice versa. When the expedition's desperate need for horses became apparent, the bargaining advantage was Shoshone--supply diminished and prices increased. Eventually weapons and ammunition had to be made part of the trade. "Offering guns for horses was a sure indication of both the expedition's need and the Shoshonis' [sic] trading skill," historian James Ronda observed. "The Shoshonis had proven to be better Yankee traders than the Americans."[4]

By the start of the nineteenth century horses had completely changed the culture of the Native Americans of the northern Great Plains. In the short span of a century, horses and mules stolen from Spanish settlements in the Southwest had grown into large herds owned by nomadic tribes. The captains also recorded that some horses had Spanish brands, thus corroborating future research on the origin of the Northern Plains Indian horse.[5]

As a result of inbreeding, Indian horses became a much smaller horse than today's contemporary riding horses that stand 15 to 16 hands in stature. The northern Great Plains Indian horse had a large head in proportion to its body, had muscular body features, weighed approximately seven hundred pounds, stood about 14 to 14 ½ hands tall and had strong legs and hooves.[6] Wild horse herds developed on the Great Plains with spirited horses having amazing speed and stamina.

In Captain Clark's detachment, Private Pierre Cruzatte purchased a horse for an unspecified amount, while a Shoshone guide led Captain Clark's detachment downriver until the horses could not pass along the steep rocky slopes that approached the water's edge. The result of Captain Clark's 70-mile reconnaissance changed the entire planning for the Corps to continue westward and complete its mission.

Captain Lewis remained in the camp east of the Continental Divide and continued to purchase horses. He also directed the manufacture of pack saddles, rawhide parcels and thongs to lash packs onto pack horses. He purchased five horses for about six dollars apiece in merchandise. Captain Clark later complained that a number of the purchased horses were "sore backs," in poor condition, or young and not accustomed to packs.[7] There was a reason Captain Lewis was able to obtain cheap horses.

Two days later Captain Lewis purchased three more horses and a mule, paying double for the mule. Compassionately, Charbonneau was given trade merchandise to buy a horse for Sacagawea and her baby. The acquisition of Sacagawea's horse and the horse purchased by the two corpsmen constitute a conundrum for tabulating the number of horses in the Corps' remuda. The journal keepers' herd size inventories are not consistent with herd size summations derived from additions and losses obtained from a close reading of daily journal entries. Initially, "private" horses were not included in the two herd size inventories. The conflicting and confusing journal accounts about the number of horses in the remuda have resulted in inaccurate horse enumerations in studies of the expedition. Sacagawea's horse and the two corpsmen's horses were considered private horses; therefore they were not included in "public" horse inventories.[8] Furthermore, Lewis recorded that the remuda had nine horses and a mule, but Clark considered the herd size consisted of ten horses. Eventually, both captains reported the entire herd size in number of horses and included private horses in the herd size inventories.

Captain Lewis started the Continental Divide portage on foot in command of nine horses, a mule and two rented horses loaded with cargo. The caravan, accompanied by a mounted warrior, also included the two private horses and Shoshone women carrying some of the Corps' baggage when it began to traverse the 38-mile portage. A warrior offered Captain Lewis a horse to ride, but when the ailing Private Peter Weiser was unable to continue, he was given the borrowed horse to ride. The next day Lewis had to negotiate with the Shoshone leader Cameahwait to prevent his band from going on a buffalo hunt and consequently leaving the expedition stranded on the east side of the Continental Divide. Lewis promised to compensate the men and women that assisted in the transport of the cargo and desperately persuaded the Shoshone to continue with their assistance.

The caravan arrived at a Shoshone village after completing the two-day Continental Divide portage and was informed of the peril that faced them. Inexplicably, Lewis' journal documentation ceased after the caravan reached the Shoshone village. This further complicated the enumeration of the size of the Corps' remuda. Because of Lewis' silence, documentation is dependent on Clark's herd size inventories and a detailed examination of the historical records. From the very beginning of the expedition, journal records are seldom exactly clear on how many horses were in service at a given time during the journey. The last four days at the Shoshone village are no exception and may be one of the most confusing times for determining herd size. The co-captains were separated in two different encampments and Clark undoubtedly recorded his journal documentation at a later date. His report of 22 horses bought by Lewis was a statement on the total number of horses Lewis had purchased and not an accounting of additional horses purchased at the Shoshone camp on the river. Lewis purchased only thirteen horses while trading at the Shoshone camp on the west side of the Continental Divide.

The final Shoshone horse was traded for Clark's pistol, a government musket, one hundred lead balls, powder and a knife. More horses could not be obtained without depleting the Corps' armaments. Clark's report, "Completed us to 29 horses," has resulted in confusion for historians tabulating the Corps' herd size.[9] Sergeant John Ordway recorded that there were 30 in the herd and all but two horses were used as pack stock.[10] Summation of horse acquisitions from daily journal entries accounts for 29 horses and one mule in the remuda when the Corps left the Shoshone camp.

Ordway's description of the herd raises another question pertaining to the configuration of the caravan. Other than Sacagawea, who rode the second horse not used in the packstring? Captain Clark provides the answer four days later: "Sent 2 men back with the horse which Capt Lewis rode …"[11] He offers no answer for the question of whether he (Clark) was on foot when the caravan started to traverse the "Mountains Their Tops Covered with Snow."[12]

Daily Horse Herd Size Tabulation #1
Portaging the "Dividing Range"

Date	Additions	Loss	Herd Size	Remarks
8/18/05	3	0	3	Captain Lewis buys 3 horses.
8/18/05	1	0	4	Two corpsmen buy a horse.
8/20/05	1	0	5	Private Cruzatte buys a horse.
8/22/05	5	0	10	Captain Lewis buys 5 horses.
8/24/05	4	0	14	Captain Lewis buys 3 horses and a mule.
8/24/05	1	0	15	Charbonneau buys a horse for Sacagawea.
8/28/05	13	0	28	Captain Lewis buys 13 horses.
8/29/05	1	0	29	Captain Clark buys a horse.
8/30/05	1	0	30	Captain Clark buys a horse.
8/30/05				

Discrepancies

Captain Clark inventoried 29 horses in the Corps' horse herd. Sacagawea's mount was not included in his herd size inventory.

Sergeant Ordway recorded 30 horses in the Corps' horse herd.

Traversing "Mountains Their Tops Covered with Snow"

After leaving the Shoshone, the Corps took a rugged cross-country route in an attempt to reach the Columbia River. Unshod horses slipped and fell down the steep mountainsides and cut their feet on sharp rocks. Some horses fell and rolled down slopes, resulting in one being crippled and two exhausted pack animals being left on the trail. The three horses were not killed, eaten, or abandoned on the 53-mile trek. Even though there is no accounting of their disposition in the daily journal entries, they are accounted for in the next journal inventory of herd size a month later.[13]

A misinterpreted passage in the journal records is a short interlineation that Gary Moulton prints as "<killed Seven>." The original recording was deleted by Captain Clark and restored by the editor of the journals.[14] Perhaps at a later date Clark started to write about the killing of seven deer several days earlier, realized he had the wrong date, and erased his error. Seven of the Corps' horses did not die on the traverse of present-day Saddle Mountain, as has been reported in a previous WPO article.[15]

The caravan descended from the mountains and was fortunate to meet a large band of "Flatheads" with 500 "ellegant horses" in today's Bitterroot Valley. The next day Captain Clark purchased thirteen horses, not elaborating on the price, and exchanged seven of the Corps' worn-out horses. With the new additions, the pack loads for the horses were lightened before continuing the journey. Clark did not inventory the horse herd when the caravan continued down the valley and also did not mention the purchase of mares with colts. Private Joseph Whitehouse, however, does account for the purchase of three colts and provides an explanation for doing so: "in case we should be without provisions, that we might have something to subsist on."[16] The three colts plus an Indian stray found by Captain Clark were eventually added to the scant provisions for the hungry trekkers on their way across the mountains.

Whitehouse also provided some supplementary information about the arrangement of the caravan. Four of the horses not needed for carrying cargo were assigned to hunters. Summations of daily journal entries account for 37 pack horses, four horses for the hunters, Lewis' and Sacagawea's riding horses, plus three colts in the caravan. Whitehouse also noted, "Several men had to take 2 horses…"[17] Although it is not specifically documented, the captains probably assigned a corpsman to lead a horse and take care of its grazing requirements, plus secure nightly containment. Even with these precautions, a hunter's herd-bound horse escaped and ran off to rejoin its former keepers.

Across "The Great Mountain"

It took eleven days for the caravan to cross "The Great Mountain."[18] Their Shoshone guide directed the captains to follow a Native American trail used to access buffalo country. The steep rocky trail was thickly timbered and the expedition struggled to continue westward in winter conditions. In the crossing, the caravan followed two alternate trails from the main route and descended to lower elevations. The

alternate trails were also clogged with downed timber that fatigued the horses and exhausted the famished corpsmen. It is a curiosity why a lame horse found in a meadow was not included in that evening's meal. On another occasion, two exhausted packhorses were left behind when the caravan continued to escape the clutches of winter's onset. Why the two horses were not butchered is mysterious; perhaps there was hope of retrieving the fatigued pack horses later.

Captain Clark took a mounted detachment of six hunters and proceeded ahead of Captain Lewis' main party to search for a way out of the high country and hopefully obtain provisions. Captain Lewis hurried on after the caravan's late start; Private Alexander Willard's pack horse was missing, not found, and lost.

Clark found an abandoned skinny horse and immediately had breakfast prepared for his starving cadre, then hung up the rest of the carcass for the main party. When Captain Lewis stopped the caravan to have a meal of horse beef, Private Baptiste Lepage lost a pack horse. Sergeant Gass revealed that the horse got into the bushes while the meat was being loaded and was left behind when the caravan continued down the trail.[19] Two experienced woodsmen with a horse were dispatched to search for the lost horse. Private Whitehouse is the only journalist who gave a description of the pursuit. The two corpsmen found the lost horse with its packs, but during the ensuing night both the pack horse and their own horse disappeared. The "rescuers" had to carry the baggage on their backs to catch up with the caravan.

Captain Clark's detachment descended from the mountain and approached a Nez Perce Indian village in a mountain prairie. After socializing with their hosts, Private Reuben Field was sent back up the mountain with a pack horse loaded with provisions to feed Captain Lewis' main group. Captain Clark then hired a guide to lead him and his detachment to a chief fishing on the "Kooskooske River."[20] After a seventeen-mile nighttime ride, three miles of which was on a steep hillside, they reached the river and met the chief. On the return to the mountain prairie the next day, Clark left the hunters at the river to procure provisions. He exchanged horses with Private John Shields, but was bucked off the young horse three times on the steep hillside and hurt his hip.

The expedition was moved from the mountain prairie encampment to the Clearwater River. Captain Lewis was so weak that he could hardly ride a gentle horse provided by the chief. Ailing corpsmen with gastrointestinal ailments rode the Corps' weak and weary horses. Before the caravan departed, Private John Colter was dispatched to ride back into the mountains and hunt for the two lost horses. Three days later he brought one of the horses back to "Canoe Camp" where Captain Clark was preparing for a transition from equestrian to waterborne transportation.[21] The Corps' hunters had minimal success in their forays and, in desperation, a horse was butchered to make soup for the sick corpsmen.

While dugouts were being constructed, Clark made arrangements to leave the Corps' horses in the care of the Nez Perce until the expedition's homeward journey. Before the waterborne expedition departed, the horses were branded and their forelock cropped to facilitate later identification in the large Nez Perce horse herd. Clark reported that 38 horses were branded, in agreement with inventories by both Sergeant Ordway and Private Whitehouse.[22] The journalists' inventories of the horse herd correspond with the number in the herd determined by tabulating daily journal entries.

The captains were now well aware of the challenges that faced them and the importance of horse transportation for the homeward bound excursion. After the expedition returned to St. Louis, the captains reported to President Jefferson that horses would be important for crossing the vast expanse west of the Continental Divide, concluding, "…horses are to be obtained from the Indians of the Rocky Mountains and west of them (to) reduce the expenses of transportation over this portage. …"[23]

Daily Horse Herd Size Tabulation #2 Across "The Great Mountain"

Date	Additions	Loss	Herd Size	Remarks
8/30/05	0	0	30	30 head in herd when Corps left Shoshone camp.
9/5/05	11	0	41 plus 3 colts	Captain Clark buys 11 horses.
(Subsequent daily herd size tabulations included Sacagawea's mount, but not the 3 colts.) Private Whitehouse reported purchase of mares with colts.				
9/6/05	2	0	43 plus 3 colts	Captain Clark buys 2 horses.
9/7/05	0	1	42 plus 3 colts	A hunter loses his horse.

Date	Additions	Loss	Herd Size	Remarks
9/14/05	0	Colt	42 plus 2 colts	Colt eaten.
9/15/05	0	2	40 plus 2 colts	2 worn out horses left on the trail and not retrieved.
9/16/05	0	Colt	40 plus a colt	Colt eaten.
9/17/05	0	Colt	40	Colt eaten.
9/18/05	0	1	39	Private Willard loses a horse.
9/22/05	0	1	38	Another horse lost while looking for Private Willard's horse.
9/27/05	1	0	39	Private Colter returns a lost horse.
10/2/05	0	1	38	Horse eaten.
10/5/05	0	0	38	Captain Clark, Sergeant Ordway, and Private Whitehouse reported 38 branded. ∎

Dr. A. G. Wesselius is a retired veterinarian who has spent his life working with horses and currently volunteers his pack string for back country trail maintenance. An active Lewis and Clark Trail Heritage Foundation member, "Doc" serves on the board of directors for the Washington State Chapter.

Notes

1. Gary E. Moulton, ed., *The Journals of the Lewis and Clark Expedition*, 13 vols. (Lincoln: University of Nebraska Press, 1983-2001).

2. Paul Russell Cutright, *History of the Lewis and Clark Journals* (Norman: University of Oklahoma Press, 1976), 218.

3. Inflation estimates from website www.westeff.com/inflation. Loren C. Gibbons (*We Proceeded On*, Vol. 28, No. 3, p. 28) reported the price range for horses "probably varied between $2 and $20."

4. James P. Ronda, *Lewis and Clark Among the Indians* (Lincoln: University of Nebraska Press, 1984), 154.

5. Francis Haines, "Where Did the Plains Indians Get their Horses?" *American Anthropologist*, vol. 40, no. 1 (January-March, 1938), 112-17.

6. Author's note: Hand-unit of measurement for size of a horse at the withers equivalent to 4 inches. Horses 15 to 16 hands are 60 to 64 inches in height. Horses 14 to 14 ½ hands high are 56 to 58 inches in height.

7. Alan H. Hartley, *Lexicon of Discovery* (Pullman: Washington State University Press, 2004) 170. "Sore back" is the opposite of "sound back." A sore back is a horse that has been injured by overuse or a poorly fitted saddle. Author's note: "Sore back" is still used in today's lexicon of horsemen. It is a musculoskeletal condition in equine where back discomfort is exhibited when muscles and ligaments that hold the vertebrae in alignment are inflamed and/or strained, plus vertebra can be injured. Repeated use of an ill-fitting saddle causes bruising of underlying soft tissue and in severe cases the spinal processes of the thoracic and/or lumbar vertebra are injured. Continual excessive use of an ill-fitting saddle results in hair discoloration over the injured tissues of the back and withers.

8. Hartley 139. "Public" in this context means belonging to or under contract with the government.

9. Moulton, *Journals*, 5:175. The author is of the opinion that there have been errors in reporting the size of the remuda that left the Shoshone camp. Robert R. Hunt, "Hoofbeats & Nightmares: A Horse Chronicle of the Lewis and Clark Expedition," *We Proceeded On*, 20 (November 1994), and 21 (February 1995), has, "By Aug. 30 they had purchased 29 or 30 (the number varies in the records…." Loren G. Gibbons, "All Them Horses and One Poor Mule: A numerical accounting of the Corps of Discovery's livestock," *We Proceeded On*, 28 (August 2002), admits there were multiple errors in the journalist's summarizing of the number of horses in the Corps' herd. His assumption, "After leaving the Shoshone with a herd that probably numbered 40 animals…," however, is erroneous. Kenneth W. Karsmizki, *Cargo: Equipment and Supplies of the Lewis and Clark Expedition* (The Dalles, OR: Wasco County Historical Museum Press, 2005), 24-25, has 39 head of pack stock.

10. Moulton, *Journals*, 9:214.

11. Moulton, *Journals*, 5:185.

12. For "Mountains Their Tops Covered With Snow" (today's Saddle Mountain in Ravalli County, MT), see Moulton, *Journals*, 1 (Atlas) map 68.

13. Moulton, *Journals*, 5:186.

14. Moulton, *Journals*, 5:196.

15. Gibbons, *We Proceeded On*, 27. The insinuation that seven horses were killed on the traverse of today's Saddle Mountain is incorrect.

16. Moulton, *Journals*, 11:303.

17. Moulton, *Journals*, 11:303.

18. Moulton, *Journals*, 1 (*Atlas*), map 70. "The Great Mountain," today's Bitterroot Mountains, is not specifically named in the journals.

19. Moulton, *Journals*, 10:145.

20. Today's Clearwater River in Idaho was "Kooskooske River," identified in Moulton, *Journals*, 1 (*Atlas*) map 72.

21. The expedition's "Canoe Camp" was near today's Orofino in Clearwater County, ID.

22. Moulton, *Journals*, 5:248; 9:234; and 11:338.

23. Jackson, *Letters*, 1:325-327.

The Voyage of the Prairie Dog

By Clay S. Jenkinson

Photograph of a prairie dog by Jerry McBride, *Durango Herald*.

Lewis and Clark first encountered the prairie dog on September 7, 1804, in that 98-mile serpentine stretch of the Missouri River which forms the border of Nebraska and South Dakota. The nearest village today is Ponca, Nebraska. It was at this point that the expedition was leaving the Midwestern prairies and entering the shortgrass Great Plains for the first time. It was during this period that the expedition met its first buffalo (August 23), prairie dogs (September 7), and pronghorn antelope (September 14).[1] Like everyone before and since, the men of the Lewis and Clark Expedition were enchanted by their first encounter with this diminutive creature that barked like a miniature dog, stood on its hind legs, and lived in elaborate subterranean villages.

Lewis, as usual during the travel season of 1804, was silent, but his estimable partner in discovery, William Clark, wrote,

> …in decending this Cupola, discovered a Village of Small animals that burrow in the grown (those animals are Called by the french Pitite Chien) Killed one & Cought one a live by poreing a great quantity of water in his hole we attempted to dig to the beds of one of thos animals, after diging 6 feet, found by running a pole down that we were not half way to his Lodges, we found 2 frogs in the hole, and killed a Dark rattle Snake near with a Ground rat in him, (those rats are numerous) the Village of those animals Covs. about 4 acrs of Ground on a Gradual decent of a hill and Contains great numbers of holes on the top of which those little animals Set erect make a Whistleing noise and whin allarmed Slip into their hole— we por'd into one of the holes 5 barrels of water without filling it, Those Animals are about the Size of a Small Squrel & thicker, the head much resembling a Squirel in every respect, except the ears which is Shorter, his tail like a ground Squirel which thy Shake & whistle when allarmd. the toe nails long, they have fine fur & the longer hair is gray. . . .[2]

Almost no child of the Great Plains has failed to try to flush out a ground squirrel or a prairie dog with the identical waterboarding method used by the expedition.

It seems likely that this hard-won specimen traveled with the expedition upriver through South Dakota and the bottom half of North Dakota between September 7 and October 26, 1804, wintered in a specially-made willow cage at Fort Mandan, and then started downriver with Corporal Richard Warfington on April 7, 1805, bound for the national capital in Washington, DC. It is not certain that the prairie dog of the keelboat's downstream journey was the same one Lewis and Clark flooded out of its subterranean village seven months previously, but the journals provide no alternative narrative. The expedition's privates had learned the hard way how difficult it is to capture a live prairie dog. They were unlikely to make a habit of it, if the live specimen of September 7 survived that and other ordeals.

The keelboat arrived in St. Louis 45 days after leaving Fort Mandan. All of the cargo was entrusted to Pierre Chouteau, who had played an important role in fitting out the expedition's flotilla in the winter and spring of 1804. Chouteau first referred to the artifacts on June 12, 1805.[3] Among Chouteau's responsibilities was to make sure the artifacts and specimens sent down river by Lewis and Clark continued on their journey to the national capital. All of the live specimens were still alive when they reached St. Louis. Records indicate that one Henry K. Mullin had been paid $5 "for keeping four magpies, a prairie hen and a prairie dog."[4]

Three weeks later Chouteau wrote to President Jefferson to report that the cargo had been sent down the Mississippi River to New Orleans. "I thought that this would be the surest way to have these animals arrive safe and sound in federal city," Chouteau wrote. Chouteau also wrote to Governor William Claiborne in New Orleans: "I send them to you by Mr. Mallock according to his receipt here annexed, as the only proper authority to take them with safety to Washington city. I beg you will give me notice of theyr [sic] safe arrival at New Orleans."[5]

Three weeks later the precious cargo reached New Orleans. On July 6, 1805, Governor Claiborne wrote to Jefferson to report the arrival of the specimens, but he was worried about the prairie dog. He reported that "a small living animal somewhat resembling our common Gray squirrel . . . seems to be sick & I fear will not live." Claiborne informed the president that he was sending the cargo to Baltimore in a ship named *Comet*. The boat would not be leaving New Orleans for two weeks.[6]

Two days later (July 8) Claiborne was able to send Jefferson good news. The prairie dog was looking better; Claiborne was now convinced that it might survive.[7] As the *Comet* prepared to make its long sea voyage, Claiborne wrote to the Collector (the port official) of Baltimore (July 23). "[I]n one case is a living animal called the wild dog of the Prairie, and in the other are four Birds, called the Missouri Magpies. I hope they may reach you safely, and I must ask the favour of you to forward them by land, to the city of Washington."[8] Apparently the grouse had died by the time Claiborne wrote this letter. All things considered, humans are more likely to fret over the fate of a mammal than of a bird.

Jefferson had written to Claiborne on July 14, 1805, to make sure everyone knew how important the Lewis and Clark shipment was to him. "Altho' I know you will give them all possible attention, yet I could not avoid recommending them particularly to you." Jefferson said he would prefer that the artifacts be shipped to Richmond, where he could have earlier access to them, but he trusted Claiborne to make the decision, depending on the availability of ships, their destination, and timing.[9]

By the time the first artifact treasury of the expedition reached Washington, DC, Jefferson was on his annual vacation at Monticello. He steadfastly refused to remain in what he called the "malarial" climate of the Chesapeake during the dog days of summer. Jefferson's White House major-domo Etienne Lemaire wrote to Jefferson on August 12, 1805, to report: "I have just received by Baltimore a barrel with 4 boxes, and a kind of cage in which there is a little animal very much resembling the squirrel, and in the other a bird resembling the magpie of Europe." Three of the four magpies died between New Orleans and Baltimore. The enclosure in which the prairie dog made the epic journey must have been decidedly makeshift for Etienne to dismiss it as "a kind of cage."[10]

The first public notice of the prairie dog was published in the *Connecticut Courant* on August 28, 1805, under the title "Louisiana Curiosities."

> *Yesterday the Prairie Dog* and Magpie sent by capt. Lewis, arrived at the city of Washington. The latter is precisely the Magpie of Europe; but how Mr. Lewis, or any one in the least acquainted with classing in Zoology, came to call the *ground fox squirrel* a dog it is indeed difficult to imagine—it is precisely in shape, size, colour, in the choice of its food, and its manner of feeding by fitting up and turning handily in its nuts, &c, in its paws, a *fox squirrel*; but it has lost part

> of the hair from its tail on the journey, *if the hair was ever as long or usual in this species of squirrel*, and this is the only novelty about it.[11]

The Federalist *Courant's* incredulity notwithstanding, the creature has been popularly known as the prairie dog ever since.

Secretary of War Henry Dearborn stopped by the White House to inspect the Lewis and Clark artifacts, took charge of their conservation, and sent Jefferson a detailed report of the condition of each item. He wrote to Jefferson at Monticello on August 15, 1805. Some of the robes and peltries were covered with vermin and damaged by water. "[S]ome of the undressed skins are considerably injured," he reported. Dearborn had all the materials cleaned, spread out, and dried, the vermin killed, and everything carefully repacked to await the return of Jefferson. Dearborn wrote, "One magpie and the little burrowing dog or squirrel, are alive and appear healthy, the latter is undoubtedly of the family of what we call woodchucks, or ground hogs."[12]

The late Paul Cutright's conclusion is delightful. "The incredible fact remains … that the two animals still alive had survived a journey of more than four months, in which time, on river barge and ocean-going vessel, they had travelled in excess of 4,000 miles, had experienced wide and sudden shifts in temperature, had been attended by at least half a dozen different caretakers, and had been provided with an unknown variety of foods. Only the hardiest of animals could have withstood the multiple abuses inherent in such a journey."[13]

When Jefferson received the letter from his maître d'hôtel, he responded instantly (August 17). Among other things he instructed Lemaire to take particular care "of the squirrel & pie [magpie] . . . that I may see them alive at my return. Should any accident happen to the squirrel his skin & skeleton must be preserved."[14] Lemaire wrote to Jefferson on August 20 to assure him that the live specimens were under his special care. "The magpie and the kind of squirrel are very well; they are in the room where Monsieur receives his callers; if, Sir, you have any orders to give me, I beg you to command me."[15] America's first great presidential naturalist (and only slightly less accomplished than Theodore Roosevelt) did not return to the national capital until October 4, fully six weeks after his anxious letter.

Once Jefferson had satisfied his curiosity in examining all of the Lewis and Clark artifacts, and enjoyed his first and only encounter with a prairie dog, he shipped almost everything to his friend Charles Willson Peale of Philadelphia, painter, impresario, amateur scientist, wax sculptor, and America's first museum director. Jefferson was particularly concerned about the prairie dog. "I am afraid of the season of torpidity coming on him before you get him," Jefferson wrote. "He is a most harmless & tame creature." Jefferson urged Peale to take immediate custody of the prairie dog. "You will do well to watch Capt. Cormack's arrival at the stage office, that no risks from curiosity may happen to him between his arrival & your getting him." Apparently, the president feared that the creature's inherent delightfulness might cause Philadelphians to steal or harass "him." It is uncertain whether Jefferson had taken the time to ascertain the prairie dog's gender.[16]

At the time the United States had no national museum. Most of what Cutright called the "booty" of the Lewis and Clark Expedition wound up in Peale's hands; almost all of it eventually burned or dispersed or disappeared. Jefferson's fiscal conservativeness and strict constructionism made it impossible for him to authorize a public museum worthy of the priceless artifacts Lewis painstakingly sent (and later brought) to him.[17] When he received the shipment, Peale wrote to Jefferson that the prairie dog "is a handsome little Animal, smaller and much more gentle than our Monax [the woodchuck] & I expect like it will not eat during the winter, for this eats but little at present. It shall be kept in a Warm Room for trial." He also provided details about the one still-living magpie. In his accession book, the "Memorandum of the Philadelphia Museum," Peale referred to the prairie dog as "A living marmotte, from up the Osage Country."[18]

Thousands of citizens and a number of prominent scientists visited Peale's museum to see the Lewis and Clark artifacts and observe the two remaining live specimens. Benjamin Smith Barton decided that the prairie dog was "Arctomys Citillus, common in the North of Asia, never known, before, to be a native of our Western cont [i.e., continent]."[19] Ten years later George Ord gave the prairie dog the Latin binomial *Arctomys ludovicianus*. "*Ludovicianus*" signifies playfulness, delightfulness.[20] The prairie dog could not have amused visitors very long that winter. On January 12, 1806, Peale informed Jefferson that "The Marmot sleeps, and the Magpie chatters a great deal." Jefferson was right about the torpidity; prairie dogs hibernate in the winter. Such written accounts as we have suggest that this prairie dog slept through the winter of 1805-06.

Unfortunately, the last documentary evidence of the Lewis and Clark prairie dog does not inform us of how long the critter lived, the circumstances of its death, or the disposition of its bones and pelt. It seems certain that Peale would have mounted it for his permanent exhibits, or at least preserved the peltry in the manner that Jefferson had instructed Etienne. On April 5, 1806, Peale wrote, "I will attemp [sic] a description of the Marmot accompanied with a drawing of it, when it becomes more animated, as it must be soon, as the spring becomes warmer, at present it stirs but little. It is a pleasing little Animal, and not in the least dangerous to handle like our Ground Hog."[21]

At that moment, on April 5, 1806, Lewis and Clark were laboring up the lower reach of the Columbia River, not far from where the Willamette River disembogues into the Columbia at today's Portland. Several of the expedition hunters brought in three live bear cubs that day, which the captains traded to local Indians for Wapato root to supplement the semi-spoiled elk meat on which the men and Sacagawea now mostly subsisted.[22]

The epic journey of the celebrated prairie dog from Ponca, Nebraska, to Washington, DC, lasted 339 days. When Jefferson finally met the prairie dog for the first time, 392 days had passed (one year, 27 days) since its capture. The prairie dog lived in the White House with President Jefferson from October 4-21, 1805. When Charles Willson Peale wrote his last words about the still-alive prairie dog, one year and seven months had passed.

All we lack is an obituary.

The heroic *petite chien* of the Lewis and Clark Expedition, rudely unhoused on September 7, 1804, just short of the South Dakota border, undertook a journey worthy of Captain Cook or John Ledyard. It traveled from the bottom of South Dakota to Fort Mandan, where it wintered among the Mandan and Hidatsa, then traveled by keelboat to St. Louis, by some other vessel to New Orleans, then, after a period of touch and go convalescence, by ship to the upper Chesapeake. From Baltimore it traveled overland by wagon to the District of Columbia, where it had to cool its heals for almost two months before it could get a meeting with the third President of the United States. Like so many politicians, Jefferson proved to have a short attention span with respect to the celebrated barking squirrel of the West, and he almost immediately shipped it to Philadelphia, where, sometime after April 5, 1806, it ascended to the great underground prairie dog village of the . . . er, sky. It is almost certainly the travelingest prairie dog that ever lived. It found temporary homes at the wooden compound at Fort Mandan, in one of Pierre Chouteau's warehouses in St. Louis, at some sort of transshipment center in New Orleans, at a collections port facility in Baltimore and then at the White House, all that before it closed its peripatetic career on the second floor of America's Independence Hall, among the experimental dioramas of America's first true museum.

Unlike President Theodore Roosevelt's pet badger Josiah, the prairie dog of the Lewis and Clark Expedition was never named. ∎

Notes

1. See Gary Moulton, ed., *The Journals of the Lewis and Clark Expedition*, 13 vols. (Lincoln: University of Nebraska Press, 1983-2001), 2:502; 3:53; 3:70.

2. Moulton, *Journals*, 3;53.

3. Paul Russell Cutright, *Lewis and Clark: Pioneering Naturalists* (Lincoln: University of Nebraska Press, 1969), 376.

4. See 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), 1:248-49.

5. Quoted in Cutright, *Pioneering Naturalists*, 376.

6. Jackson, *Letters*, 1:250.

7. Jackson, *Letters*, 1:250.

8. Jackson, *Letters*, 1:253.

9. Jackson, *Letters*, 1:252.

10. Jackson, *Letters*, 1:253-54.

11. Transcript by Stephen Dow Beckham, from a broadside framed in his study in Lake Oswego, OR.

12. Jackson, *Letters*, 1:254-55.

13. Cutright, *Pioneering Naturalists*, 378.

14. Jackson, *Letters*, 1:255.

15. Jackson, *Letters*, 1:256.

16. Jackson, *Letters*, 1:261.

17. Cutright, *Pioneering Naturalists*, 392.

18. Jackson, *Letters*, 1:267.

19. Jackson, *Letters*, 1:271.

20. Cutright, *Pioneering Naturalists*, 381.

21. Jackson, *Letters*, 1:301-02.

22. See Moulton, *Journals*, 7:75-77.

WPO Quiz

Answers for the August 2018 Quiz

When artist Peter Waddell was commissioned by the White House Historical Association to create a painting of Thomas Jefferson and Meriwether Lewis in the White House, he was instructed to include only objects that Jefferson is known to have possessed or created.

In the August issue of WPO, we challenged you to identify as many of the objects in the painting as possible. What follows is a complete inventory of the objects in the painting.

The "dramatic moment" of the painting is June 20, 1803, the date of Jefferson's famous instructions to his private secretary and aide-de-camp Meriwether Lewis, for what became known to history as the Lewis and Clark Expedition. Jefferson and his first secretary Lewis lived together in the executive mansion for more than two years before Lewis left Washington, DC, on July 5, 1803, for Harper's Ferry and the West. Writing to his daughter Martha Jefferson Randolph at the beginning of his presidency, on May 28, 1801, Jefferson had reported that the White House was a cavernous headquarters for a widower and a single executive aide. "Capt Lewis & myself are like two mice in a church," he mused. Lewis lived and worked in the East Room. Half of it was his private chamber, the other half—separated by an imperfect partition—was his office.

The room that Jefferson chose for his White House study now serves as the State Dining Room. The room is 36 by 48 feet, and 18 feet high. It now seats up to 140 guests. The room received its present name during the presidency of James Monroe, one of Jefferson's principal protégés.

As Jefferson took office after one of the most hotly-contested elections in American history, the editor of the District of Columbia's newly-established *National Intelligencer* was a man named Samuel Harrison Smith. His young wife, the former Margaret Bayard, was the daughter of a stern Federalist. She encountered president-elect Jefferson for the first time in the late autumn of 1800. She had been led to expect that Jefferson, in the manner of Britain's radical politician John Wilkes, would be the "violent democrat, the vulgar demagogue, the bold atheist and profligate man I have so often heard denounced by the federalists." Instead, she met a "man so meek and mild, yet dignified in his manners, with a voice so soft and low, with a countenance so benignant and intelligent," that she was rendered speechless. She developed what can only be characterized as a crush on Jefferson, a lasting platonic love that inspired her to leave a wonderful, even priceless written record of the human side of Jefferson's presidency. Much of Waddell's painting was made possible by Mrs. Smith's descriptions of Jefferson's character, clothing, amusements, accoutrements, tools, artifacts, hobbies, eccentricities, and furnishings.

Mrs. Smith described today's State Dining Room, which Jefferson called his "cabinet," beautifully:

> The apartment in which he took most interest was his cabinet; this he had arranged according to his own taste and convenience. It was a spacious room. In the center was a long table, with drawers on each side, in which were deposited not only articles appropriate to the place, but a set of carpenter's tools in one and small garden implements in another from the use of which he derived much amusement. Around the walls were maps, globes, charts, books &c. In the window recesses were stands for the flowers and plants which it was his delight to attend and among his roses and geraniums was suspended the cage of his favorite mocking-bird. . . .

Here is a list (roughly, clockwise from the upper right) of the "furnishings" Peter Waddell has included in his painting of Jefferson's study. Much of the information provided here comes from the remarkable book, *The Worlds of Thomas Jefferson at Monticello*, edited by Susan R. Stein, compiled by the amazing Monticello staff.

-Thomas Jefferson (1743-1826). Jefferson was America's greatest Enlightenment figure. He read the corpus of the Enlightenment's greatest texts early in life and devoted himself thereafter to the principles of reason, science, reform, lucidity, skepticism, and progress. He had one of the largest private libraries in America. He was cheerful, benevolent, optimistic, and forward-looking. Several other exploration missions fanned out across the American West during his presidency, but the Lewis and Clark Expedition was the only one that received the fullness of his attention. Jefferson kept his teeth until the end of his life, needed spectacles only for reading in poor light, and wore his hair loosely tied in a queue. In Waddell's painting Jefferson is wearing a

parti-colored banyan, a loose fitting dressing gown derived from "oriental," i.e., Persian, sources. Benjamin Rush and Isaac Newton were both painted wearing banyans during this period.

-Meriwether Lewis (1774-1809). Lewis was the first of Jefferson's private secretaries. He was 29 years old at the time of this encounter. Jefferson was 60. Lewis grew up within sight of Monticello. A decade earlier he had applied to participate in a previous Jefferson scheme to explore the West, to be led by the French botanist Andre Michaux. That effort collapsed. Jefferson had then thought Lewis too young for such an undertaking. Now, in the early summer of 1803, thanks to a Congressional appropriation of $2,500 and authorization to requisition men and equipment from US Army facilities, Jefferson's dream of a reconnaissance of the interior of the North American continent was about to get underway.

1-Engraving entitled, "A View of the Western Branch of the Falls of Niagara, Taken from the Table Rock, Looking Up the River, Over the Rapids," by Frederick Christian Lewis (1779-1856), after John Vanderlyn (1775-1852). At Monticello this engraving was displayed in the Dining Room. Jefferson never saw Niagara Falls, but he believed the falls to be one of the greatest wonders of North America. When Meriwether Lewis "discovered" the Great Falls of the Missouri in today's Montana on June 13, 1805, he wrote, "I hope still to give to the world some faint idea of an object which of it's kind I will venture to ascert is second to but one in the known world." By this Lewis meant Niagara Falls.

2-Map of eastern North America. Jefferson collected maps all of his life. His father Peter Jefferson was a cartographer. When Jefferson printed his only book, *Notes on the State of Virginia*, in France in 1785, he lavished attention on the engraving of his father's map of Virginia. The map shown here, somewhat embellished by the artist, is probably Aaron Arrowsmith's 1802 "Map of the United States of North America Drawn from a Number of Critical Researches." Jefferson appears to have ordered the map in 1803 with the Lewis and Clark Expedition in mind. Jefferson insisted upon the English edition of Arrowsmith's map, the best available as the nineteenth century began, because he believed that English engravers were better than their American counterparts. Lewis carried a copy of the huge map with him into the unknown lands of the Louisiana Purchase. His job was to fill in the enormous blank spot west of the Mississippi River.

3-Engraving of the new Capitol at Richmond. While Jefferson was serving as a minister plenipotentiary in France (1784-89), he was asked by the Virginia Assembly to make suggestions about the design of a new state capitol in Richmond, and perhaps engage a European architect to submit a design. As usual in all that he did, especially in the arena of aesthetics, Jefferson took the assignment very seriously. From his examination of books of antiquities, he decided that the Roman Maison Carrée in Nimes was "the most perfect and precious remain of antiquity in existence," and he engaged the French architect Charles-Louis Clérisseau to make a plaster model. All of this took time; trans-Atlantic communications were slow and unreliable. The result

Courtesy of the White House Historical Association. Originally created for publication in "President Thomas Jefferson's White House Museum," *White House History*, the quarterly publication of the White House Historical Association, number 35, Fall 2013.

Peter Waddell's Painting of Jefferson's White House Study

was magnificent. The capitol at Richmond is one of Jefferson's greatest contributions to America culture. He was justly proud of his agency in the project, which was undertaken to "improve the taste of my countrymen, to increase their reputation, to reconcile to them the respect of the world, and procure them its praise…."

4-Perspective glass. Also known as a *vue d'optique*, or *zograscope*. The angled mirror and the magnifying lens enabled individuals to see flat objects, like maps, in a kind of 3D. According to Monticello's Lucia C. Stanton, "because the mirror reversed the image, engravers of the period produced prints in reverse particularly destined for use with perspective glasses. . . ." For more information, see Susan R. Stein's *The Worlds of Thomas Jefferson at Monticello*, 426.

5-Candelabra with reflector. This was one of Jefferson's reading lamps. The candle cups and the reflector could be adjusted to provide best light for the user. The reflector can be angled down to illuminate a book or paper. When or where Jefferson purchased the lamp is unknown. George Washington had a similar lamp at Mount Vernon.

6-Porcelain figurines flanking engraving of Maria Cosway. The statuette on the left is probably Venus with Cupid. The one on the right is probably Hercules. Jefferson purchased at least ten "biscuit" statuettes during his time in France, four for Abigail Adams and six for himself, from a Paris merchant named Bazin. Jefferson wrote a bemused and slightly flirtatious letter to Abigail Adams about these statuettes on September 25, 1785.

7-Engraving of a portrait of Maria Cosway by Francesco Bartolozzi (1727-1815), from a painting by Richard Cosway (1742-1821). Jefferson met the celebrated Mrs. Cosway (painter, musician, coquette) in Paris in the autumn of 1786. She was the recipient of one of Jefferson's most famous letters, "My Head and My Heart," dated October 12, 1786. That they were mutually-enamored is certain; whether they consummated their romance is still a matter of conjecture. Jefferson invited Mrs. Cosway to come to Virginia to paint the Natural Bridge and the confluence of the Shenandoah and the Potomac, each of which, he said, was "worth a trip across the Atlantic." Mrs. Cosway never visited the United States, but she continued to write to Jefferson (and he occasionally to her) for the rest of his life. For Jefferson, the lesson was, "What happens in Paris stays in Paris."

8-Revolving bookstand. Monticello's Susan R. Stein believes that the bookstand, which could display five books at different angles, was probably designed by Jefferson himself and fashioned in the joinery at Monticello. Until recently, the ingenious stand was thought to have been intended for musical scores. *Worlds*, 290.

9-Book. According to Waddell, the open book is Johann Friedrich Blumenbach's *Manuel d'Histoire Naturelle* (1803). The illustration is of the now-extinct dodo bird (*Didus ineptus* in Linnaeus, now *Raphus cucullatus*). Blumenbach (1752-1840) was one of the great figures of the European Enlightenment, one of the founders of what then was called the "science of man." Kant and Schilling were deeply influenced by Blumenbach, as well as Prince Maximilian and Alexander von Humboldt.

10-Jefferson's spectacles. During his second term as president, Jefferson placed an order with Philadelphia optician John McAllister for spectacles. With his typical fastidiousness and attention to detail, Jefferson provided elaborate design specifications. He wanted glasses that he could look over the top of without removing them. He also asked for several bifocal designs. At the end of his 83-year life, Jefferson declared that of his five senses, his eyes had held up best.

11-Gardening tools. According to Margaret Bayard Smith, Jefferson kept a small set of carpenter's tools in one of the drawers of his large work table, and gardener's tools in another. One of Jefferson's most trusted slaves, Isaac, left a memoir of life at Monticello. Among many other fascinating revelations: "My Old Master was neat a hand as ever you see to make keys and locks and small chains, iron and brass. He kept all kind of blacksmith and carpenter tools in a great case with shelves to it in his library ... been up thar a thousand times; used to car coal up thar. Old Master had a couple of small bellowses up thar."

12-Jefferson's chaise lounge chair. Contrary to popular myth, Jefferson did not invent the Whirligig Chair and chaise lounge. He probably first saw such furniture in France, where *fauteuil de bureau* (swivel) chairs were common during the reign of Louis XVI. The version shown here is attributed to New York cabinet maker Thomas Burling, from whom Jefferson purchased a sofa and chair in 1790. The mean-spirited Federalist William Loughton Smith ridiculed Jefferson's chair. "Who has not heard from the Secretary [of State] of the praises of his wonderful Whirligig Chair, which had the miraculous quality of allowing the person seated in it to turn his head without moving his tail?" The rotating chair and the "sofa" were built as separate pieces of furniture, but Jefferson eventually pushed them together to ease his long legs when he spent long hours at the writing table. In his cabinet at Monticello Jefferson also had a rotating work table, a lazy Susan table, so that he could move from one work project to the next without disruption or loss of time. The version of the swivel chair at Monticello had candle holders affixed to each arm so that he could work comfortably after dark. See *Worlds*, 267.

13-Argand lamp. Jefferson learned of the Swiss scientist Ami Argand's revolutionary new lamp design in 1784. In a letter to his closest friend James Madison, Jefferson praised the bright-burning lamp with its hollow wick, for emitting "a light equal as is thought to that of six or eight candles." During his stay in London in 1786, Jefferson purchased a

total of three "plated reading lamps," presumably Argand's, for himself and friends. Jefferson eventually presented one of the lamps to the American Philosophical Society. Light mattered enormously to Jefferson. He employed octagonal architectural designs and Georgian windows to maximize light-gathering in his two homes, experimented with skylights (13 at Monticello alone), and purchased every innovative lamp available in his time. The Enlightenment artist Jacques Louis David's painting of Doctor Alphonse Leroy features a nearly-identical Argand lamp fueled by oil. Waddell used David's painting as a source for this lamp.

14-Globes. Like all figures of the Enlightenment, Jefferson was fascinated by globes. Two are pictured here. The one on the table resembles the one depicted in Cornelius Tiebout's 1801 engraving of Jefferson (from a painting by Rembrandt Peale), surrounded by scientific apparatus, including an electrostatic machine. When Jefferson learned of the auction of some of the property of the first president George Washington, he sought unsuccessfully to purchase the founder's terrestrial globe. Even during his second term as president, Jefferson continued to purchase the latest maps and scientific equipment, including a pair of "new British globes."

15-Document on Jefferson's desk. According to Waddell, the document on the table is Jefferson's instructions to Meriwether Lewis, dated June 20, 1803.

16-The book Lewis is touching. Mr. Waddell did not have any particular book in mind when he created the painting, but he was aware that Lewis had free access to Jefferson's libraries, both at Monticello and in the White House. Lewis carried a small traveling library with him up the Missouri River in 1804. One of the most important of those books, certainly the most provocative, was Alexander Mackenzie's 1801 *Voyages from Montreal, On the River St. Laurence, Through the Continent of North America, To the Frozen and Pacific Oceans, In the Years 1789 and 1793*. Mackenzie's journey across the continent in today's Canada gave Jefferson sufficient panic to get serious about sending the Lewis expedition to the Pacific. In many important respects, Lewis and Clark patterned themselves on Mackenzie, and at times, as David Nicandri has shown, borrowed his phraseology.

17-Teeth of *Megalonyx jeffersonii*. Actually, these fossil bones belonged an ancient member of the sloth family. Jefferson's fascination with extinct species (he was not altogether sure they were extinct!), included the mastodon, mammoth, and what Jefferson called "the Great-claw, or Megalonyx." He gave a learned paper on the Megalonyx for the American Philosophical Society. He also convinced his friends, including Meriwether Lewis and William Clark, to dig up fossil bones for him at Big Bone Lick, Kentucky. *Worlds*, 399-400. Jefferson's blank vocabulary grid of 250 "common" words in English included "the mammoth." Graze on, megafaun!

18-Maps on the table. Jefferson collected maps, a number of which can still be seen hanging in the east entrance of Monticello. Jefferson's father Peter Jefferson was, among other things, an explorer, surveyor, and cartographer. With Joshua Fry of the College of William and Mary, Peter Jefferson created the first comprehensive map of Virginia and helped establish the true boundary between the colonies of Virginia and North Carolina. Jefferson gathered maps for his protégé Meriwether Lewis and forwarded several to Lewis in St. Louis in the winter before the expedition ascended the Missouri River. There are also rolled-up maps on the top of the bookcase.

19-Theodolite. This device, used in surveying and celestial navigation, was purchased by Jefferson from mathematician Robert Andrews in 1778. The theodolite was made by Jesse Ramsden. Jefferson used this highly-sophisticated theodolite for a variety of purposes. With it he determined the longitude of Monticello and examined prominent features of the nearby landscape. In 1815, during his retirement, he used this theodolite to determine the elevation of the Peaks of Otter in the Blue Ridge Mountains. See Lucia Stanton's entry in *Worlds*, 356.

20-Bookcase. Jefferson famously confessed to John Adams, "I cannot live without books." Just how many volumes from his immense collection he brought to the White House during the presidential years is unknown. If there are approximately 27 books per shelf in Waddell's painting, this bookcase alone would contain nearly 300 volumes. Monticello's Pat Brodowski writes, "Each shelf is an entire unit, a dovetail box, and the boxes are carefully blended to look like one piece of furniture. The value of this design is when moving books. The entire shelf is moved, once packing materials surround the books, and the shelf becomes the crate." The library Jefferson sold to Congress in 1815 contained 6,707

volumes. Thereafter, when he discovered that he lived for the first time in a house devoid of books, he began to collect what became his third (and final) library. As always Jefferson purchased books he could not afford with money he did not have.

Peter Waddell

21-The chair in front of the bookcase. After Jefferson died in 1826, a Monticello inventory listed "28 black painted chairs." Windsor chairs were common in Jefferson's America. Jefferson recorded the purchase of at least 132 Windsor chairs in his lifetime. The standard color of Windsor chairs in Jefferson's time was green, but he preferred them to be painted solid black. Pat Brodowski writes, "Having just built a Windsor chair, I now know that the one pictured is called a 'Sack-back Windsor' and that Windsors were usually painted with two colors that eventually rub off revealing the typically lighter undercoat." Pat, the head gardener at Monticello, is essentially an embodiment of the Foxfire craft tradition.

22-The book ladder. Jefferson first saw a "folding ladder" during his brief time in Germany in 1788. Such ladders were often used in libraries in the eighteenth century. The two uprights of the ladder can be made to collapse into each other because the hinged, loosely-affixed rungs can be moved from a horizontal to a vertical position. Jefferson's ladder in the east entrance lobby at Monticello was used to service his famous calendar clock. The ladder was probably made in the joinery at Monticello. Among other things, Jefferson was a space efficiency obsessive.

23-Owl. Whether Jefferson ever engaged in taxidermy is unclear, but it is certain that he knew a good deal about the art. When he requested an elk to disprove the Comte de Buffon's "degeneracy theory" of America, Jefferson explained to his correspondent Archibald Stuart how he wanted the specimen prepared. "The most desirable form of receiving them would be to have the skin slit from the under jaw along the belly to the tail, and down the thighs to the knee, to take the animal out, leaving the legs and hoofs, the bones of the head, and the horns attached to the skin. By sewing up the belly &c. and stuffing the skin it would present the form of the animal." The owl is a symbol of Athena, the wisest of the Greek gods. Editor's note: The owl is the one object I question in Mr. Waddell's painting. It feels closer to Theodore Roosevelt than Thomas Jefferson.

24-Bust of George Washington. One of Jefferson's greatest cultural achievements was persuading the Virginia Assembly to commission the greatest sculptor of the age, Jean-Antoine Houdon (1741-1828), to sculpt George Washington. He convinced Houdon to make the long and dangerous voyage across the Atlantic to measure Washington for the magnificent pedestrian statue that now graces the rotunda of the Virginia capitol at Richmond. To Governor Benjamin

Harrison, Jefferson wrote from Paris, "There could be no question raised as to the sculptor who should be employed, the reputation of Mons. Houdon, of this city, being unrivaled in Europe." Houdon arrived at Mount Vernon on October 2, 1785. Jefferson had two portrait busts of Washington at Monticello, both derived from Houdon's original. Houdon's bust of Jefferson is the epitome of the Enlightenment.

25-Greek vase. Whether Jefferson ever actually owned a Greek vase is unknown. Master of seven languages, including Latin (of course) and ancient Greek, Jefferson was perhaps the best classical scholar among the Founding Fathers. The great Euro-American recovery of Greek culture took shape towards the end of Jefferson's life. Britain's Thomas Bruce, Lord Elgin (1766-1841), looted the Parthenon and appropriated its priceless marbles during Jefferson's two terms as president and James Madison's first term, and sold them to the British government in 1816. John Keats wrote his famous "Ode on a Grecian Urn" in 1819. Lord Byron began his long love affair with Greece in 1823. Most of what the Founders knew of Greek culture came via Republican Rome.

26-Tall case clock. Jefferson purchased this "grandfather clock" from Philadelphia clockmaker Benjamin Ferris in 1803. At Monticello, the clock was probably located in the kitchen. Jefferson's famous calendar clock in the east lobby was his primary Monticello timepiece. See Ann More Lucas' entry in *Worlds*, 379.

27-Jefferson's love of plants. President Jefferson told Margaret Bayard Smith that he believed that the unnecessary killing of a tree should be regarded as murder. "How he loved his flowers!" she wrote. "He could not live without something to love, and in the absence of his darling grandchildren, his bird and his flowers became objects of tender care." To his daughter Martha, who was not writing letters to her father as often as he wished, Jefferson wrote, on December 23, 1790, "there is not a sprig of grass that shoots uninteresting to me." Thinking about his contributions to American civilization in 1800, as he contemplated his candidacy for the presidency, Jefferson wrote, "The greatest service which can be rendered any country is to add a useful plant to its culture." As he prepared to leave Washington, DC, at the end of his presidency, panting for rural retirement and relief from the "shackles" of power, Jefferson took time to give Mrs. Smith a parting gift, a geranium she had admired. Two days after Madison's inauguration as the fourth president, Jefferson wrote the following note to his admirer. The spelling, punctuation, and capitalization reflect Jefferson's idiosyncrasies as a writer: "Th: Jefferson presents his respectful salutations to mrs Smith, and sends her the Geranium she expressed a willingness to recieve. it is in very bad condition, having been neglected latterly as not intended to be removed. he cannot give it his parting blessing more effectually than by consigning it to the nourishing hand of mrs Smith. if plants have sensibility, as the analogy of their organisation with ours seems to indicate, it cannot but be proudly sensible of her fostering attentions." Jefferson (and later, Lewis) refused to capitalize the first word of a sentence.

28-Bird cage and Jefferson's pet mockingbird, Dick. Margaret Bayard Smith wrote, "In the window recesses were stands for the flowers and plants which it was his delight to attend and among his roses and geraniums was suspended the cage of his favorite mocking-bird, which he cherished with peculiar fondness, not only for its melodious powers but for its uncommon intelligence and affectionate disposition, of which qualities he gave surprising instances. It was the constant companion of his solitary and studious hours. Whenever he was alone he opened the cage and let the bird fly about the room. After flitting for a while from one object to another, it would alight on his table and regale him with its sweetest notes, or perch on his shoulder and take its food from his lips. Often when he retired to his chamber it would hop up the stairs after him and while he took his siesta, would sit on his couch and pour forth its melodious strains. How he loved this bird!" Not until the presidency of Theodore Roosevelt (1901-09) would White House guests again be startled by uncaged pets. In Roosevelt's case the menagerie involved dogs, cats, bears, snakes, a Shetland pony, and a vicious badger named Josiah.

Out the windows. That's the Potomac River off in the distance out the window on the left (towards the south), and the War and Navy Department out the window on the right (to the west--the site of today's Old Executive Office Building).

What's missing? Editor's Note: It would be wrongheaded to find fault with this splendid painting, perhaps the best illustration we have of the Thomas Jefferson's status as a scientist, man of letters, inveterate tinkerer, intellectual

amateur (in the French sense), visionary, and America's principal Renaissance man. No illustration I have seen better centers the Lewis and Clark Expedition in the Enlightenment or reminds us of the intellectual burden Meriwether Lewis carried into the American wilderness on behalf of his gifted patron, the man whose brainchild the Voyage of North West Discovery was. This superb painting reminds us that we should not see the Lewis and Clark Expedition as a grand adventure (though it was), but as a projection of the Euro-American Enlightenment into the unknown. When Lewis returned, Jefferson wrote to William Hamilton, on March 22, 1807, "On the whole, the result confirms me in my first opinion that he was the fittest person in the world for such an expedition."

The only items that might have enlivened this painting further would have been Jefferson's famous polygraph (an instantaneous copying device), his swivel work table (see above), and whatever was left of the "world's largest cheese," the 1,235-pound cheese prepared especially for Jefferson by the Republican farmers of Cheshire, Massachusetts, and personally delivered to the White House by the Reverend John Leland on January 1, 1802. Apparently the four-foot by 15-inch cheese, made from the milk of 900 cows, became something of a sought-after curiosity as it lingered for several years in Jefferson's White House. Perhaps Jefferson's cypher wheel encryption device might also have graced his work table. We know that Lewis carried an encryption system (designed by Jefferson) with him in case he needed to send geopolitically sensitive communications back to Washington, DC. ∎

Further Reading.

Susan R. Stein, et al.. *The Worlds of Thomas Jefferson at Monticello*.

William Howard Adams, editor. *The Eye of Thomas Jefferson*.

Silvio A. Bedini. *Thomas Jefferson: Statesman of Science*.

Stephen Dow Beckham, et al., *The Literature of the Lewis and Clark Expedition*.

Gaillard Hunt, editor. *First Forty Years of Washington Society in the Family Letters of Margaret Bayard Smith*.

Letters

Dear Editor,

After reading the WPO interview with Scott Mandrell in the August issue, we at the Discovery Expedition of St. Charles, agree there are many perspectives and certainly different memories of the Bicentennial. The Discovery Expedition of St. Charles (DESC) began with a core group of re-enactors committed to following the steps day by day of the original expedition. The purpose was to personally experience, as much as possible, the challenges of the original expedition. Shortly after the beginning of the reenactment, the educational opportunities became most evident and our mission began focusing on public education to "tell the story" with positive and friendly interaction with the public. As this mission modified and developed, and as it transitioned into the first phase of the western journey, the focus of some members centered on the experience rather than the friendly public interaction and educational forums. Those members eventually departed from the original group for a different interpretation of the adventure.

DESC's mission, with the aid and blessing of the National Parks Service (NPS) and communities, both white & native along the trail, continued to follow the daily written journals of both Lewis and Clark. That mission provided a venue in which to re-enact the events and encounters during the Bicentennial journey of the western leg. The task for DESC was to be the flagship and point for the NPS, while adding a historical backdrop, interest, and excitement to the Bicentennial events.

The perspective that visitors we encountered could gain was an understanding of the epic journey that Lewis and Clark with the Corps of Discovery achieved. In addition, our partnership with the many Native American Nations was made possible by the NPS in the Tent of Many Voices. This venue provided a platform that allowed American Indians to share their story, their life, and their heritage on a national stage, which was essential to understanding the history of our nation. DESC shared that stage with them, which provided an educational viewpoint of the day and times of Lewis and Clark as they journeyed into the frontier. The goal was to be educational, fun, and entertaining, but foremost it was to promote healing between cultures, nations and people. We at the Discovery Expedition feel we made progress, but more is still left to be accomplished. Our mission continues.

We trust that the entire story of our mission and educational initiative will someday be available in future publications of WPO, so another side of the story will be heard. We look forward to that opportunity. ∎

Jan Donelson, *Memphis, Tennessee*

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