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## Article Title: Lewis and Clark on the Middle Missouri

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Article Summary: Lewis and Clark's exploration of the Missouri between Sioux City, Iowa, and Pickstown, South Dakota, involved not only the terrain but also the plants and animals of the region. The Corps of Discovery also made its first contact with Sioux Indians during that part of its expedition.

### Cataloging Information:

Names: Charles Floyd, Meriwether Lewis, William Clark, Moses B Reed, La Liberté, Thomas Jefferson, Patrick Gass, Georges Drouillard, Joseph Field, Reubin Field, York, George Shannon, Nicholas Biddle, John Colter, Pierre Dorion Sr, Nathaniel Pryor, Pierre Cruzatte, James Aird, Andrew Ellicott, Robert Patterson, Benjamin Smith Barton

Place Names: Camp Dubois, Illinois; Sioux City, Iowa; Spirit Mound, South Dakota; Ionia, Dixon County, Nebraska; Bon Homme County, South Dakota; Council Bluff, Nebraska; Calumet Bluff, Nebraska

Plants Discovered by Lewis and Clark: buffaloberry (*Shepherdia argentea*), Indian breadroot (*Pedimelum esculentum*), Rocky Mountain bee plant (*Cleome serrutata*), pasture sagewort (*Artemisia frigida*)

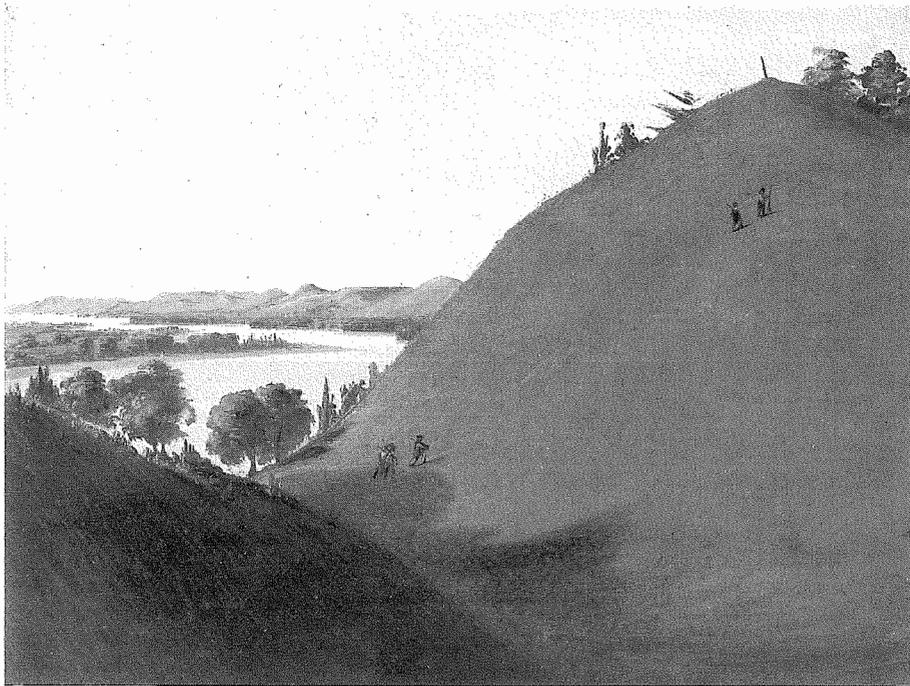
Animals Discovered by Lewis and Clark: buffalo (*Bison bison*), pronghorn (*Antilocapra americana*), mule deer (*Odocoileus hemionus*), prairie dog (*Cynomys ludovicianus*), grizzly bear (*Ursus horribilis*)

Keywords: Charles Floyd, Corps of Discovery, Meriwether Lewis, William Clark, Moses B Reed, La Liberté, Louisiana Purchase, Patrick Gass, Georges Drouillard, Joseph Field, Reubin Field, York, George Shannon, Nicholas Biddle, John Colter, Pierre Dorion Sr, Nathaniel Pryor, Yankton Sioux Indians, *akicita* (soldier society), Pierre Cruzatte, James Aird

Photographs / Images: "Floyd's Grave, Where Lewis and Clark Buried Sargeant Floyd in 1804" (George Catlin); Clark-Maximilian pictographic map, sheet # 7, *Route about August 26-September 3, 1804*; pronghorn (antelope); mule deer; prairie dog; "Captain Clark and his men shooting Bears" (Patrick Gass); "Captains Lewis & Clark holding a Council with the Indians" (Patrick Gass); Missouri River today upstream from Niobrara, Knox County

# Lewis and Clark

on the  
MIDDLE  
Missouri



George Catlin, *Floyd's Grave, Where Lewis and Clark Buried Sargeant Floyd in 1804* (detail on front cover). Smithsonian American Art Museum, Gift of Mrs. Joseph Harrison, Jr.

By Gary E. Moulton

The flag was unpacked from its box and unfurled in the afternoon light. On a high hill overlooking the Missouri River the party assembled in military fashion to await the ceremony. This was no routine formation, nor was it a gathering for the usual purpose of honoring Indian dignitaries. This was a solemn occasion of the saddest kind. One of the members of the Corps of Discovery had died. Every member of the party must have wondered if this would be the only loss on the expedition and what fate lay ahead. Less than one hundred days into the expedition an honored comrade had departed. Only a few days earlier a loss of another sort had occurred when two members of the party had deserted. One had been captured, but the other had made good his escape. Was this to be the fate of the Corps: desertion, death, and perhaps ultimate defeat? But if these thoughts ran through the minds of the men, no one recorded such despair.

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Indeed, it was the party's casualty himself who had earlier penned what may have been the general sentiment about the deserters, that they had abandoned the enterprise "without aney Jest Case." And death was an ever-present occupational hazard to the frontier soldiers and French boatmen who formed the Corps. So, the party returned to the boats and moved on. It was a beautiful night.

Charles Floyd was only twenty-two years old at the time of his death, but Capt. Meriwether Lewis considered him "a young man of much merit" and had appointed him as one of the sergeants in April 1804 while the party was still at Camp Dubois in Illinois, waiting their start up the Missouri. Floyd was from that select group of initial recruits that William Clark had gathered near Louisville, Kentucky, a group that would become known as the "nine young men from Kentucky." Lewis had instructed Clark to pick rugged backwoodsmen, skilled hunters who were accustomed to hardship and the outdoor life; no gentlemen soldiers would fill the ranks of the Corps of Discovery. Floyd was one of these able men, but his contributions to

the Corps were cut short by his death. He was also one of the expedition's journalists, as each of the sergeants was supposed to be. Although his journal is brief and in the rough style of a frontier soldier, the sergeant showed insights into daily events. The record of the expedition is poorer for his passing.

Without time to fulfill his service to the Corps and achieve some fame for deeds, Floyd is remembered today as the only member of the party to die during the trip. His death on August 20, 1804, near today's Sioux City, Iowa, was probably caused by a ruptured appendix. The captains did what they could for him, but their standard remedies were of little help and may have hastened his demise. It is not clear whether the captains resorted to their usual practices of bleeding and purging, but those acts would have hurried the inevitable. Floyd would have received the same treatment from any physician of the time, and would have died under the best medical care then available. Operations to relieve him lay in the distant future. The men bathed and comforted him as best they could, and he died with a

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great deal of composure. Clark wrote a letter to the sergeant's loved ones before he died. The captain suffered near exhaustion from lack of sleep while caring for Floyd, and Clark's slave, York, seems to have been especially attentive to the sergeant during his final days. Lewis performed the funeral service and recalled that the sergeant had "at All times given us proofs of his impatality Sincurity to ourselves and good will to Serve his Countrey." After the service the party moved a short distance ahead and camped just above the mouth of a stream they called Floyd River.

Pvt. Moses B. Reed also holds a singular place in the annals of the Corps: he would be the only regularly enlisted member of the party to attempt desertion. Nothing is known about Reed before the expedition, neither his date nor place of birth, nor when or where he joined the Corps. Up to the time of his desertion, he seems to have participated willingly in the activities of the party. Hunting and cutting wood were his typical duties, but he was also trusted enough to be sent on special assignments. Like so many of his fellows who tired of garrison life at Camp Dubois, Reed was cited for disciplinary infractions while the party was there, but his transgressions were of little consequence. Soldiers getting drunk, as he did, was not uncommon. But now Reed had broken ranks in a very serious way. He was a member of the permanent party, that is, he was not a temporary hand hired to go only as far as the first winter encampment. He was recruited for the entire trip and thus enjoyed a bit of status. His reasons for deserting are totally unknown. Floyd, at least, thought Reed had no just cause for the action. On August 4 Reed returned to the previous day's camp under the guise of retrieving a knife he had left behind. By the next day Clark was already suspecting that he had deserted—an indication that things were not right with Reed. Within a couple of days the captains detailed a party to find Reed and bring him back, "Dead or alive." His act was a

real threat to military order and had to be dealt with seriously. If Reed made good his escape, it could signal lax discipline and dissension might spread through the ranks. The leaders had to act decisively.

It would be nearly two weeks before Reed was finally caught and returned to the party. The incidents of his arrest were not recorded, nor is it known whether he resisted. At his trial on August 18 Reed confessed to stealing a rifle, shot pouch, gunpowder, and ammunition, and to deserting his post. The private pled for leniency. Desertion was a serious offense, punishable by death, so in a sense the captains showed forbearance when they sentenced him to run the gauntlet four times and then expelled him from the permanent party. Reed would remain with the expedition through the winter's encampment at Fort Mandan, denied of routine privileges and relegated to hard labor. Then he was sent downriver with a return crew aboard the keelboat. He is never heard of again.

If Pvt. Moses B. Reed remains an elusive figure, his double in desertion, the French boatman *La Liberté*, is obscure in the extreme. Like so many of the French *engagés*, boatmen hired to haul the keelboat and heavy pirogues up the Missouri to the winter camp, he is almost totally unknown. Even his real name is in question; *La Liberté* may have been a nickname. A common name among Mississippi Valley Frenchmen, it perhaps signified a respect for the ideals of the French Revolution. On July 29 he was sent ahead to find some Indians and invite them to the party's next encampment. In the days ahead the captains gave slight attention to his absence, only noting that they thought him lost. When they sent men after Reed, their orders included finding *La Liberté*, but without the reference to returning him dead or alive. In fact, they were merely to make inquiries about him at Indian villages. *La Liberté* was apprehended about the same time as Reed, but true to his name he claimed

his freedom and was not recaptured. Because he was a civilian employee and not an enlisted soldier, his offense was not so serious as was Reed's. In a precise legal sense he may not have "deserted" the party at all but only quit his job, although he did take one of the party's horses. It may be fortunate that *La Liberté* made good his escape and relieved the captains of the decision of how to deal with him. They did not send a second party to try to recapture him. Like Reed, he is lost in obscurity.

What brought these men of the Lewis and Clark expedition to this moment in the summer of 1804 and to this place near modern Sioux City, Iowa? It was the orders of a president, the pressures of geopolitics, and the desires of a young nation to expand its boundaries and increase its wealth. Thomas Jefferson had dreamed of western exploration for two decades, and now with his ascension to the presidency in 1801 he had the means to realize his ambitions. He was spurred to action after reading the account of Canadian explorer Alexander Mackenzie, who had crossed the continent and laid claim to western lands for British interests. At the same time, France was ready to abandon its North American empire and relinquish its holdings to the United States.

Even before the sale of Louisiana was consummated, Jefferson had set his young protégé, Capt. Meriwether Lewis, on a course for western exploration. Carrying letters of credit signed by the president, outfitted from army supply stations with up-to-the-minute arms and provisions, and equipped with the latest scientific instruments and trained in their use at Philadelphia, Lewis set out from Pittsburgh in the late summer of 1803. He was joined by his good friend and former comrade-in-arms William Clark near Louisville, Kentucky. Together they guided the expedition's keelboat down the Ohio River and up the Mississippi to a spot across from the mouth of the Missouri River on American soil in Illinois. Here they learned of the Louisiana Purchase and prepared to

explore the new American territory and the lands beyond. Here, too, they trained and disciplined a disparate group of recruits and formed them into the Corps of Discovery. At this point the Corps was not the band of brothers it would become and it would be many months before the men formed bonds that would see them across rivers, plains, and mountains.

Jefferson had tangible and immediate goals for his explorers, and these he laid out in a careful set of instructions before Lewis's departure. Geographic discovery formed an essential part of his plan and would be a key element of the men's efforts. Wisdom of the time suggested the existence of a relatively easy passage across the Rocky Mountains from the headwaters of the Missouri River to a stream flowing into the Columbia River. Lewis and Clark proved that such a pathway did not exist and that crossing the mountains was a difficult task. Their discovery dashed all hopes for the long-sought Northwest Passage. However, in their scientific work of taking observations of longitude and latitude, noting significant geographic features, and making detailed route maps, they made important contributions to knowledge of the West. While Lewis performed most of the astronomical duties, Clark charted the course and drafted expedition maps, eventually crafting a magnificent map of the entire West.

Lewis and Clark also carried out ethnological and linguistic studies. Jefferson's lengthiest and most careful instructions to Lewis concerned the party's relations with Native Americans and emphasized the importance of establishing good connections with the Indians. In councils under brush arbors and around campfires where the pipe of peace was passed, the captains worked to carry out Jefferson's directive. They brought back the first detailed reports of three major Indian groups: the village Indians of the upper Missouri River; the intermountain tribes of the Rocky Mountains; and the riverine peoples of the

Columbia Valley and Northwest Coast. Handicapped as they were by the preconceptions and prejudices of their day, the men nonetheless displayed a degree of detachment unusual for the time. Working among diverse tribes, linguistic groups, and cultural settings, the captains struggled in their efforts to catalog, study, and understand this multitude of humanity. If they could not penetrate deeply into the culture of these people, hampered as they were by language and lack of time, they did rise above the cultural relativism of their age and presented a view of Native Americans that has been praised for its objectivity.

Diplomatic activities and commercial interests also played an important role in expedition efforts. Lewis and Clark were interested in the natives for more than ethnographic research; they wanted to open the door to diplomatic relations and gain access to trading rights. The men were to apprise the natives of the new sovereignty of the United States under the Louisiana Purchase and develop relations with those beyond American borders. In making these contacts, they hoped to shift trade away from English, Spanish, French, and Russian competitors and toward American interests in St. Louis, Boston, and elsewhere. It is doubtful that the Indians grasped the idea of diplomacy outside of trade; the explorers carried gifts, not goods. Lewis and Clark looked to trade in the long run; the Indians wanted an immediate exchange of merchandise. Lewis and Clark wanted to expand United States commercial influence as far as possible to compete with other nations; the Indians wanted the best items at the lowest price from the most dependable supplier. At the time Lewis and Clark could not provide the necessary guarantees.

Investigations in ecology constituted another part of the explorers' work. Lewis and Clark took careful notice of the land's prospects for future agricultural use, while also studying plant and animal life, noting mineral deposits, and recording the country's climate. Their

accomplishments in the biological sciences are particularly noteworthy. They were the first to describe in detail a host of plant and animal species new to science, and they provided better understanding of the range, habits, and physical characteristics of many known species. They wrote at length of the seasonal changes and range of plant life, of the extent and habits of animals, and of the migrations of birds and mammals.

During the party's passage on the middle Missouri, from Sioux City, Iowa, to Pickstown, South Dakota, in late August and early September 1804, the captains carried out the president's directives. In addition to more visionary goals, the leaders were responsible for the routine duties of military command, and principal among these was the care of the party under their watch. These young men were liable to all the accidents that humans encounter, plus the added dangers that come with exhausting physical labor, constant exposure to the elements, and the lack of an adequate diet. They were plagued by boils, diarrhea, colds, frostbite, and heat; they suffered bruises, cuts, and scrapes; they faced mosquitoes, snakes, and grizzlies; and they endured raging rapids, high mountains, and desolate plains. At times, these circumstances taxed the party's morale, but a constant refrain in expedition diaries is to the men's high spirits. The leaders did the best they could in ministering to the men's health and looking out for their safety. Indeed, the captains' strong concern for the welfare of the party went far to compensate for their limited medical knowledge. Jefferson later observed that Lewis was as "careful as a father of those committed to his charge." At the end of the trip Lewis could happily report that all members of the expedition had returned in good health.

With Floyd's death the men had to fill an empty position in their ranks. In a vote on August 22 near Elk Point, South Dakota, the men chose Patrick Gass as the new sergeant over William Bratton and George Gibson, so the captains ap-

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pointed him to the vacancy. Much has been made of this election, with references to it being a dramatic demonstration of democracy. Perhaps it was. But just as likely it was a demonstration of the captains' confidence in the men and in their capacity to choose the best person to lead them.

The election also demonstrates the leadership skills of Lewis and Clark; they knew when to give orders and when to gain consensus. Sharing in the decision-making gave the soldiers a sense of ownership in the enterprise. They would have to live with the results. It was several days before the captains finalized the decision and entered the appointment in the official record. Perhaps they wanted a little time to confirm the wisdom of the choice. Gass proved himself, capably filling the duties of his new office. Born in Pennsylvania, he joined the Corps from the First Infantry Regiment stationed at Fort Kaskaskia, Illinois. His skills as a carpenter were particularly valuable on the expedition. Gass is also distinguished as the first to publish and the last to die. His journal was published in 1807, seven years before that of the captains, and he died in 1870, in his ninety-ninth year.

While the captains busied themselves with scientific work and routine command responsibilities, the soldiers and engagés worked to get the keelboat and pirogues upriver. A major endeavor besides moving boats and baling was in provisioning the party. Hunters were regularly sent out, and the captains quickly ascertained who was best at providing daily rations. George Drouillard, generally called "Drewyer" by the captains, was one of the Corps' best hunters. A son of the frontier, he was of mixed parentage with a French-Canadian father and a Shawnee mother. Lewis hired him at Fort Massac to serve as the expedition's interpreter because he was adept at Indian sign language. Even more prized were his wilderness skills and hunting abilities. In the most difficult times, Drouillard could be counted on to find a deer or an elk and

ease the party's hunger. But on the middle Missouri they found themselves in a land of plenty, so his hunting skills were needed less. Here most of the men got relief from poling and pulling boats and were given a chance to hunt. The captains also looked for opportunities to get away from the boats and do some hiking and riverside exploring.

On August 23 Clark went hunting and congratulated himself on getting "a fine Buck." It was a good day for hunting; John Collins got a doe, Reubin Field two deer, John Shields an elk, and Lewis a goose, but, despite the volley of shots aimed at two elk crossing the Missouri, none hit its mark at what should have been easy targets. Joseph Field's hunting success for the day was the most interesting. Joseph and his brother Reubin, two of the "nine young men from Kentucky" and members of the permanent party, were born in Virginia and came to Kentucky at an early age. They were early recruits for the Corps. Not only were they among the best shots and most capable hunters, they were also the ones most often singled out for difficult tasks and special assignments. Both were with Lewis (as was Drouillard) in the fight with Blackfeet Indians in Montana in July 1806. And now Joseph had the honor of killing the party's first buffalo. Lewis took a dozen men with him to bring the shaggy beast down to the river, dress it, and load it on the boat. In time that animal would be as common as the grass on the Plains, and the captains would tire of trying to count heads on herds of enormous size.

Clark was out hunting again the next day with his black slave, York. The captain killed a deer, and York was detailed to pack it back to the boat and return. The captain was less successful later in the day and blamed his inability to bring down two deer on the small size of his ammunition. York was luckier or better equipped—he killed an elk. Here is the first indication that York carried a rifle, signaling that on the expedition he was to be more than a body servant to Clark. Such an arrangement would have

been an unacceptable luxury.

York and Clark were about the same age and may have been boyhood companions. Little is known of York before he joined the Corps except that Clark inherited him from his father a few years before the expedition. York seems to have been a large man of some strength, and he was a source of fascination for the Native Americans, who had never seen a black man before. Lewis and Clark capitalized on this, exploiting York to some extent. York seems to have been a willing participant and enjoyed impressing the natives. On one occasion Clark confessed that York "made him Self more turrible in their view than I wished him to." The status that York enjoyed with the Corps was lost after the expedition, however, and once they were back in St. Louis Clark treated him with callous disregard before finally freeing him. After difficult times between the two men, York gained his freedom about 1811, when he went into the freighting business. That enterprise failed after a time, and York died of cholera sometime before 1832.

Hunting of an entirely different kind captured the attention of the party in late August, in a situation that caused grave concern for everyone. The youngest member of the corps, George Shannon, an inexperienced hunter and usually listed as one of the "nine young men from Kentucky," was lost. Shannon was born in Pennsylvania in 1785 and moved to Ohio before arriving in Kentucky, where he joined Lewis in 1803. He remained with the captains after the party's return to St. Louis. In 1807 Lewis sent him with a party to return the Mandan Indian chief Sheheke to his home, an ill-fated trip during which Shannon received a wound that ultimately resulted in the loss of a leg. The accident ended his exploring adventures, and he took up other pursuits that led to his gaining prominence after the expedition, one of the few members of the Corps to do so. Although Shannon was not one of the journalists, he served as a resource person for Nicholas

Biddle's official account of the exploration, and received praise from Biddle for his intelligence and knowledge of the trip. Shannon attended Transylvania University in Lexington, Kentucky, between 1808 and 1810, and even though he completed work for a degree, he apparently did not receive it. He went on to practice law in Lexington, serve terms in the Kentucky legislature, and preside as a circuit judge. Perhaps looking for a higher political future, Shannon moved to Missouri in 1828 and, in time, served in the Missouri legislature. He died in Missouri at the age of forty-nine.

On August 26 as the party was preparing to set out from camp near Vermillion, South Dakota, Shannon and Drouillard were left behind to hunt for two lost horses. Clark directed the men to keep track of the main party from the highlands and catch up later. After Drouillard returned the next day without Shannon or horses, George Shields and Joseph Field were detailed to the search with instructions to rejoin the party upriver. They, too, returned empty-handed, concluding that Shannon was ahead of the main party. At this point John Colter, one of the best trackers, was sent after Shannon but after ten days in pursuit, was unable to overtake him. Worry deepened. Clark knew Shannon was not a first-rate hunter and would soon run out of ammunition.

Finally on September 11, after seventeen days, an exhausted and hungry Shannon rejoined the party. Believing the party was ahead of him, he had pushed on, trying to catch up. His ammunition gone, he had eaten only berries except for a single rabbit he managed to kill by substituting a hard stick for lead balls in his rifle. Shannon had found the two missing horses, but one of them gave out and had to be abandoned; the other he kept to eat as a last resort. Clark wrote of Shannon's misadventures that "a man had like to have Starved to death in a land of Plenty for the want of Bulletes or Something to kill his meat."

Shannon will forever be marked as

the member of the party who was always getting lost. This is an unjust assessment. Other members of the party were also separated or lost at times. The only similar incident for Shannon was when he was separated from the party for a few days on the headwaters of the Missouri in August 1805, which was hardly his fault. In fact, he found his way back on his own on both occasions. On the second occasion, Lewis even remarked that Shannon had "lived very plentifully," and he brought back useful geographical information to the captains. Certainly the captains did not consider him untrustworthy or irresponsible, and they assigned him to many important missions and hunting excursions during the expedition. In recommending Shannon to Biddle, Clark displayed his positive opinion when he wrote, "This young gentleman possesses a sincere and undisguised heart," a fitting memorial to the Corps' youngest member.

While Lewis and Clark were away from the boat during the afternoon of August 24, the main party passed a small river coming in from the north that they called the White Stone River; it is today's Vermillion River, flowing into the Missouri in Clay County, southeast of the town of Vermillion. The present name alludes to a reddish color on the water and along its banks, while the party's name refers to the white earth that paints the river valley. Local Indians used both substances for decoration. In the distance, the men noticed a high hill and learned that nearby natives believed little devils or evil spirits inhabited the elevation and would kill whoever came near. Despite the legends, the captains determined to climb Spirit Mound the next day.

In the morning of August 25 Lewis and Clark and eleven members of the party, accompanied by Lewis's Newfoundland dog Seaman, set out for the mound—a walk of approximately nine miles. The walk proved too much for Seaman and he had to be taken back before reaching the hill. Clark estimated

Spirit Mound's height to be about seventy feet above the surrounding plain. The captain also reached the correct conclusion that the mound was of natural origin and not some edifice raised for human purpose. Spirit Mound is a remnant bedrock knob that was shaped but not leveled as glaciers advanced and retreated from the area. From the hill the men viewed immense plains all around them, devoid of timber except for scattered trees along the river courses.

Equally impressive in their view were the large herds of buffalo and elk. The great confluence of birds atop Spirit Mound was an indication to natives that spirits resided there. Clark found a more prosaic reason: winds blew insects up the slopes and birds arrived to feed on them. York returned from the trip exhausted by the heat and the fast pace Clark had set. Lewis also was affected by the temperature and may have still been suffering from his exposure to some unknown geologic substances a few days earlier. Although it was not especially hot, the men were apparently unaccustomed to the heat and humidity of Great Plains weather. Clark recorded the temperature as eighty-six degrees in the afternoon.

This temperature reading is something of a puzzle. It was the first such reading since the party departed Camp Dubois on May 14, and no recording of regular weather information would be made again until September 19. Keeping a systematic account of weather observations had been the captains' practice during the winter in Illinois. Started in January 1804, the observations were kept independent of the regular journals and were arranged in tabular form in special notebooks for that purpose alone. These tables included twice-daily thermometer readings, abbreviated references to general weather conditions, and measurements of the river. A final column of "remarks" carried an assortment of natural history notes, including information on the flowering and fading of plants and the activities of animals, in addition to comments on significant

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weather phenomena. All this work came under the requirements Jefferson had established for the party's scientific studies. The question remains: why only this reading, and why here and now? There is no plausible explanation. One conjecture was that the captains had misplaced the thermometers up to this point, which seems unlikely. They had three thermometers with them, so it does not seem reasonable to think they had mislaid all of them. If so, why not continue with the readings after this thermometer was found instead of stopping and then picking up the practice again in September? We'll probably never know the answer.

There is less mystery about the difficulties with another piece of modern technology that Lewis had with him. The day before the temperature reading, on August 24, Lewis reported that his chronometer had stopped. It had quit on him a couple of times at Camp Dubois, but he had been able to reset it and get it running accurately. It had also stopped on July 15 and now it malfunctioned again just after Lewis had wound it. He could not account for the cause of the breakdown and began to worry that it might be a defect beyond his ability to repair. The problem must have been a faulty mechanism or a part that could not stand up to field conditions, even at this early date. The chronometer was a key piece of Lewis's scientific equipment and a necessary tool in establishing longitude. Lewis had purchased an Arnold's chronometer of "the most improved construction" from Philadelphia watchmaker Thomas Parker for about \$250, and scientists in that city had tested it before he left. After some adjustments it seemed to work perfectly. Now it was failing him in the field.

Establishing the party's latitude was not difficult, but getting a longitudinal fix was a daunting task that required precise instruments and higher mathematics. Lewis had received training in taking astronomical observations and in the use of the technical instruments from Andrew Ellicott, an experienced

field specialist of Lancaster, Pennsylvania, and from Robert Patterson, professor of mathematics at the University of Pennsylvania in Philadelphia. The captain's scientific instruments included artificial horizons, octants, quadrants, sextants, and compasses—the most modern astronomical, navigational, and surveying instruments available. He also carried books and tables to assist him in the work. Lewis was to accumulate data in the field and leave the final calculations and evaluations to experts like Patterson after his return. The plan failed. Lewis was hampered by inexperience, difficult field conditions, and malfunctioning equipment. It did not help that the captain also occasionally neglected to wind his timepiece. But it is equally doubtful that even a field expert like Ellicott could have carried off the operation under the conditions the party encountered. Lewis faithfully recorded his work, but his observations of longitude proved useless.

Not so the latitude readings, where the captain was not dependent on a faulty chronometer. To determine latitude one needed only to measure the height of the sun or any bright star from the horizon and make a quick calculation based on printed tables. Lewis carried the requisite instruments and tables and possessed the ability to do the field work without difficulty. On the middle Missouri Lewis took two such readings, one on August 21 and another on August 27. Lewis's latitude reading of August 21 was taken from a sandbar about four miles above the mouth of the Big Sioux River, and he gave his location as 42° 28' 29" North. The location, as well as can be determined given the vagueness of his point of observation, would be near the Dixon—Dakota county line on the Nebraska side and near 42° 30' North today. Lewis's reading on August 27 was opposite from and near the lower end of a line of bluffs that the party called the "White Chalk Bluffs," near the community of St. Helena, Cedar County, Nebraska. Here the reading was recorded as 42° 53' 13" North. St.

Helena is approximately 42° 48' 40" North, but Lewis may have been north of that point on the other side of the river. Nonetheless, considering the circumstances of the time, he was quite close. Given the vagaries of the Missouri, its ever-changing course until recent times, and the difficulty of establishing Lewis's exact point of reference, the readings are astonishingly accurate. The difficulty in being more precise about the location of the actual site of the observations lies in assigning modern designations to his position. Considering the multiple ambiguities possible in labeling any particular spot as an expedition site, it is an inexact procedure at best.

The purpose for Lewis's ambitious scientific work was to enable scientists to convert his figures to accurate readings and then utilize the results to make a grand map of the West. Although he did not mention the making of maps, Jefferson's careful instructions about taking observations of longitude and latitude presuppose a mapping strategy. Jefferson's great interest in maps of the West was well known to Lewis, and the attention given to securing the most accurate maps of the region before his departure fixes cartography as a principal purpose of the expedition. During the expedition Clark became the principal mapmaker; he is the author of all but a few of the expedition's nearly two hundred maps. His maps are masterfully executed and models of field cartography. Working with crude and unreliable instruments and with no apparent training, Clark did an exceptional job, and his drafting abilities have been universally admired.

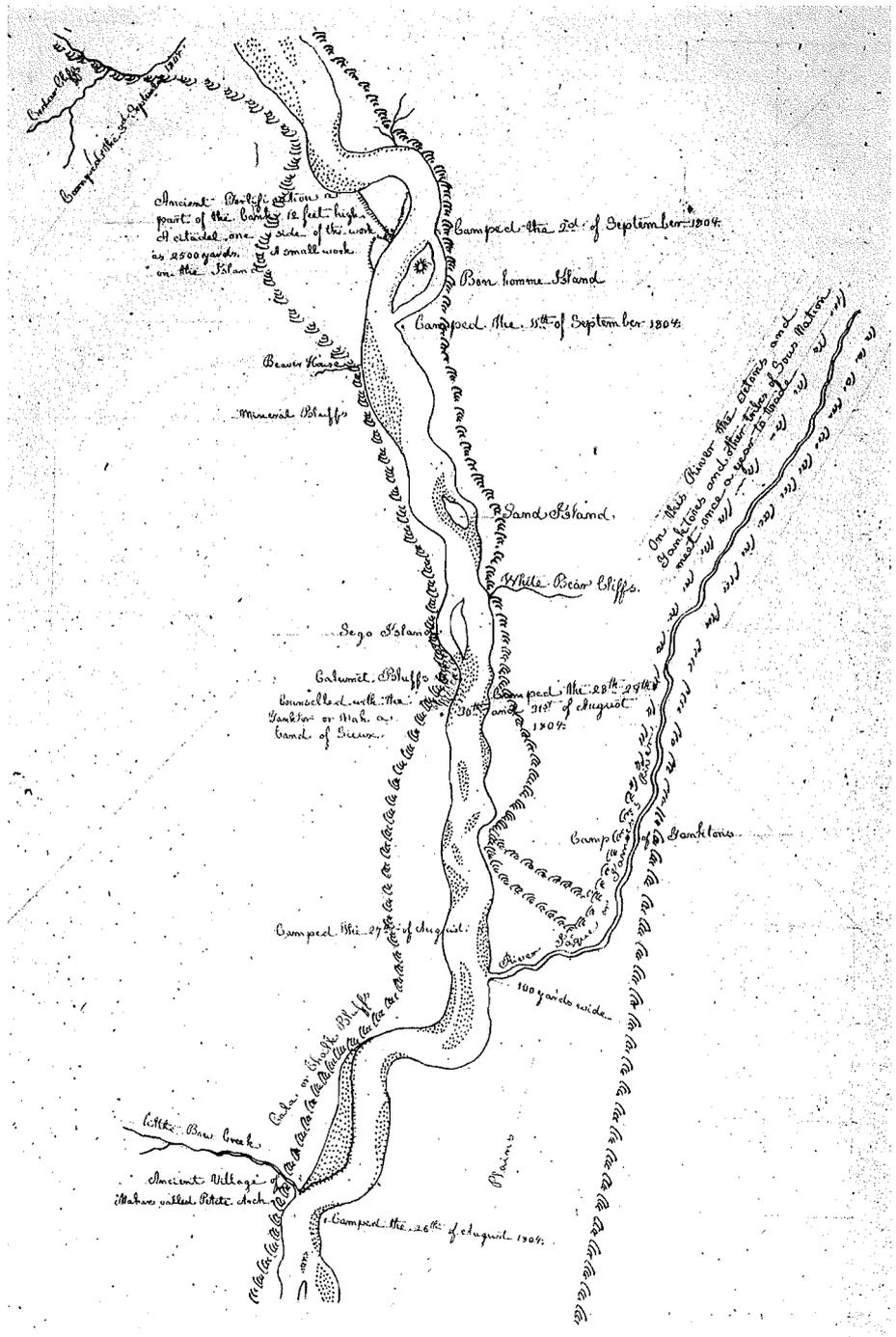
Clark's mapping accomplished two major objectives: he plotted the route of the Corps on a series of trail maps and he provided a view of peripheral areas based on the best native information available. Clark's great map of the West, published with the first account of the expedition in 1814, alone justified his efforts. It was the beginning of a new generation of accurate maps of the Ameri-

can West—maps that were based on actual field sightings, and acute topographic inference. It has been called “a cartographic achievement” and “one of the most influential ever drawn.”

With the defects in Lewis’s observations, it fell to Clark to use his route maps and preliminary maps of the West to create his post-expeditionary piece. Professional cartographers prepared the final version that eventually appeared in print. It is unclear what techniques Clark used in drafting his trail maps during the expedition. He was basically concerned with “courses and distances.” Clark plotted the direction of travel from point to point (traverse notes), estimated the number of miles covered between the points, and calculated the total daily mileage. For the portion of the middle Missouri from Sioux City to Pickstown, Clark estimated a distance of about 190 miles. By the 1890s a more accurate survey measured the same area at about 175 miles, but on a river that had changed its route and reach many times since Clark’s day.

The party carried a great number of surveying instruments for determining its location and direction of travel. Some of these scientific instruments may have been used in establishing distances between widely separated points, but for routine measuring it seems likely that the explorers used estimates or the time-honored method of dead reckoning. For “courses” Clark relied mainly on his compass readings, and occasionally, perhaps, he again trusted dead reckoning. Clark set down the party’s course of travel on the route maps on the basis of his compass traverse notes, which he placed at nearly every journal entry. He apparently employed the route traverse method, taking bearings at each turn of the trail or bend in the river and plotting those shifts or waypoints on his maps. The background grids on many maps were a useful guide in such plotting.

Clark’s original large-scale route maps for the middle Missouri are lost. What remains to depict the region are



Clark-Maximilian pictographic map, sheet # 7, Route about August 26–September 3, 1804. Joslyn Art Museum, Omaha, Nebraska, Gift of Enron Art Foundation.

high quality copies of the missing maps that were made for Prince Maximilian of

today’s Germany who was going upriver from St. Louis in the 1830s. Four maps

## Lewis and Clark

from this set cover the middle Missouri from Sioux City to Pickstown and on one there is a glaring error in the river's course. Just above the mouth of Floyd River in Sioux City, Iowa, the map shows an extreme curve in the Missouri that would take it to the northeast and in the direction of Minnesota. This error does not appear on Clark's post-expeditionary maps, so he must have realized the problem and corrected it. It might be that the copyist for Maximilian made the mistake and the fault was not with Clark's original route map. Nevertheless, these maps are an essential aid to studying the expedition during this period and an indispensable resource for understanding the Missouri River of 1804.

In addition to laying down the windings of the river and the route and campsites of the party, Clark added an incredible array of auxiliary information. He shows the entrance of all the major, and many minor, affluents of the Missouri; indicates the valley's bluff line and striking geologic outcroppings; locates Euro-American trading posts; denotes Indian villages, hunting camps, and abandoned sites; notes sandbars, islands, and obstructions in the river; and marks prominent springs, hills, and plains near the river's edge. It is easy to see why Clark has received such praise for his cartographic work.

While Clark made his maps, Lewis took occasional astronomical observations, but most of the time he was engaged in naturalist activities. Jefferson had carefully tutored him in these pursuits, but Lewis needed little encouragement since he had been interested in nature since his youth. Both Lewis and Jefferson knew that the captain needed additional instruction in the sciences, so besides studying stargazing in Philadelphia he took a crash course in botany, extended his vocabulary of botanical Latin, and gained some training in pressing plants. Benjamin Smith Barton, a professor of botany at the University of Pennsylvania, was his teacher. Jefferson wrote Barton a critical assessment of Lewis's botanical abilities and provided

an insight into his judgment of the captain: "Altho' no regular botanist he possesses a remarkable store of accurate observation on all the subjects of the three kingdoms, & will therefore readily single out whatever presents itself new to him in either." Jefferson's letter to Barton also describes a collecting plan that Lewis would utilize. He was not to concern himself with plants that were familiar to scientists in the East, but was to describe and collect species that were entirely new.

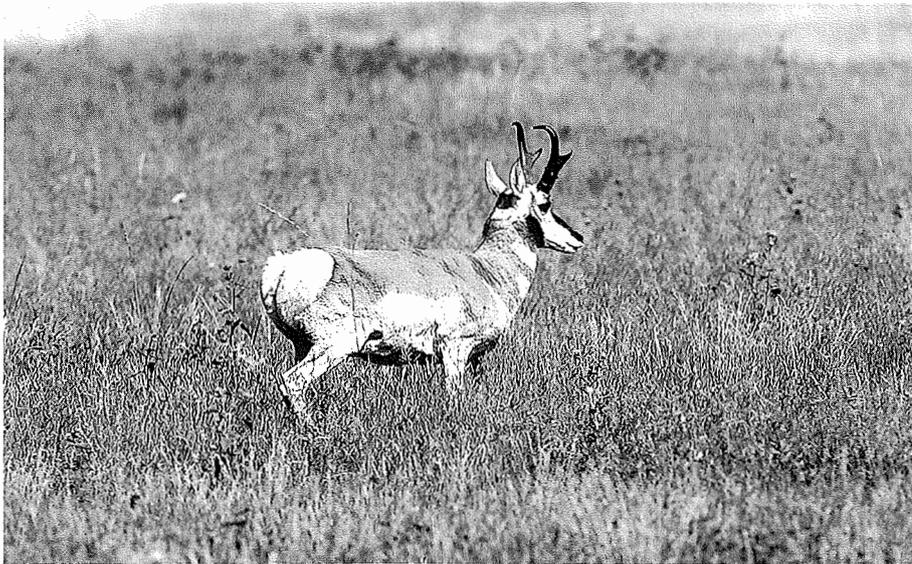
Beyond describing and collecting plants that were novel or unfamiliar, it is not clear what criteria Lewis employed in his collecting strategy, but the plants he noticed and gathered along the middle Missouri provide a window to his procedures. Some of the plants he selected for describing and collecting had potential horticultural or agricultural value; others were used by the Native Americans in a variety of ways. Here he was following Jefferson's instructions to take special note of utilitarian plants. On August 21 and 24 Clark noticed a shrub with an excellent red fruit that grew profusely on the hillsides. Lewis collected a specimen of this fruit, the buffaloberry, *Shepherdia argentea*, on September 4 while the party was at the mouth of the Niobrara River. Missouri Indians prized the buffaloberry and utilized it in a number of ways. Of course, the berries were eaten right off the vine, especially after first frost when they were at their sweetest, but they were also dried and boiled and used to make juice. On his collecting tag Lewis indicated that the berry tasted like the cranberry. The berries were often pulverized and added to pemmican (dried buffalo meat) for flavor, giving a reason for the French boatmen's term for the plant, *graisse de boeuf*, "buffalo grease."

Clark gave only passing mention to another plant of even more utilitarian value. On August 31 he recorded that the Sioux substituted a plains potato for bread. Indian breadroot, *Pediomelum esculentum* (previously, *Psoralea esculenta*), is known by a number of

common names, but all reflect Clark's observation, as did the French engaged name for the plant, *pomme de terre*, "ground apple" or simply "potato." This root, probably the most important wild food gathered by Plains Indians, was a staple of their diet. The captains would encounter it often as they crossed the plains. Lewis wrote lengthy descriptions of its ethnobotanical uses, and at some unknown time and place along the Missouri he collected and preserved a specimen.

Many of the species that Lewis collected had showy flowers or other outstanding visual display. Perhaps these were the qualities that attracted him to the Rocky Mountain bee plant, *Cleome serrulata*, which was also used extensively by Plains Indians. They ate the tender shoots and leaves, and they boiled and dried the stems for later use. The plant also had medicinal and ceremonial value to river tribes. As the name implies, bees are drawn to its showy pink flowers. It may have been the plant's attractive display and the buzzing activity around it that caught Lewis's attention and caused him to collect a specimen on August 25 above the mouth of the Vermillion River.

As the party passed the Niobrara River in northeast Nebraska, they were entering a distinct floral and environmental zone and began to observe plants entirely new to them. Above the Niobrara Lewis would be able to fulfill Jefferson's goals in his collecting strategy and find specimens new to science. From this point onward the party saw subtle changes in the landscape. The number of trees decreased, except for the ubiquitous cottonwoods and willows along river edges and scattered sandbars, and the hills appeared more barren and bald. Gone was the familiar eastern deciduous forest. They had moved into mixed-grass country, leaving behind the tallgrass prairies of the lower Missouri. An unbroken and featureless landscape loomed before them, and mineral salt deposits were seen more often at the surface level. Short



Lewis and Clark provided the first detailed descriptions of the pronghorn (*Antilocapra americana*). NEBRASKAland Magazine/Nebraska Game and Parks Commission



Along with giving the mule deer (*Odocoileus hemionus*) its common name, Lewis and Clark are counted as the animal's scientific discoverers. NEBRASKAland Magazine/Nebraska Game and Parks Commission

grasses and drought-tolerant species began to predominate as rainfall diminished. Crossing the ninety-eighth meridian, they entered the High Plains portion of the Great Plains of North America. The explorers would not emerge from this treeless grassland until August 1805, when they ascended the Rocky Moun-

tains. The pasture sagewort, *Artemisia frigida*, that Lewis collected on September 2 above Gavins Point Dam, probably on the Nebraska side of the Missouri, is a representative plant of this area. On his collecting tag Lewis noted that it was a "growth of the open high situations." Today this aromatic herb is first found on

the Missouri not far below the mouth of the Niobrara and probably in the area where Lewis collected it. As Lewis noted, it is generally found on dry hills and open plains and thrives in the dry, often harsh climate of the northern Plains.

In the area of the Niobrara and above it, the party also began to encounter distinctive animals of the Great Plains. In August Joseph Field had killed the first buffalo, *Bison bison*, the quintessential mammal of the Plains and one of its most numerous inhabitants. From the top of Spirit Mound Clark saw upwards of eight hundred buffalo and elk feeding, but this was a small herd compared to later sightings. On returning to the middle Missouri in August 1806 Clark wrote in wonder: "I ascended to the high Country and from an eminence I had a view of a greater number of buffaloes than I had ever seen before at one time. I must have seen near 20,000 of those animals feeding on this plain." By Lewis and Clark's time the geographic range of the buffalo had already been reduced, and the animal had been driven out of the eastern United States by the end of the eighteenth century. Now bison thrived on the great grasslands of the trans-Missouri West, with estimates of their numbers ranging from thirty to seventy million. The bison became the mainstay of Plains Indian life, and the animal's destruction accompanied the end of their nomadic, buffalo-hunting existence. From their high numbers in Lewis and Clark's time, the bison diminished rapidly after the Civil War until by the mid-1880s there were only a few hundred in captivity and less than one hundred in the wild.

On September 3 a few miles below the Niobrara Clark noticed "several wild Goats." This was the party's first encounter with the pronghorn, *Antilocapra americana*, more frequently called antelopes, or simply goats, as with Lewis and Clark. Although pronghorns had been seen by Spanish explorers in the Southwest in the sixteenth century, Lewis and Clark are credited with the scientific discovery because of their detailed de-

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scriptions. During the expedition's time pronghorns may have been as numerous as buffalo, perhaps numbering thirty or forty million; today there are about one million. Lewis was astonished at the animals' speed and later commented: "When I beheld the rapidity of their flight along the ridge before me it appeared rather the rapid flight of birds than the motion of quadrupeds. I think I can safely venture the asssertion that the speed of this animal is equal if not superior to that of the finest blooded courser." Pronghorns are native only to North America and are considered the fastest land animal on the continent. They have been clocked at sixty-one miles per hour; only the cheetah of Africa is faster, while an American quarter horse is considerably slower.

Two days after sighting their first pronghorn the captains saw several others and "Deer with black tales." Up to the Niobrara the party had been seeing the familiar white-tailed deer; after that point they also encountered the characteristic deer of the West. Lewis and Clark were the first to give the mule deer, *Odocoileus hemionus*, its most common name; they also called it the black-tailed deer after another distinctive feature. The captains are also acknowledged to have written the first accurate descriptions of the mule deer; thus they are counted as the animal's scientific discoverers.

Sighting a hill nearly seventy feet high on September 7, Lewis and Clark took a walk to it, probably hoping to find a vantage point from which to view the valley and the river's course. The hill in eastern Boyd County, Nebraska, is known today as Old Baldy. From its top one can get the view that the captains anticipated, and from there one sees modern Fort Randall Dam a few miles to the northwest. But what caught the captains' attention was the discovery of a little animal new to them and to American science. They had mentioned the prairie dog, *Cynomys ludovicianus*, earlier, but here at the base of Old Baldy they found an entire village of them.

The men spent a great deal of time trying to collect a specimen, which the captains called "barking squirrels," and which the Frenchmen called *petite chien*, "little dog." They dug six feet into



**Lewis and Clark are credited with the scientific discovery of the prairie dog (*Cynomys ludovicianus*).** NEBRASKA and Magazine/Nebraska Game and Parks Commission

the hard clay soil without success and then carried several gallons of water from the Missouri before they finally flushed a little critter from its hole. Clark wrote a brief description of it this day and Lewis gave longer reports in May 1805 and July 1806. Lewis was the first to comment on the prairie dog's ability

to go without water, which like other arid-land rodents it did by obtaining sufficient water in its food and retaining it efficiently. Adaptation to aridity was not left only to High Plains flora. The following spring the captains sent a live prairie dog to Jefferson from Fort Mandan. It is not known if it was the prairie dog that bubbled up here.

Canadian fur traders reported on the grizzly bear before Lewis and Clark wrote their extensive comments on the animal. Earlier reports, however, do not detract from the contributions that the captains made to understanding the range, habits, and physical characteristics of the grizzly. George Ord, who supplied the scientific name for the species in 1815, relied mainly on the notes of Lewis and Clark for his description. The expedition's first notice of the grizzly was made on September 1 near today's Gavins Point Dam, but a close encounter did not occur until October 20. The captains could not decide on a single name for the animal, especially since they were not sure if they were always seeing the same species, so they variously called it the white, yellow, brown, gray, and grizzly bear. After discussions with Native Americans they came to realize that these were all color variations of one species, the grizzly bear, *Ursus horribilis* (now commonly grouped under *U. arctos*).

They saw no more grizzlies in 1804 after the October encounter, perhaps because the bears had gone into winter caves for hibernation. The men dis-counted Indian stories they heard during the winter about the ferocity of the bears. Out on the Plains again in the spring of 1805 Lewis wrote: "The men as well as ourselves are anxious to meet one of these bear." They did not have to wait long. A limited encounter came on April 29, near the Yellowstone River, when Lewis and a companion met two grizzlies, both of which the men wounded. One bear pursued the captain but was so badly hurt that Lewis was able to reload and kill him. The confident captain wrote: "The Indians

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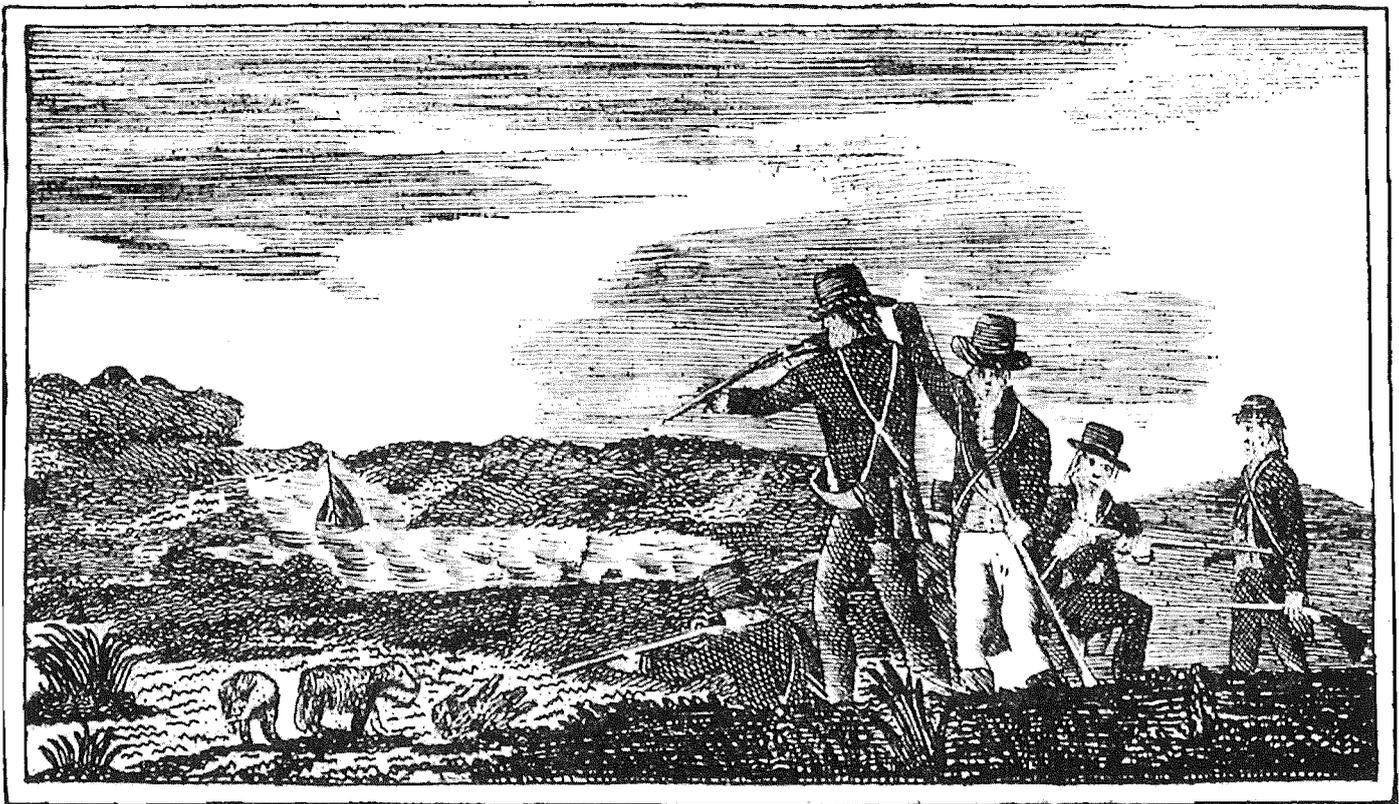
may well fear this animal . . . but in the hands of a skillfull riflemen they are by no means as formidable or dangerous as they have been represented." Lewis would soon be less assured.

A bear killed on May 5, 1805, near the Milk River gave some pause. Lewis observed that it was extremely difficult to kill. Although it had taken ten shots, five of them to the lungs, it was able to swim to a sandbar in the middle of the river and live for another twenty minutes. The next day when the party saw a grizzly, Lewis commented that "the curiosity of our party is pretty well satisfied with respect to this anamal . . . [it] has staggered the resolution of several of them, others however seem keen for action with the bear." The chance

for the men of action came on May 14 when six hunters went after a single bear. A volley of four balls ripped into the animal, but it simply charged ahead, took two more rounds from a second volley, and kept coming. One of the balls broke the animal's shoulder, slowing it slightly, but even so it was on them quicker than they could believe. The terrified men ran pell-mell toward the river. Two made it to a canoe, while the others took cover, hastily reloaded, and fired again. When the bear turned on them, they flung aside their rifles and plunged down an embankment, the grizzly tumbling after them into the water. Finally a rifleman on shore put a round through its brain, killing it instantly. They found eight balls in its carcass.

Lewis had his own skirmish a month later at the Missouri's Great Falls. Against good judgment he was out hunting alone when he noticed a large grizzly approaching. Raising his gun to shoot, he realized he had not reloaded his rifle after killing a buffalo. With the bear at his heels he took off across the plains, plunged into the river, and turned to face the bear with his espontoon (an officer's lance), but to his surprise and relief the bear lumbered away. Lewis quickly reloaded his gun and promised himself never to delay reloading again. He concluded: "I must confess that I do not like the gentlemen and had reather fight two Indians than one bear."

Scientific examinations of the earth were less thrilling but included their



*Captain Clark and his men shooting Bears.*

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Nothing of the grizzly bear's ferocity is evident in this engraving accompanying the 1904 reprint edition of Patrick Gass's journal (Chicago: A. C. McClurg & Co.).

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own sorts of hazards. While carrying out geologic investigations in Dixon County, Nebraska, on August 22 Lewis became nauseated by fumes from some unknown substance. As one writer has noted, the captains not only observed nature but also touched, tasted, and smelled it. Lewis may have experienced more than he intended. In the bluffs where he was working he found alum, copperas, and pyrite, but none of these substances would have caused the malady. It remains a mystery, but the captain recovered soon enough. Although Jefferson gave little attention to geologic matters himself, it was an area of interest to Lewis and in addition to his written descriptions he also collected specimens from the earth. Clark was also on the lookout for interesting phenomena; on August 24 he called attention to some fire-damaged bluffs, still hot to the touch. What Clark noticed at this point was a bluff that later became known as the Ionia Volcano, near the now defunct town of Ionia, Dixon County, Nebraska. Before 1900 some scientists believed that the bluff was a true volcano, caused to erupt when the flooding Missouri River poured water over molten rock below the surface. Later investigations proved the eruptions were due to heat when damp pyritiferous and carbonaceous shale oxidized on fresh exposure as the river bluffs eroded and fell away.

Even more curious were a series of formations that the party noticed on September 2 in Bon Homme County, South Dakota. Clark conducted an elaborate survey of the natural wind-blown formations near the party's camp for the night. The captain also wrote an extensive description of the phenomena and drew detailed maps of the structures, which he called the "Antient Fortification." He believed the formations to be constructed artifacts similar to ones left by the Mound Builders in the Ohio Valley. Given his military background and knowing the warring conditions of the Missouri Valley, Clark thought he saw defensive earthworks and his words

matched his view. Where others might see mundane exposures of wind-borne sand ridges, Clark saw ravelins, sallyports, gouges, and hornworks—military terms describing defensive fortifications and earthwork ramparts.

Using less imagination than Clark and better knowledge of geologic phenomena, the features are now explained as scroll bars that form along the inside of river meanders during flooding. When the meandering Missouri changed its channel, heaps of sand and gravel were left behind to form low mounds on a rectangular plan similar to those built up for a fort. Here along the Missouri River Clark found immense formations. One of the largest measured nearly sixteen feet high and sixteen feet across at the top, standing on a base more than one hundred feet wide. The French engagés told him that there were similar phenomena on the Osage, Kansas, and Platte rivers. Controls on modern rivers have diminished the size and occurrence of such features and they have disappeared from this area entirely.

If Jefferson's instructions pointed to the importance of Native Americans in the exploration, the captains were having little luck in locating natives with whom to carry out the president's directives. From St. Louis to the middle Missouri the captains had only one occasion to meet Indians and try out their diplomatic skills. North of modern Omaha, Nebraska, the party had established a camp they called Council Bluff (not to be confused with Council Bluffs, Iowa). Here the captains met and negotiated with Oto and Missouri Indians and established a pattern for diplomacy with Indian dignitaries that would be repeated across the continent. Now on the middle Missouri they had a second chance at negotiating and an opportunity to sort out the complex relationships of Siouan people.

As the party passed the James River on August 27 an Indian boy gained the men's attention and was quickly joined by two others as the explorers pulled their boats ashore. The young men told

Lewis and Clark there was a Yankton Sioux camp nearby. The captains dispatched Pierre Dorion, Sr., and Sgt. Nathaniel Pryor to the village, where they were enthusiastically received, while the main party moved on to a rendezvous spot. The captains had met Dorion in central Missouri. Learning that he had lived and traded with the Yanktons since the 1780s, they convinced him to join them with the idea that he would lead some Yankton chiefs back to Washington for conferences with the president. He would also be useful as a mediator and interpreter with the tribe and could provide information about the region generally. On August 28 the party arrived at Calumet Bluff in Cedar County, Nebraska, just below Gavins Point Dam, and set up camp for a round of Indian negotiations. The Corps would remain at this camp until September 1, then leave Dorion behind after meeting with the Yanktons.

While the party waited for the Yanktons at Calumet Bluff, the enlisted men busied themselves making tow ropes, and Clark prepared a speech for the Indians. At 4:00 P.M. on August 29 Pryor and Dorion arrived with about seventy Yanktons, who set up camp across the river. Among the Indians were three chiefs, so the captains sent over meat, corn, and tobacco, and prepared for a council the following day. Pryor had been welcomed by the Sioux and offered dog to eat as a token of respect. The sergeant informed Clark about the nature of the Sioux camps. He found their tipis quite handsome, being made of buffalo skins and decoratively painted, neatly arranged, and holding ten to fifteen persons each. That he said nothing about the number of warriors at the village or the tribe's armaments, says much about the explorers' attitudes towards these people.

The next morning the Yankton chiefs were brought over to Calumet Bluff and the captains delivered their standard Indian speech. Although not recorded on this occasion, the speech probably announced American sovereignty over the



*Captains Lewis & Clark holding a Council with the Indians* Page 17

This fanciful engraving of the explorers' council with the Oto appeared in the 1904 edition of Gass's journal.

new lands, then pled for peace among the Indian tribes, promised increased trade, explained the purposes of the expedition, and requested Indian leaders to journey to the capital. Dorion would stay behind to convince the chiefs to accede to the realities of the new American presence. Afterwards the captains handed out gifts and gave special attention to high-ranking individuals by giving them commissions and flags. Not having finished the negotiations, the council was carried over to August 31. That day continued as before with exchanges of gifts and delivery of speeches. Among the Yankton chiefs both Shaking Hand and Half Man spoke of the tribe's need for reliable trade; arms and ammunition headed their lists of the most de-

sired goods. They were probably hoping the captains would open the stores of the keelboat that day and bring out the desired merchandise. The Yanktons did not understand the nature of the expedition; the captains came as emissaries with future promises, not as traders with ready goods.

Clark took a Sioux vocabulary during the time at Calumet Bluff and obtained information about the Yanktons from Dorion. Clark also tried to understand the complicated relationship of Sioux tribes and bands. The Sioux or Dakota people may be classified into three regional and linguistic divisions from east to west: Santees, Yanktons-Yanktonais, and Teton. Later in the nineteenth century the Sioux referred to themselves as

the "Seven Council Fires," although they were never known to have a central government. Four of the seven councils were Santees, while the remaining three were the Yanktons, Yanktonais, and Teton. To further complicate the branches of the Sioux, the Teton (or Lakotas) are subdivided into seven tribes, including the better known Oglalas and Hunkpapas.

For Clark to be able to sort out these various groupings in the brief time he visited the Yanktons was impossible. His notes demonstrate an awareness of the divisions, but not a clear grasp of the nuances. While at Fort Mandan during the winter of 1804–5, he developed an elaborate "Estimate of Eastern Indians," and gave greater attention and more understanding to Sioux synonymy. But

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it took decades and modern studies by linguists and ethnohistorians to develop a full understanding of Sioux linguistic and cultural divisions.

Throughout the eighteenth century the Yanktons, Yanktonais, and Tetons had been moving west, making the change from a woodlands people to the life of High Plains buffalo hunters. The Yanktons of the middle Missouri were a transitional people who never converted to an entirely nomadic, buffalo-hunting life. Part of the year they occupied villages along the Missouri and subsidiary streams like the James, where they cultivated corn, beans, squash, and

tobacco, and harvested native plants such as Indian breadroot. At other specified seasons they entered the Plains and hunted buffalo. After acquiring horses about 1750, they had steadily but not fully given over to the buffalo culture. A small tribe—Clark counted about 1,600 Yanktons—they never acquired the renown and dominance in their region that the Tetons did in theirs. Moreover, they did not put up a fierce resistance to Americans in the mid-nineteenth century as did their Lakota brethren. After the Civil War they were relegated to reservations in South Dakota, where their descendants remain today.

Given his military background, Clark was particularly intrigued by one group of Sioux warriors that he observed among the Yanktons. The *akicita*, a soldier society or warrior fraternity, served not only as battle units in the field but also as a fraternal organization at home. Such groups were characteristic of the Sioux and other Plains tribes who needed to keep order in the field, discipline in battle, and reward heroism against enemies. The societies also acted as civilian police during peacetime by maintaining orderliness in the villages and on the march into buffalo country.

En route to the Rocky Mountains the



Today only a few reaches of the Missouri River, such as this one upstream from Niobrara, Knox County, resemble the river as Lewis and Clark saw it. *NEBRASKAland Magazine*/Nebraska Game and Parks Commission

Missouri was the party's river of reference. Each day the captains gauged its conditions, sometimes with more than a little apprehension, and they were always on the lookout for obstructions that were a common feature of river life. The captains recognized the Missouri's tendency to wander across its valley floor. They mapped and measured its sinuous course from its mouth at the Mississippi to its Rocky Mountain heights. In a natural state rivers with room snake across their valleys, but the Missouri is particularly notorious for its unrestrained meanderings. Not only does the valley of the middle Missouri provide space enough for a wandering, ever-changing course, but annual spring floods carrying heavy loads of debris and silty deposits allow the river to remap its route almost annually. Meanders are a natural feature of rivers because the winding course enables a river to keep an even slope as it flows toward the sea and minimizes the energy used by the stream. The river takes the path of least resistance, dodging obstacles, breaking against bluffs, and generally overrunning whatever gives easily away. Indeed, in recent times, meanders on the Missouri have been measured to migrate across the floodplain at a rate of about 250 feet a year. In Lewis and Clark's time the migration would have been much more dramatic.

Besides working against the relentless current that sought to push them back to the Mississippi, the explorers had to evade hindrances that the river threw in their path. On August 26 Clark wrote that the river was crowded with sandbars. Two days later, still filled with sandbars, the river suddenly revealed a hidden snag that tore through one of the pirogues and nearly sank it. The damage was so great that the boat was practically unfit for service. After another dozen days, as the party left the middle Missouri, Clark conceded, "the Sand bars So noumerous, it is not worth mentioning." Sandbars, snags, planters, and sawyers were obstacles that quickly made Missouri River experts out of Vir-

ginia horsemen. A traveler either learned to read the river quickly and correctly or boat, cargo, and occupants suffered the consequences of ignorance.

The Corps was fortunate to have skilled French boatmen to wield the poles and pilot the boats. Pierre Cruzatte, of French and Omaha descent, was such a man. He was hired at St. Charles, Missouri, because of his river knowledge and boating skills, but he also brought another talent to the Corps. His fiddle playing provided many a night of tuneful relief to bone-weary boatmen and entertained Indians who watched the explorers dance to his bow. Unlike other French engagés, Cruzatte became a member of the permanent party, but is best remembered for accidentally wounding Lewis during the return trip in 1806. His expert hand navigated the boats around many potential disasters.

When the party reached the Niobrara River on September 4, they had not only arrived at the point of a new ecological zone and a geographic demarker, they had also reached one of the distinctive confluents of the Missouri watershed. The Niobrara was a sandbar-strewn, prairie river even more so than the Missouri. Lewis and Clark knew it by the name used by the French hands, *qui court*, the "rapid river." Clark walked three miles up the stream to determine its character. He found the river swift, shallow, and wide, much like the Platte River he had examined below, but throwing out a much coarser sand than the Platte. And like the Platte, the Niobrara conditioned the Missouri for some miles below its entrance and made it less the "Big Muddy" in this stretch of the river. But studying subsidiary streams was short-term employment. The party pushed on. The Corps wintered in North Dakota in 1804–5, followed the Missouri to the Rockies, crossed those peaks and descended the Columbia River to the coast, wintered in Oregon in 1805–6, and started for home in the spring.

Hurrying home on the return trip in the late summer of 1806 the party

passed quickly through the middle Missouri. The investigations that had occupied the captains' time on the trip upriver were unnecessary on the way down. It was familiar terrain. Now was the time to bend to the paddles and race home with the current. But the unpredictable Great Plains weather could still delay the best of plans and throw hazards in the way of unwary explorers. During the early morning hours of August 31, 1806, while the party camped above Fort Randall Dam, the weary travelers were awakened by hard rain, joined by lightning and thunderclaps. A sudden squall of wind broke the securing cables of two canoes and sent the boats and their sleeping occupants blowing across the river. It was two o'clock in the morning before a rescue party was able to assist the men in getting safely to shore. "All wet and disagreeable" was the way Clark put it.

Moving on during the day, the party passed Old Baldy and the village of prairie dogs that had so intrigued the captains on the previous passing. The next day the party brought two years of exploration together as they passed Bon Homme Island, the "antient fortification," and their camp of September 1, 1804, at Calumet Bluff. Clark took the opportunity to augment his notes on the mounded sand ridges and make additional maps of the phenomenon. The men initially got a scare when some of the party encountered Sioux Indians during the day, who they thought to be a war party. The Indians turned out to be friendly Yanktons, but the captains did not linger for long talks. They gave them some small trinkets from their meager supply of goods and sent them off to their village with renewed pledges of peace and friendship.

On September 3, 1806, the captains met traders coming upriver to barter with the Sioux. James Aird was at the head of two boats filled with trade goods he had brought from Prairie du Chien, Wisconsin, and from St. Louis. The Scotsman Aird had been a trader out of the Great Lakes region since 1779

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and was now working for Robert Dickson, one of the leading traders on the upper Mississippi. Aird had declared himself an American in 1805 in order to better his chances in the Missouri trade, but his allegiances were slippery. During the War of 1812 he was a British agent, but before he died in 1819 he was working for the American Fur Company. He was the first of many traders coming upriver that the captains would meet before they arrived at St. Louis. He had much news for the captains.

The captains first wanted to know about the president and the state of political affairs in the United States. Aird gave what information he had, but on politics it was spotty. If he told them about Jefferson's re-election, the captains did not record it. But he had other interesting news to tell, so the information-famished captains stayed up late to quiz him for every tidbit. They learned that the house and furnishings of Jean Pierre Chouteau, the St. Louis fur trader and friend of the captains, had been lost in a fire; that Gen. James Wilkinson was the governor of Louisiana at St. Louis; that United States troops had taken a Spanish post a few miles west of Natchitoches, Louisiana, in order to stop smuggling and illegal border crossings; and that American vessels had been fired on by Spanish gunboats near Algeciras, Spain, and by a British warship off New York. Although the latter incident is not directly connected, such acts eventually led to the War of 1812 between the United States and Great Britain. Perhaps the most surprising news of all was that Aaron Burr and Alexander Hamilton had fought a duel in which the latter man was killed. Lewis must have been personally acquainted with both men, but since he was not keeping a journal during this period, his reaction to the news is not known.

Before separating the next day, the captains purchased enough tobacco from Aird to get the party back to St. Louis. Aird also gave the captains a barrel of flour and the officers gave him about six bushels of corn. Each man in

the party was rationed a cup of the trader's flour. Incredibly, the men still had a little flour with them from a supply they had buried at the Marias River in Montana. At noon the party reached Floyd's River and delayed while several men climbed the hill to pay respects to their departed comrade. Indians had opened the grave and left it partially uncovered, so the men filled it up again. Near the grave Clark noticed a stand of flourishing black walnut trees and he watched the flight of geese and pelicans in the evening. Mosquitoes so troubled the men during the night that they got little sleep, but the rain had ceased and they were able to dry out a bit. The party traveled thirty-six miles that day, a short distance for travelers anxious to get home. They had moved beyond the reach of the middle Missouri.

The middle Missouri can serve as a microcosm of the Lewis and Clark expedition. Nearly all the activities that the party was to engage in were acted out in this region: ethnographic investigations, diplomatic councils, astronomical and weather observations, cartographic drafts, ecological considerations, scientific inquiries, military activities, and geographic discoveries. Add to these the regular round of daily activities and one gets a snapshot picture of the entire exploration during this brief period. But if there is a sameness on the middle Missouri when compared to the trip as a whole, it is also unique in its time and place. The only death on the expedition occurred here, Clark took a singular temperature reading during a period when he made no other weather observations, the party moved into unfamiliar environmental zones encountering new species and a changed climate and terrain, and the Corps made contact with one of many divisions of the great Sioux nation of Indians. Like so many points on the compass of Lewis and Clark's exploring world, the middle Missouri was ordinary and routine at the same time that it was extraordinary and rare. It holds both a standard and a special place in the history of the expedition.

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