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WITHER THE FRUITED PLAIN

THE LONG EXPEDITION AND THE DESCRIPTION OF THE “GREAT AMERICAN DESERT”

KEVIN Z. SWEENEY

The view from Pikes Peak is breathtaking. Situated where the Great Plains meets the Rocky Mountains, one feels as if the whole nation is laid out before you. It is the perfect vantage point from which to write an inspirational anthem to the environmental magnificence of the United States. In the summer of 1893, Katherine Lee Bates, a Wellesley College English professor, sat on the summit of Pikes Peak, inspired by the panorama to pen the words to “America the Beautiful.” Her poem was set to the tune “Materna” by Samuel Augustus Ward two years later to become one

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of our nation’s most beloved anthems. Today her words are so ingrained in the American mind that one is hard pressed to read them without recalling the accompanying tune: “O beautiful for spacious skies, / For amber waves of grain, / For purple mountain majesties / Above the fruited plain!”

Many educated Americans in the first half of the eighteenth century held an opinion that differed greatly from Bates’s description of America’s plains, considering the vast steppe between the Mississippi River and the Rocky Mountains a Great American Desert that posed a barrier to westward expansion.¹ The Stephen Long Expedition of 1820 did more to promulgate this idea than any other source.² Thomas Say, the mission’s zoologist, reported that the group dreaded the journey across “the trackless desert which still separated [them] from the utmost boundary of civilisation.” Dr. Edwin James, the official chronicler of the expedition, stated that the explorers passed through “a barren and desolate region.”³ In his account, James claimed that beyond the ninety-sixth meridian travelers could expect a “wide sandy desert, stretching westward to the base of the Rocky

Mountains.”⁴ The official report was illustrated by a map labeling the Great Plains as the “Great American Desert.” After the accounts and report of the expedition were made public, the number of textbook references to the Plains as a desert jumped dramatically.⁵ The debate over who accepted this description and how long it dominated geographical thought has been hotly contested. For this reason the Long Expedition will forever be known for its description of the Plains as a Great American Desert.

While modern scholars have taken an interest in Long’s exploration, neither they nor earlier historians investigated the origins of the expedition’s conclusions. When we consider the factors that influenced the journalists of this mission to label the Plains a “sandy waste,” we get a more complete picture of the military exploration undertaken by Stephen Long and his men. Long’s expedition greatly influenced the perception of the Plains in the nineteenth century.⁶ Culture, education, and experience influence how people perceive a region. These factors guided the Long party’s portrayal of the Southern Plains. My investigation explores the role that culture, education, and experience play in influencing how people perceive a region.

Factors influencing Long and his men included the literature available to educated individuals prior to 1819, the backgrounds of the scientists and officers of the mission, the occurrence of a significant drought in the Great Plains prior to and during the Long Expedition through the region in the late summer of 1820, and the privation suffered by the journalists during the expedition. I use as sources the literature of the region published prior to the expedition, the writings of the Long party journalists, dendrochronological data, Palmer Drought Severity Index estimations, and evidence of aeolian activity derived from the writings of the explorers. I also compare the Long Expedition’s findings with the descriptions of J. W. Abert, a lieutenant detached from John C. Frémont’s command in 1845 and sent out of Bent’s Fort with orders to proceed to St. Louis along the same river valley that

Long’s party traversed, but during a year of average precipitation.

PERCEPTIONS OF THE GREAT PLAINS BEFORE 1820

During the second decade of the nineteenth century, little information was accessible to the educated officer class of the United States military concerning the plains between the Mississippi River and the mountains of the west. What did exist was contradictory. The early Louisiana fur traders tended to depict the interior plains as desertlike, but how much of this information was available to the officers of the Long party is questionable.⁷ Lewis and Clark may have been influenced by this desert image. Meriwether Lewis wrote to his mother stating that “from previous information[,] I had been led to believe [the region above the Platte River] was barren, sterile, and sandy.” He was pleased to note he found it quite contrary and had mostly promising comments about the Plains, with the exception of a stretch along the Missouri River they referred to as the “Deserts of America.” Clark claimed he “did not think [the region could] ever be settled,” while Lewis referred to it as “desert, barren country.”⁸ Aside from this small section, Lewis and Clark gave glowing reports of Louisiana. Likewise, President Thomas Jefferson presented a very positive description in his “Official Account of Louisiana,” claiming the absence of trees was caused by the soil being overly rich.⁹ One wonders what role the need to justify the purchase of Louisiana to Congress played in this overly optimistic view.

This view was not shared by Zebulon Pike, whose findings were first published in 1810. While crossing the Central Plains, he stated that “the vast plains of the western hemisphere, may become in time equally celebrated as the sandy deserts of Africa.”¹⁰ There were also numerous references in Pike’s writings to deserts, aridity, and lack of vegetation.¹¹

Pike’s report influenced Elijah Parish to update his geography text, *A New System of Modern Geography*. In the first four printings,

Parish made no mention of a desert, but after Pike's report he revised his work in 1814. In this fifth edition he stated:

Between the great rivers, Missouri and Rio Bravo, vast sandy deserts present a dismal prospect; not a tree nor shrub relieves the eye; the salt in the soil forbids vegetation, as in the Tehama of Arabia, and renders the wilds of Louisiana, as cheerless and forlorn, as the deserts of Tartary or Africa.¹²

It is a description he attributes to Pike. It must be added that Parish was opposed to expansion, as many New Englanders were, and the concept of the Plains as a desert could be useful in discouraging the nation's growth to the west. Regardless of Parish's motives, his text very possibly influenced the educated members of Long's expedition, as it was available in Boston and Newburyport, Massachusetts, as well as in Portland, Maine. Various New England universities endorsed the text.¹³

In 1817 the published notes of two English gentlemen, John Bradbury and Henry Brackenridge, who had traveled through the Plains concurred with Pike. They depicted the Missouri River country as "having some resemblance to the Steppes of Tartary, or the Saara's [sic] of Africa."¹⁴ Though it is unlikely that Long and his men had read all of these reports, they were probably familiar with this traditional view of the area they were about to explore.

NORTHEASTERN EXPLORERS

The background of the primary chroniclers further influenced them to exaggerate the region's aridity. The journalists and scientists were all from the northeastern United States, an area of forests and abundant rainfall. Stephen Long was born in 1784 in Hopkinton, New Hampshire and graduated from Dartmouth at the age of twenty-six. After teaching for five years, he joined the army and taught mathematics at the U.S. Military Academy at West Point. Long laid out the town site for

Fort Smith in 1817, received command of an expedition to explore the upper Mississippi River in 1817, and in 1819 led the Yellowstone expedition, which was his first journey to the High Plains.¹⁵

Edwin James, the expedition's physician and botanist, also hailed from the East: Weybridge, Vermont. Born in 1797, James graduated from Middlebury College in 1816 and went to Albany, New York, to study botany, geology, and medicine. His assignment to Long's detachment represented his first opportunity to travel outside of the northeastern United States. Although Long did not keep a journal, James used Major Long's notes to write his *Account of S. H. Long's Expedition, 1819-1820*, which became the official report.¹⁶

Thomas Say accompanied the expedition as the zoologist of the mission. He was born in 1787 in Philadelphia of Quaker lineage and was educated at the Westtown Friends' school near his home. Although he had traveled to Florida and Georgia with Titian Peale and other classmates in 1818, he had not previously ventured into the plains of the Louisiana Territory.¹⁷ The journey must have provided unique sights and experiences daily.

The eastern heritage of these chroniclers was further impacted by the climatic cycle during their lives. Merlin Lawson claims that the period from 1800 to 1850 was wetter than usual for North America. It is no wonder that the scientists believed they were traversing an "inhospitable desert," for the effects of a drought would seem more pronounced to those accustomed to a region and period of greater moisture than was found in the Plains in an average year.¹⁸

In fact, the members of Long's expedition manifested that they indeed did have preconceived notions of the geographic character of the Plains. In 1819, early on in the journey to the source of the Arkansas River, Thomas Say, the expedition's official chronicler at that time, wrote that "you discover numerous indications both in the soil and its animal and vegetable productions, of an approach to the borders of the great Sandy Desert which

stretches eastward from the base of the Rocky Mountains."¹⁹ Say accepted the presence of a sandy desert as fact before he had traveled to, or had seen evidence of, a severely arid region.²⁰ Upon his arrival at the winter quarters at Engineers' Cantonment in 1820, Edwin James became the official recorder of topographic description for the expedition. James wrote that a group of Natives near Council Bluffs laughed at the recklessness of attempting to cross a country "so entirely destitute of water and grass that neither ourselves nor our horses could be subsisted while passing it."²¹ Capt. John R. Bell, who also kept a journal of the expedition, likewise felt this incident important enough to log, proving that the chroniclers were persuaded that a wasteland awaited. It also reveals that the Natives were aware of drought conditions throughout the region.²² James, Bell, and the rest of Major Long's group were expecting a hostile environment of sand and scarce water.

AN ISSUE OF SUPPLIES

In addition to the formidable task set before the exploration party, a financial crisis forced Long to undertake the mission without adequate supplies.

The Panic of 1819 had caused President James Monroe to cut government spending, and in turn, the president forced the War Department, headed by John C. Calhoun, to reduce its budget while maintaining the demand for more results from its exploration of the West.²³ These restrictions on War Department spending were passed along to Major Long. Less funding was available to the major for provisioning his expedition, and the expectations for his excursion had risen. The lack of sufficient supplies and the ambitious goals created a concentration on speed over thorough scientific research, which in turn greatly hindered the party's chances to collect ample specimens or make accurate observations about the terrain they crossed.²⁴

Not only was the funding from the War Department inadequate to provision the party,

but Long did not actually receive all the revenue that was due the expedition. While the major was in the East visiting his wife, whom he had just married the previous March in Philadelphia, Calhoun met with and promised Long \$2,000, which the major was to pick up in St. Louis on his way back to Engineers' Cantonment. Long paused in St. Louis for two weeks fulfilling obligations to survey public lands near St. Louis before progressing farther west. Then, because the need for vital funds was so great, he waited an additional week at Franklin, Missouri, further postponing his expedition's departure.²⁵ Calhoun finally sent the promised money on April 28, 1820. Because it took, on average, six weeks for correspondence to reach St. Louis from Washington, the funds probably arrived in St. Louis ten days or so after the expedition had departed from the cantonment in what is today eastern Nebraska.²⁶

Major Long was obviously aware of the shortage in his party's provisions. He attempted to purchase or requisition provisions from Camp Missouri near Council Bluffs, but these actions proved fruitless and further delayed the expedition. Western outposts also felt the cut in War Department funding. To compensate for the lack of financial support from the federal government, personnel at Camp Missouri had planted their own gardens in an effort to supplement their meager government stores, but a recent flood had destroyed what little produce the garrison was cultivating. The few horses and supplies at the fort were deemed vital by the commanding officer and could not be spared. Even though Long carried a note from the secretary of the War Department granting the power to requisition any provisions necessary in fulfilling the expedition's orders, the commander of the fort could provide only a few supplies.

The delays in St. Louis and Franklin, in addition to the attempt to requisition supplies from Camp Missouri, proved critical because they pushed back the starting date a full month. Long planned to begin the project on May 1, 1820, but the party was not able to start for

the source of the Arkansas River until June 6.²⁷ This delay pressed the necessity of speed upon the military mission to arrive at Fort Smith before the onset of cold weather, while forcing the party to traverse the Southern Plains during its driest and hottest months.

Compared to the usual rations issued to soldiers during the early nineteenth century, their provisions could supply the group with food for thirty days, and protein in the form of meat for only fourteen days, a woefully inadequate arrangement for a military expedition expecting to be in the field four months.²⁸ Given their minimal provisions, it is apparent that the major intended to trade with Natives for additional foodstuffs.²⁹ Yet the amount of trade goods the expedition carried could be expected to supplement the party's insufficient food rations for only three months.³⁰ This left unaccounted a full month's food supply. Furthermore, the expedition lacked the full equipment necessary to carry out its topographical mission.³¹ One wonders just how Major Long proposed to complete this venture.

Yet, as commander of the expedition, Long had no alternative but to proceed with the assignment, regardless of the adequacy of the party's stores. It is possible that the major felt pressured to command a successful military and scientific venture because the Yellowstone Expedition he led in 1819 was an abysmal failure.³² The party was to travel up the Missouri River and construct a fort at the confluence of the Missouri and Yellowstone rivers to establish a U.S. presence on its northern frontier with Britain. The military could guard against British incursions into American fur trapping territory and perhaps win over the local Native trade, but the expedition never made it past Fort Atkinson near present-day Omaha, Nebraska. The disastrous expedition cost more than one hundred men their lives because of scurvy during their winter quartering of 1819-20.³³

Long did not spend that winter in Fort Atkinson, but traveled east to see Calhoun and ask him to approve a renewed effort to explore the Plains. The secretary of war obliged

by issuing written orders to the major specifying the new mission, which would take the party south of their previous destination. Given such circumstances, Long chose to conduct the expedition as best he could with what supplies he could muster.³⁴ In an attempt to ensure success on this new assignment, the major pushed his men and animals to their utmost in endurance from the beginning of the mission.³⁵

The shortage of supplies became critical in late July, but James mentions the dwindling rations as early as June 26, less than one month after the party began the expedition: "Our small stock of bread was by this time so nearly exhausted, that it was thought prudent to reserve the remainder as a last resort, in case of the failure of a supply of game, or other incident."³⁶ As ordered, Major Long divided his party on July 4, sending Captain Bell with half of the force down the Arkansas River while heading the remainder of the group, including Edwin James, south and west with the intention of locating the Red River. Although splitting the group eased the demand on local wildlife from hunting, it did not lessen the shortage of provisions. By July 29, supplies had become so meager that the major cut dinner rations to one ounce of jerked meat.³⁷

The acute shortage of food in an unfamiliar region dictated the major's decision to redirect the party's movement. The possibility of starving in the wilderness was a factor in Long's decision to discontinue the search for the Red River, and to follow a local ravine in the hopes that it would prove to be a tributary of their assigned waterway. James, with a penchant for understatement, notes in his journal that the party's "suffering from want of provisions . . . had given [them] a little distaste for prolonging farther than was necessary [their] journey towards the southwest."³⁸ Furthermore, the absence of any contact with Natives made the prospect of trading for supplies bleak. Major Long and his men were forced to rely on their hunting skills to keep themselves alive during their journey across the Southern Plains. As long as there were game present, this strategy

could prove successful, but if the wildlife had migrated from the area, they would starve.

During the month of August, Long's party suffered most severely from privation. On August 3, James states that the group was "becoming somewhat impatient on account of thirst, having met with no water which [they] could drink for near twenty-four hours," making their circumstances "extremely unpleasant."³⁹ Eight days later the journalist writes that they "had for some days been almost in a starving condition."⁴⁰ By this time the lack of supplies and the scarcity of traditional game had reduced Long and his men to eating anything their guns could fell: badger, owl, wild horse, and before the trek was over, they would eagerly consume turtle and bear meat.⁴¹ Even with severe limiting of rations, the party found their provisions of food spent by August 24, yet it would take twenty more days for the group of starving men to reach Fort Smith.

The effects of insufficient provisioning dictated Long's strategy during and after the expedition. Long had to modify his original plan to locate the Red River close to its source, and instead followed what he thought was its tributary, but in fact proved to be the Canadian River. Once back in Washington, Long and James ignored the prospects of possible settlement of the Plains and instead portrayed the region as a sandy waste, a perception that relied on memories of starvation and thirst.

DROUGHT

The summer months on the southern Great Plains test the endurance of anyone exposed to the elements. This proved particularly true in August 1820 when the Long Expedition crossed the grasslands of the Texas Panhandle and western Oklahoma while suffering from depleted stores and the effects of a severe drought. The temperatures recorded by James during August ranged from 96 to 105 degrees Fahrenheit during the heat of the day. It is to be expected that these travelers suffered from heat stress and dehydration, as well as from the less severe but certainly uncomfortable

sunburn and windburn, which would have especially abused the lips with swelling and cracking. This heat also caused the evaporation of the few pools of water that usually remained in the Plains. While following the river bed, the party endured days of drought, as James explains in his entry for August 22: "[I]t had been only two weeks since the disappearance of running water in the river . . . , but during this time we had suffered much from thirst, and had been constantly tantalized with the expectation of arriving at the spot where the river should emerge from the sand."⁴²

The findings of the Long Expedition would have been far more reliable if 1819 and 1820 were climatically average years. Their journals represent a snapshot in time, but it proves to be misleading when one considers the meteorological trends in the region over the years. The chroniclers assumed that the conditions they observed in the Plains were no different from those usually present, and this was their biggest mistake. By taking for granted that 1819 and 1820 were average years, they excluded the possibility that the terrain they described in their journals was suffering from extreme water deprivation.

Tree-ring data provide the type of information needed to substantiate drought in the Southern Plains in the years before weather data for the region were recorded. Specialists in the field of dendrochronology reconstruct past climate patterns through studying the wood cells produced by a tree or shrub from year to year. Many factors complicate this process. Different species of trees experience growth at differing rates; for instance, deciduous oaks grow for up to twelve months after a rain. The age of the tree sampled is also important, because the older the specimen, the smaller the average ring growth. Other factors influencing tree-ring growth in any given year involve the amount of competition from other trees; the season in which the rain occurred, because moisture is more efficiently turned into energy when the tree is foliated; and seasonal temperatures, which influence the amount of evapotranspiration that takes place

and thus how much water is available for the plant's roots.

There are other factors as well, ones involving disturbances such as fires, wind, fungal outbreaks, and insect attacks, that could defoliate the tree and impair its ability to transform water into energy for tree growth. Dendrochronologists account for these possibilities by standardizing mathematically the growth of their samples. Thus, the type of standardization method implemented is key to the validity of the study. By tabulating the amount of growth for each ring and by standardizing the growth of these rings so that it can be interpreted in percentages of average growth, dendrochronologists can project the overall pattern of rainfall for that region in a given year. The implication, then, is that growth of less than 100 percent represents a less than average year of rainfall. Care is also taken to include a number of trees from each location and to choose specimens carefully. Usually, dendrochronologists pick specimens that are especially responsive to drought conditions. These trees are often located on rocky outcrops or near the edge of the species range, where they are more sensitive to environmental conditions.

Lawson conducted one of the earlier dendrochronological studies of drought in the Plains. He gathered data from the Upper South Platte, Upper Rio Grande, Upper Missouri, and Lower North Platte river basins in order to substantiate Pike's and Long's evaluations of the Plains as a desert. The results of Lawson's study prove quite revealing when compared with the reports of major explorations of the West. The trees studied in the Lower North Platte basin grew 130 percent of average in 1803 and 120 percent in 1804, but those in the Upper Missouri basin grew 85 and 90 percent of average for the same year.⁴³ Above average rainfall for the North Platte region and near normal rainfall for the Upper Missouri River area in 1804 correlate with the findings of the Lewis and Clark Expedition, which failed to note the existence of a large desert region east of the Rocky Mountains. In

contrast, tree-ring data indicate an extremely dry year for 1806 in the Upper South Platte and Upper Rio Grande river basins, with growth of 50 and 40 percent, respectively.⁴⁴ The occurrence of such severe drought puts Zebulon Pike's report in a more proper perspective, for Pike based his opinion of the Plains on what he saw during his journey through the South Platte region in 1806.

Lawson's dendrochronological data also substantiate the occurrence of a drought in the southern Great Plains from 1818 to 1820. The Lower North Platte basin, the route of travel for Long and his men during June 1820, underwent a mild but prolonged drought, indicated by tree-ring growth of 80 percent for 1818, 70 percent for 1819, and 80 percent of average for 1820.⁴⁵ The Upper Rio Grande basin experienced conditions much more harsh, as demonstrated by tree-ring growth of 60 percent for 1818, 40 percent for 1819, and 80 percent for 1820.⁴⁶ The region to the leeward of this basin could expect similar drought conditions due to the prevailing winds, which carry moisture east over the Sangre de Cristo Mountains. As the air is forced up over the mountains, it cools, forcing its moisture to condense, thus giving the slopes of these mountains enough rainfall to sustain a conifer forest. If these trees reveal a drought, then it is probable that the plains downwind of them experienced a drought as well. This is the region Long's Expedition traversed from July 27 into early August. And in fact, James describes their travel in terms of an extended period of little rainfall: "[W]e were still passing through a barren and desolate region affording no game, and nearly destitute of wood and water."⁴⁷

Although Lawson did not find that the drought conditions detected by this study were severe enough to justify Pike's or Long's portrayal of the Southern Plains as a desert, his research did trigger further studies.⁴⁸ H. Harper found that the occurrence of a severe drought in central Oklahoma during 1819 was supported by considerable agreement among all samples taken from Payne and Johnston

counties in north-central and south-central Oklahoma.⁴⁹

In a more recent publication, Lawson supports the conclusion that a drought did engulf the Southern Plains in 1806 and 1820.⁵⁰ The absence of trees on the High Plains requires the use of an index, which uses tree-ring data from neighboring areas to reconstruct indirectly the level of soil moisture in the Plains. The Palmer Drought Severity Index (PDSI) uses core samples from trees that border the Plains or occupy isolated pockets in the Plains to infer levels of humidity and aridity for a given year. It further integrates the cumulative effects of aridity or humidity over consecutive months, making it the best method available to evaluate soil moisture. Lawson and Charles Stockton tested the PDSI against the climatological records available for the American Plains from 1931 to 1962 and found these regional reconstructions were surprisingly accurate, but tended to underestimate extreme conditions.⁵¹ Using the Palmer Index to reconstruct past climates, Lawson and Stockton contend that the area observed by Long's party was in the grip of a drought more severe than that of the 1930s!⁵²

Stockton and David Meko substantiated this study. During the summers of 1980 and 1981, they collected tree-ring samples from sites in southwestern Oklahoma at Quanah, in the Arbuckle Mountain region of south-central Oklahoma, and around Lake Eufala in eastern Oklahoma. They successfully tested their method for calibrating tree-ring data against weather records from 1933 to 1977, and found that the 1930s drought was milder than the drought of the 1820s.⁵³

Another study sponsored by the National Oceanographic and Atmospheric Association (NOAA) in concert with the National Geophysical Data Center (NGDC) points to the occurrence of a severe drought in the five-state area of present Colorado, New Mexico, Oklahoma, Texas, and Kansas during 1820.⁵⁴ Cores were extracted from samples in the Wichita Mountains, along the Canadian River, on the slope of the Capuline volcano, and in

southeastern Colorado; from a wide variety of sample locations. NOAA and the NGDC also utilize the Palmer Drought Severity Index to estimate the level of drought experienced by regions where tree-ring evidence is not available. The PDSI plots show a year of drought in 1818 followed by increasingly dry years in 1819 and 1820 in the Southern and Central Plains. Each successive year of low rainfall would increase the severity of the drought on the landscape, causing denudation of vegetative cover in some areas.

In 1998 Connie Woodhouse and Jonathan Overpeck conducted an investigation into past droughts on the Central Plains. They collected evidence from all available sources of paleoclimatological data, including historical documents, tree rings, archeological artifacts, lake-bed sediment, and geomorphic evidence, to assess the frequency and severity of droughts on the nation's grasslands. These authors find that the Southern Plains experienced a prolonged severe drought from 1818 to 1822, which is roughly equivalent in severity to the extreme drought experienced in the Southern Plains from 1953 to 1956.⁵⁵

A more current study conducted by Edward Cook, David Meko, David Stahle, and Malcolm Cleaveland published in 1999 concludes that the drought of the 1930s was more severe for the nation as a whole than any that have occurred in the past 300 years.⁵⁶ The authors do mention that local droughts, such as those occurring in the Southern Plains in the 1820s, 1850s, and 1950s, may have proved more severe for their specific locations.

Descriptions of aeolian activity further substantiate the presence of a severe drought in the Plains during the Long Expedition's journey. Certain areas adjacent to Plains rivers are susceptible to blowing sand during extremely dry periods. During years of average or above average rainfall, these dunes are stabilized by vegetation, but during times of extreme aridity the plants die off and expose the unanchored sand particles to the power of the wind. James described the resulting dunes to the north of the dry Canadian riverbed in present

northeastern New Mexico: "Extensive tracts of loose sand, so destitute of plants and so fine as to be driven by the winds, occur in every part of the saline sandstone formation southwest of the Arkansa [sic]."⁵⁷

Daniel Muhs and Vance Holliday have studied dune activity in the Chihuahuan Desert, the northern and central Great Plains, and the Colorado desert of southeastern California. They found that dune activity in western North America is a result of a negative ratio of precipitation to potential evapotranspiration.⁵⁸ Upon examining modern aerial photographs of the Canadian River, Muhs and Holliday were not able to locate many instances of active dunes. Present dune conditions are nowhere near as active as those described repeatedly by James and Long, implying that blowing sand from uncovered dunes occurs during periods of low moisture.

The model for aeolian activity was probably present during the drought from 1818 to 1822 along the Canadian River. Conditions of low precipitation along with high temperatures decreased the amount of vegetative cover on the sand and left the riverbed dry. As the surface air heated, it began to rise, increasing the winds. These wind gusts picked up the riverbed sand particles and blew them to the northern banks of the Canadian River, adding them to the dunes that were now devoid of plant cover. In the words of James:

The drifting of sand occasioned much annoyance. The heat of the atmosphere became more intolerable, on account of the showers of burning sand driven against us, with such force as to penetrate every part of our dress, and proving so afflictive to our eyes, that it was with the greatest difficulty we could see to guide our horses.⁵⁹

The drought punished the Long party at the point in their journey where they were most vulnerable. As the expedition moved out of the mountains, their supplies grew shorter and the heat from the summer grew more intense.

James's journal entries contain the strongest evidence supporting the possible productivity of the Plains. It is ironic that the manuscript most responsible for labeling the Plains a desert also contains so many references to fertile soils, rich grasses, and abundant wildlife. On July 27, 1820, while the expedition was in the southeast corner of what today is Colorado, James describes the party's "surprise . . . to witness an aspect of unwonted verdure and freshness in the grasses and other plants of the plains."⁶⁰ James's training in the evaluation of soils by the trees they sustained is evident in a few entries. As the party crossed today's Texas Panhandle, James noted in his journal on August 14: "[T]he occurrence of elm . . . not to be met with in a desert of sand, give us the pleasing assurance of a change we have long been expecting to see in the aspect of the country."⁶¹ The naturalist notes "the occurrence of the black walnut for the first time since [the party] left the Missouri River" just twenty miles east of the one hundredth meridian, and he states that this "indicates a soil somewhat adapted to the purpose of agriculture."⁶² These three entries are interspersed through several references to "sterile and sandy" terrain, the "barrenness of the soil," and "extensive tracts of loose sand."⁶³ It is apparent that much of the land that James saw, he considered worthless to the future of his nation, and yet, in his more optimistic references, he describes areas that would be of certain value to his countrymen.

Later in his journal, James qualifies these descriptions of the High Plains as an area of promise. The main impediments to settling this region are the dense root systems of the grasses and the absence of moisture and timber. On the evening of August 19, he summed up his opinion of the High Plains: "[T]he elevated plains we found covered with a plentiful but close-fed crop of grasses. . . . The luxuriance and fineness of the grasses, as well as the astonishing number and good condition of the herbivorous animals of this region, clearly indicate its value for the purpose of pasturage."⁶⁴ James goes on to restrict the potential of the

grasslands by writing that "the soil of the more fertile plains is penetrated with such numbers of [strong roots] as to present more resistance to the plough than the oldest cultivated pastures."⁶⁵ This would prove to be a correct assessment, but hardly a reason to discourage settlement of the Plains. Just one week before the party entered the welcomed confines of Fort Smith, the journalist noted that the soil west of the Falls of the Canadian River, near the ninety-sixth meridian, was "in some places fertile, [but] the want of timber, of navigable streams, and of water for the necessities of life, render it an unfit residence for any but a nomad population."⁶⁶

CONCLUSION

The effects of the previous literature, the lack of supplies, and the summer heat did not inhibit James from writing about what he saw. It should be noted that James is not as negative about the area to the west of the one hundredth meridian in his original manuscript as he is in the published version.⁶⁷ His findings were accurate in describing the terrain for the specific time in which he was crossing it. The effects of the previous years' drought left little moisture visible in the river or streams of the area and reduced the grass cover, exposing sand and driving much of the wildlife to other areas in search of better grazing.

All references to "luxuriant grasses" aside, James and Long succeeded in convincing the government, and the public, that the Great Plains was a "Great American Desert." James's journal entry for September 6 provides the most telling example: "Speaking of the occurrence of a peculiar bed of rocks crossing the river [the Falls of the Canadian River], . . . when the traveler arrives at this point, he has little to expect beyond, but sandy wastes and thirsty inhospitable steppes."⁶⁸ Later in the same paragraph he adds, "[B]eyond [fifty or sixty miles above the Falls] commences the wide sandy desert, stretching westward to the base of the Rocky Mountains." In his report to Calhoun, Major Long described the region as

"almost wholly unfit for cultivation, and of course uninhabitable by a people depending upon agriculture for their subsistence."⁶⁹ Two years following the submission of Long's report to Washington, President Monroe officially adopted a policy of Indian removal suggested by Calhoun, which would relocate the tribes east of the Mississippi River to the less desirable land west of it.⁷⁰ The personal testimonies of the chroniclers, concerned with the worthlessness of the land for the purpose of settlement, profoundly impressed the popular perception of the Plains. The populace considered Long's Expedition to be a scientific exploration that, by endorsing the idea of the Plains as uncultivable, verified the earlier findings of Pike and entrenched in the American mind the concept of a Great American Desert.⁷¹

It should be noted that James Malin, in *The Grasslands of North America*, recognized the early-nineteenth-century explorers' ambiguous usage of the term "desert" to describe areas that are carpeted with grass.⁷² This is certainly true of James's and Long's writings, but in their era, the term was defined somewhat differently. Noah Webster's *An American Dictionary of the English Language*, published in 1828, defines "desert" as "forsaken . . . uninhabited . . . wild; untilled; waste; uncultivated . . . void; empty; unoccupied" or as "an uninhabitable tract of land; a region in its natural state; a wilderness; a solitude; particularly, a vast sandy plain, as the deserts of Arabia and Africa. But the word may be applied to an uninhabitable country covered with wood."⁷³ It seems as if the word was defined by the reasons the region was deserted rather than as a geographical area of little rainfall. The explorers employed many of these meanings when describing the terrain, and they often gave descriptive phrases to explain their particular meaning. Certainly the phrase "sandy waste" connotes a dry region in tune with a more contemporary meaning of "desert," while a phrase such as "barren waste" would describe the absence of trees and humans. Discussion of word usage aside, there is no doubt that the

phrase "Great American Desert" was intended to mean dry, uninhabited, and treeless, all of which were accurate for the Plains in a time of drought.

All this information begs the question, What if Long and his party crossed the Southern Plains in an average or wet year? Certainly, the descriptions of a region suffering through the effects of a severe drought would be quite different from descriptions of the same area in a year of adequate moisture. In 1820, the year that witnessed a harsh drought in the Southern Plains, James took this note of his surroundings in what is today southern Blaine County, Oklahoma: "[T]he country we are traversing has a soil of sufficient fertility to support a dense population; but the want of springs and streams of water must long pose a serious obstacle to its occupation by permanent residents."⁷⁴ In 1845 Lieutenant Abert passed through this same stretch of the Canadian River in a year of average moisture, but his comments are drastically different. He describes the topography of present Blaine County in more glowing terms: "[A] small creek, which in several places along its course, widen[s] into small lakes of five feet in depth," and a day later he notes that there are "plenteous rivers and wide skirted meads."⁷⁵

Abert reaches a conclusion about the possible settlement of the region that contrasts acutely with that of James and Long. Abert states that it was "a country so beautiful, abounding as it does with timber, with water, with, in fact, all the allurements which would induce man to frequent it."⁷⁶ The possibilities of how history would be different had the Long Expedition traveled through the Southern Plains during a wet year titillate the imagination.

The journalists of the Long Expedition were influenced to view the Great Plains as unfit for settlement despite evidence that the region was habitable. The literature and myth of their time stressed the barrenness of the "sandy desert" east of the Rockies and guided their perception of the landscape before they even set foot on it. Shortages of food and water

forced the party to endure severe privation along their journey, which resulted in memories of dry, "sterile soil." The effect of drought upon the region they traveled must be recognized as pivotal in persuading the journalists that the area was too arid for cultivation, even as far east as the ninety-sixth meridian. As plants died from lack of moisture, they exposed the ground to the effects of the wind and evaporation, giving the perception of a desert. James and Long took this view of the Plains back to Washington with them.

NOTES

1. Martyn Bowden, "The Perception of the Western Interior of the United States, 1800-1870: A Problem in Historical Geosophy," *Proceedings of the Association of American Geographers* 1 (1969): 19. Most of the nation's elite universities were located in New England and would have influenced this segment of society greatly in their views of the Great Plains.

2. Ralph C. Morris, "The Notion of a Great American Desert East of the Rockies," *Mississippi Valley Historical Review* 13, no. 2 (1927): 193; Francis Prucha, "Indian Removal and the Great American Desert," *Indiana Magazine of History* 59 (December 1963): 302; Richard Dillon, "Stephen Long's Great American Desert," *Proceedings of the American Philosophical Society* 111 (April 1967): 93; Terry Alford, "The West as a Desert in American Thought Prior to Long's 1819-1820 Expedition," *Journal of the West* 8 (October 1969): 516; Bowden, "Perception of the Western Interior," 17; Bowden, "The Great American Desert and the Frontier, 1800-1882: Popular Images of the Plains," in *Anonymous Americans: Exploration in the Nineteenth Century Social History*, ed. T. K. Hareven (Englewood Cliffs, NJ: Prentice Hall, 1971), 51-52.

3. Thomas Say, *Account of an Expedition from Pittsburgh to the Rocky Mountains Performed in the Years 1819 and 1820*, ed. Edwin James (Philadelphia: Carey and Lea, 1823), 1:192; and Edwin James, *James's Account of S. H. Long's Expedition, 1819-1820*, vol. 15 of *Early Western Travels*, ed. Reuben Gold Thwaites (Cleveland: Arthur H. Clark Co., 1905), 2:94.

4. *James's Account of Long's Expedition*, 2:174.

5. Bowden, "Perception of the Western Interior," 18. See table 1.

6. One school of thought holds that the influence of the Long Expedition's findings dominated through the 1850s: Walter Prescott Webb, *The Great Plains* (1931; reprint, Lincoln: University of

Nebraska Press, 1981), 152, and a host of others. B. H. Baltensperger has proposed that the Great American Desert myth was propagated by boomers in the Plains as a tool to recruit settlers in "Plains, Boomers, and the Creation of the Great American Desert Myth," *Journal of Historical Geography* 18 (January 1992): 59-73. Although a fascinating interpretation, the boomers probably would not have mentioned the Great American Desert unless eastern settlers had heard of it. They prefaced many of their claims with statements such as "You may have heard that this region is a Great American Desert, but" This presupposes a knowledge of the desert theory.

7. John C. Allen, "The Garden-Desert Continuum: Competing Views of the Great Plains in the Nineteenth Century," *Great Plains Quarterly* 5 (Fall 1985): 209.

8. For the letter reference, see Meriwether Lewis and William Clark, *The Original Journals of the Lewis and Clark Expedition, 1804-1806*, ed. Reuben Gold Thwaites (New York: Antiquarian Press, 1959), 7:310. For the description of the Missouri Breaks, see Stephen E. Ambrose, *Undaunted Courage: Meriwether Lewis, Thomas Jefferson and the Opening of the American West* (New York: Simon & Schuster, 1996), 226.

9. Allen, "Garden-Desert Continuum," 210.

10. Donald Jackson, ed., *The Journals of Zebulon Montgomery Pike*, vol. 2: *Pike's Dissertation of Louisiana* (Norman: University of Oklahoma Press, 1966), 27.

11. Alford, "The West as a Desert," 524 (see n. 21).

12. Bowden, "Great American Desert and the Frontier," 70 (see n. 20).

13. *Ibid.*

14. Henry M. Brackenridge, *Views of Louisiana; Together with a Journal of a Voyage Up the Missouri River in 1811* (Pittsburgh: 1814), 27-35; quoted in Alford, "The West as a Desert," 520. According to Alford, Brackenridge modified this version in 1817 by replacing the description calling the region a desert with the less offensive depiction of "desert-like." Brackenridge still maintained that the area could never be cultivated. Henry M. Brackenridge, *Journal of a Voyage up the Missouri River in Eighteen Hundred and Eleven*, vol. 6 of *Early Western Travels*, ed. Reuben Gold Thwaites (Cleveland: Arthur H. Clark Co., 1904), 161.

15. Dumas Malone, ed. *Dictionary of American Biography* (New York: Charles Scribner's Sons, 1946), 11:380.

16. *Ibid.*, 9:576.

17. *Ibid.*, 16:401-2.

18. Merlin Lawson, "The Climate of the Great American Desert: Reconstruction of the Climate of the Western interior United States, 1800-1850," *University of Nebraska Studies* 46 (December 1974): 95.

19. Say, *Account of an Expedition*, 1:138.

20. Dillon, "Long's Great American Desert," 96.

21. *James's Account of Long's Expedition*, 2:192.

22. John R. Bell, *Journal of the Long Expedition*, vol. 16 of *The Far West and the Rockies Historical Series, 1820-1875*, ed. Harlan M. Fuller and LeRoy R. Hafen (Glendale, CA: Arthur H. Clark Co., 1975), 103.

23. Nichols and Halley, *Stephen Long and American Frontier Exploration* (Norman: University of Oklahoma Press, 1995), 117.

24. *Ibid.*, 110-11, 117.

25. *Ibid.*, 112-13.

26. *Ibid.*

27. Bell, *Journal of the Long Expedition*, 99.

28. Nichols and Halley, *Stephen Long and American Frontier Exploration*, 118.

29. *James's Account of Long's Expedition*, 2:191-92. These supplies were meant to provide food and bartering material for the expedition, gifts for the Natives to ensure their cooperation, and equipment for scientific research, but included only 450 to 500 pounds of hard biscuits, 150 pounds of parched cornmeal, 150 pounds of salted pork, 25 pounds of coffee, 30 pounds of sugar, and 5 gallons of whiskey. In Bell's account, the supplies taken for trading purposes included 30 pounds of tobacco, 5 pounds of vermilion, 2 pounds of beads, 2 gross of knives, 1 gross of combs, 2 gross of hawk bells, 2 dozen moccasin awls, a dozen scissors, and some trinkets. Native tribes prized highly the tobacco used to fill pipes smoked prior to any council, and vermilion used to dye garments red.

30. Nichols and Halley, *Stephen Long and American Frontier Exploration*, 119.

31. Bell, *Journal of the Long Expedition*, 192. The instruments included "three traveling and several pocket compasses; one sextant, with a radius of five inches; one snuff box sextant; one portable horizon with a glass frame and mercurial trough; one and a half pounds of mercury in a case of box wood; two small thermometers; several blank books, portfolios, & etc."

32. Nichols and Halley, *Stephen Long and American Frontier Exploration*, 99-100. The scientific contributions of this expedition fell far short of the nation's expectations. The party, traveling by steamer, was able to progress only 600 miles in almost three months, and then Washington recalled Long, simultaneously curtailing the expedition.

33. Moring, *Men with Sand: Great Explorers of the North American West* (Helena, MT: Falcon Publishing, 1998), 94.

34. Nichols and Halley, *Stephen Long and American Frontier Exploration*, 119.

35. *Ibid.*, 123.

36. *James's Account of Long's Expedition*, 2:262.

37. Ibid., 3:82.
38. Ibid., 3:84. Also not included in the quote a "late storm" had pelted the group with hail and forced them to endure a temperature change from seventy degrees to forty-seven degrees.
39. Ibid., 3:93.
40. Ibid., 3:111.
41. Ibid., 3:94, 99, 130, 153.
42. Ibid., 3:148.
43. Lawson, "Climate of the Great American Desert", 22, 21.
44. Ibid., 24, 26.
45. Ibid., 22.
46. Ibid., 26.
47. *James's Account of Long's Expedition*, 3:94.
48. Lawson, "Climate of the Great American Desert," 95.
49. H. Harper, "Drought in Central Oklahoma from Annual Rings of Post Oak Trees," *Proceedings of the Oklahoma Academy of Sciences* 41 (1961): 26-27.
50. Merlin P. Lawson and Charles W. Stockton, "Desert Myth and Climate Reality," *Annals of the Association of American Geographers* 71 (December 1981): 531, 535.
51. Ibid., 530.
52. Ibid., 535.
53. Charles Stockton and David Meko, "Drought Recurrence in the Great Plains as Reconstructed from Long-Term Tree-Ring Records," *American Meteorological Society* 22 (January 1983): 23.
54. E. R. Cook, D. M. Meko, and C. W. Stockton, eds., *U.S. Drought Area Index Reconstruction, International Tree-ring Data Bank, IGBP Pages/World Data Center, Paleoclimatology Data Contribution Series no. 98-036*. (Boulder, CO: NOAA/NGDC Paleoclimatology Program, 1998).
55. Connie Woodhouse and Jonathan Overpeck, "2000 Years of Drought Variability in the Central United States," *Bulletin of the American Meteorological Society* 79 (December 1998): 2703.
56. Edward Cook, David Meko, David Stahle, and Malcolm Cleaveland, "Drought Reconstruc-
tion for the Continental United States," *American Meteorological Society* 12 (April 1999): 1145.
57. *James's Account of Long's Expedition*, 2:120.
58. Daniel Muhs and Vance Holliday, "Evidence of Active Dune Sand on the Great Plains in the 19th Century from Accounts of Early Explorers," *Quaternary Research* 43 (1995): 203.
59. *James's Account of Long's Expedition*, 2:122-23.
60. Ibid., 3:75.
61. Ibid., 3:125.
62. Ibid., 3:135.
63. Ibid., 3:65, 71, 126.
64. Ibid., 3:142-43.
65. Ibid.
66. Ibid., 3:174.
67. Dillon, "Long's Great American Desert," 97.
68. *James's Account of Long's Expedition*, 3:174. For the location of this particular bed of rocks, see Goodman and Lawson, *Retracing Major Stephen Long's 1820 Expedition: The Itinerary and Botany* (Norman: University of Oklahoma Press, 1995), 111.
69. Stephen Long in *James's Account of Long's Expedition*, 4:147.
70. Prucha, "Indian Removal and the Great American Desert," 299.
71. Alford, "The West as a Desert," 516; Morris, "Notion of a Great American Desert," 193.
72. James Malin, *The Grasslands of North America: Prolegomena to its History* (Gloucester, MA: P. Smith, 1967), 82.
73. Noah Webster, *An American Dictionary of the English Language* (1828; reprint, San Francisco, CA: Foundation for American Christian Education, 1996), n.p.
74. *James's Account of Long's Expedition*, 3:152.
75. U.S. Senate, *Journal of Lieutenant J. W. Abert, From Bent's Fort to St. Louis, in 1845*, 29th Cong., 1st sess., 1848, S. Doc. 438: 104, 107. For 1845 moisture estimations, see the World Wide Web site at <http://www.ngdc.noaa.gov/paleo/treering.html>.
76. Ibid., 108.