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Making the Great American Desert

“I do not hesitate in giving the opinion, that it is almost wholly unfit for cultivation, and of course uninhabitable by a people depending upon agriculture for their subsistence.”

—*Stephen Harriman Long, 1822*¹

The City of Boulder’s Forestry Division estimates that there are about 650,000 trees in Boulder’s urban forest, including about 38,000 trees in city parks and public street rights-of-way. Just twelve miles south of Boulder, on Rocky Flats, there are virtually no trees, save those that grow along Coal Creek. This is no coincidence. Urban development skipped Rocky Flats. The shortgrass prairie on Rocky Flats looks much as it did when Major Stephen Harriman Long passed near here in 1820. Boulder Valley, on the other hand, is a landscape transformed. It is an urban oasis by virtue of water development.²

Over the last few centuries, people have extracted, others say plundered, the resources from Colorado’s riparian corridors. Regardless of one’s

perspective, these actions have transformed Colorado's Front Range rivers and shaped the character of the landscape we see in places like Boulder Valley.

TIMELINES AND BASELINES

Boulder's landscape history is written on its streams and riparian areas. For at least the last 200 years, and perhaps for a long time before that, change and transformation was the overriding feature of Front Range streams. Streams present in the Front Range bear little resemblance to what once existed. People have appropriated the water and dug lakes within the floodplains. They have introduced dozens of new species of vegetation, fish, insects, and algae while at the same time they have eliminated many others. And stream channels have been bridged, channelized, modified by flood control structures, inundated by reservoirs, and encroached by urbanization. There is no hint that this process of development and environmental change will slow. Development has shifted the riparian ecosystem to the point that new, hybrid ecosystems have emerged.

It is hard to pick a date to begin a story about change when change itself is arguably the normal state of affairs. Although somewhat arbitrary, I think we can select two interconnected points of departure. The first starting point involves the Native Americans who were here until they were brutally expelled by American invaders from the east. They lived and hunted here and adapted the environment to suit their needs. One really cannot do justice to 10,000 years of history in a few pages, so I hope you forgive me for making omissions and broad generalizations. However, to ignore the Indians would be a far graver sin, so abbreviate I will. What is critical here is that the Indian influence on the landscape that the Europeans first saw when they arrived was so fundamental that it blurs, almost beyond resolution, any distinction between what was "naturally" here versus that which was created through the action of Native Americans. Indeed, I maintain that it is impossible, and often counterproductive, to even attempt segregating the "manmade" from the "natural" when describing the evolution of contemporary landscapes.

The second is some people who, as far as we know, never actually visited Boulder Valley: the Spanish conquistadores. Although never directly present, their impact rippled across the region and through the centuries by their introduction of horses and cattle, the establishment of irrigation institutions,

and the realignment of trade. And so it was that the Indians and Spaniards set the stage that the Americans would later walk upon and rearrange.

THE FIRST AMERICANS AND THE LEGACY OF CORONADO

In the fall of 1860 a band of about 400 Arapahoe Indian pony riders made the last great antelope roundup in Boulder Valley. They started their hunt by forming themselves into a large circle to enclose a tract of land near South Boulder Creek on which “thousands of antelope” were grazing. During the day the Indians rode a relay of ponies in an ever tightening circle. As the day wore on, the frightened antelope became so tired that they began lying down with exhaustion. By nightfall, the Indians came in and slaughtered all the antelope they wanted. Some 500 antelope were killed that day for use as winter meat by the tribe. This hunt took place near a hollow where Charlie Pancost would soon build Boulder Valley’s first reservoir. Today, Xcel Energy’s Valmont Power Plant stands at that site.³

It is tempting to overlook Indian impacts, such as the antelope hunt, on the Front Range. After all, history belongs to those who write it. If the hunt were not recorded in an early Boulder history, all memory of this hunt would now be lost. Without a written record from the Native Americans, it is tempting mark the beginning of changes to the land with the arrival of those who wrote down their observations. Once the Indians were removed, it became easy to overlook the legacy of Native Americans.

The Indians of the High Plains and Mountain West were nomads. For the most part, their lifestyle was one of cyclic seasonal movement centered on the availability of grass, game, water, and shelter. Their lifestyle demanded movement, not year-round sedentary occupation. This is in stark contrast to the Spanish settlement of New Mexico, where the Spanish conquistadores had to contend with Indians living in well-established and sedentary villages. In Colorado the settlers stayed and expelled the Indians to less desirable areas.

In 2009, workers digging a garden pool unearthed a Clovis point cache in the yard of a west Boulder residence. The tools place aboriginal occupation of the Boulder Valley to the late Pleistocene, or at least 13,000 years ago. Biochemical analysis of proteins on the points indicates that the implements were used to butcher now-extinct ice-age camels and horses. Protein evidence from the tools also suggests the presence of bear and sheep. Other

excavations show that Colorado contained both Columbian and American mastodons, dire wolf, horses, saber-toothed cat, Harlan's ground sloth, and other large mammals in the centuries before human occupation. Although the reasons for extinctions of these animals remain hotly debated, there is no reason to doubt that these animals were hunted and consumed by aboriginal populations up until their extinction.⁴

Native American occupation continued uninterrupted from the late Pleistocene to the present. Archeologists describe Native American occupation in northeastern Colorado in terms of several cultural periods. Throughout that time, a gradual cultural and economic evolution took place. The earliest phase was a Paleo-Indian period that extended from about 9500 to 5500 BC and was characterized by gathering and big-game hunting. After that, a Plains Archaic period spanned from about 5500 BC to AD 1. A Late Prehistoric period followed until about 1550. During this time the Native American hunters and gathers likely moved seasonally between the mountains and plains.⁵

In 1540 everything changed for the Indians of the American West. That year Captain-General Francisco Vasquez de Coronado, the Spanish conquistador, began his journey in search of Cibola, the fabled Seven Cities of Gold. Traveling with his army of conquerors from the city of Mexico, Coronado and his men became the first Europeans to ascend the Rio Grande into what is now New Mexico and then push beyond to the Central and High Plains in what are now parts of Texas, Kansas, Nebraska, and possibly Colorado. Coronado's party was enormous for its time. With him were over one hundred Spaniards, including at least three women, six Franciscan friars, and more than 1,000 Indian allies supported by about 500 horses and pack animals.⁶

This was the first time American Indians saw horses and the first that Spaniards saw the American bison. When Coronado traveled to the plains, they encountered small settlements of Indians who "live in tents made of tanned skins of the cows." The Indians communicated with them via sign language and said that there was a very large river in the land of the rising sun, and that one could go along this river for ninety days without a break from settlement to settlement.⁷

Coronado's expedition through the High Plains is one of the most remarkable events in the European conquest of the Americas. After traveling all the way from Mexico City, they set out anew from somewhere near modern-day Pecos, New Mexico, and then headed east for twenty-two days with the full

army. Realizing the vast distances involved, Coronado turned the foot soldiers around and continued onward with a select group of horsemen for another forty-two days. Along the way Coronado encountered so many buffalo that it was “impossible to number them.” Traveling the plains “there was not a day that I lost sight of them,” Coronado reported. Based on his travel distances, Coronado’s expedition easily went past the Arkansas River and perhaps beyond to the Platte River in central Nebraska or even the Missouri.⁸

Coronado’s epic journey marked the beginning of Hispanic occupation in the Southwest. The Spanish and later Mexican settlers that followed (notwithstanding their brief expulsion during the Pueblo Revolt) transformed the western landscape. They introduced horses, cattle, sheep, and other domestic animals and plants. Eventually Spanish and Indian peoples learned to coexist. The Spaniards and later New Mexicans developed a unique agrarian culture centered on irrigation via the *acequia* or ditch systems. Their irrigation technology was eventually dispersed around the West as Anglo-American settlers later flooded in. Their cultural and ecological impacts resonate to this day. When Anglo-Americans began trickling in during the early 1800s to what is now eastern Colorado, the Spaniards had already acquired some 270 years’ experience in the area, and left in their wake an environment that was permanently altered.

In the seventeenth and early eighteenth centuries, the Comanche Indians, who by then were acquiring Spanish horses, spent much of the year between the Colorado Front Range and the Sawatch Mountains. The Comanches and their Ute allies gathered wild seeds, nuts, and berries and snared jack rabbits and other small mammals. During the summer and fall they spent time on the plains hunting bison. Sometimes they headed farther south to raid the Spanish Pueblos or trade for corn.⁹

By the time Colonel Henry Dodge commanded a troop of Dragoons on a march up the South Platte to the foothills in 1835, the distribution of Indians along the Front Range and High Plains had markedly changed. Significantly Dodge described what we now know as the High Plains in the vicinity of Boulder as “Snakes and Crow’s War Ground.” Dodge also reported that Blackfeet Indians occupied the area between the North and South Platte Rivers, and the “Gros Ventres Indians of the Prairie” lived in what is now Weld and Adams Counties, Colorado. Farther south, the “Chiennes Indians” occupied the north bank of the Arkansas River near Bents Fort. The Indians

he encountered were nomadic, and each group would sweep across vast tracts of the High Plains during any single season.¹⁰

For the Arapahoe and Cheyenne, coming to the Colorado High Plains was a dramatic event. Prior to 1700, the Arapahoe and Cheyenne were farmers living on the Upper Mississippi. They lived in earth lodges and were more or less sedentary. Beginning in the early 1700s, the Arapahoe and Cheyenne were in what is now North Dakota. In the early nineteenth century, the Cheyenne were living in the lake district of western Minnesota. It is around this time that they may have acquired horses from the Kiowa. Concurrently, the Europeans were pushing westward in a relentless quest for furs. It seems that a series of wars over the control of the fur trade motivated the Arapahoe and Cheyenne to begin a slow migration southwest onto the High Plains. Eventually, the Arapahoe and Cheyenne exchanged their sedentary lifestyle for a nomadic existence based on the horse and bison. It was only after the Long Expedition that the Arapahoe and Cheyenne began spending considerable time along the Front Range. The Cheyenne and other plains Indians intentionally set fires, held communal hunts, grazed horses, transplanted beneficial species, and took whatever was useful for their survival. It is through their efforts that plants like the American groundnut (*Apios americana*) were likely introduced to Boulder Valley.¹¹

Introduction of guns in the early 1600s by the Dutch, French, and English on the East Coast of North America and even earlier by the Spaniards in Mexico began a long transformation of Native American hunting practices across the continent. To acquire guns and other European trading goods, the Indians accelerated their hunting and trapping of animals. The introduction of the horse and European trade goods led to radical adjustments in the Indian social structures and resource strategies. Once horses became widely available, tribes had new flexibility for dealing with the changes that were affecting them. Horses facilitated a transition of the tribes from mostly sedentary lifestyles to a wholly nomadic existence based on bison hunting. Trade with the whites provided them with the items they could not produce while on the move. By the early 1700s the Indians depended on hunting and trading to support their lifestyle. Thus, Indians became an extension of the European's extractive commodity trade in furs and hides. The Indians were not idle bystanders as the populations of fur- and hide-bearing animals were decimated throughout the nineteenth century.¹²

These Indians had no permanent homes, but were not homeless. They circulated widely through the seasons between favorite summer and winter camps. Their travels were guided by seasonally available water, game, and pasture. Their environment was very unpredictable. Reliance on mammal hunting did not provide the security of a sedentary farm life. The short- and medium-grass prairies over which the nomadic hunters wandered evolved in concert with marginal and highly variable annual rainfall. Wildlife populations that the Indians relied on fluctuated with the weather and the grass. Include extractive practices such as hide and fur hunting by both Indians and Americans, and there is no surprise that the animal populations in the Foothills and High Plains experienced a long precipitous decline. At almost the very moment that the hunting pressures completely undermined the Indians' nomadic lifestyle, white prospectors discovered gold on the Front Range, leading to a flood of settlers onto the Indians' critical winter camping ranges. Even if the brutal campaign of ethnic cleansing by whites to remove the Indians from the High Plains in the 1860s had never taken place, it is doubtful that the Indians' nomadic ways could have survived for much longer.¹³

Once the ethnic cleansing of Indians was complete, the space for Americans to build their farms, towns, mines, and ditches was opened. The landscape that the Americans entered may have been wild but it was not pristine.

MAJOR STEPHEN HARRIMAN LONG AND THE UNITED STATES TOPOGRAPHICAL ENGINEERS

In the aftermath of the Louisiana Purchase, Americans began tracing the footsteps of Lewis and Clark to fill in the blank places on the maps of the American West. Prominent among the explorers was Major Stephen Harriman Long of the United States Topographical Engineers. In 1819 and 1820 Long mounted a scientific exploring expedition to the watersheds of the Mississippi and Missouri Rivers. Long's unusually broad mandate included reporting on peoples his party encountered and collecting information on the region's topography, geology, and biology. In February 1820, Secretary of War John C. Calhoun ordered Long to make an overland exploration of the country from the Missouri to the Rocky Mountains and then proceed along the base of the mountains and return via the Arkansas and Red Rivers.¹⁴

The mission, which came to be known as the Long Expedition, was the first government-sponsored scientific and topographical survey to reach the base of Colorado's Front Range. Long's expedition had about twenty-two men. A key member was Edwin James, who later published the expedition's journal. In early June 1820, the expedition departed Council Bluffs and headed upstream along the Platte River. The party remained vigilant for hostile Indians and often posted sentinels through the night. While traveling, they hunted buffalo and encountered numerous "deer, badgers, hares, prairie wolves, eagles, buzzards, ravens, and owls." On typical days they traveled twenty to twenty-five miles, and did so for months at a time. As they progressed westward, the number of trees along the river diminished and eventually disappeared altogether. By June 21, they noted that wood was so scarce that they could find no poles to pitch their tents. On June 22 they reached the confluence of the North and South Platte, where they saw elk wading in the river. The next day they started up the South Platte and encountered signs of Indians. That day they noted a "narrow fringe of timber" along the South Platte, much of it killed by old age or beaver. On June 24, the party saw "immense herds of bisons, blackening the whole surface of the country."¹⁵

On June 26, the expedition camped near a recently occupied Indian fortification that could have protected up to thirty men. The breastwork was a circular form about five feet tall composed of logs and bison skeletons. Nearby was a semicircular row of sixteen bison skulls arranged to point downriver. One of the skulls was painted with red lines. A rod stuck in the ground held evidence of four human scalps. One of the interpreters thought that the camp was built by a war party of Pawnee Loup Indians.

Long later wrote that the "Great Desert is frequented by roving bands of Indians who have no fixed place of residence but roam from place to place in quest of game." By June 30, the expedition had ascended the South Platte far enough to make out their first distant view of the mountains. Rapid progress and the first sight of the mountains cheered them. By July 3, they began finding more and more wood, eventually encountering an "uninterrupted stripe of timber, extending along the immediate banks of the river, never occupying a space of half a mile in width." Of the ground they just covered, Long noted that the Platte and South Platte was "almost entirely destitute of woodland, scarcely a tree, bush, or even a shrub, making its appearance."¹⁶

The South Platte “is seldom navigable, except for skin canoes, requiring but a moderate depth of water, and for these only when a freshet prevails in the river,” Long noted. It was so shallow that few attempts were ever made to ascend the wide river in canoes.¹⁷

By moving fast, they left little time for detailed survey or exploration. One day they passed three large creeks coming in from the northwest. These creeks were likely the Cache la Poudre, Thompson, and St. Vrain. Long named one of these streams the Elk, probably for what we now know as the St. Vrain. Sometime on July 4, 1820, they crossed the fortieth parallel, which would have placed them directly east of what is now Boulder near modern-day Brighton, Colorado. On July 4 they did not even pause to celebrate, but Major Long ordered an extra ration of maize and distributed of a small portion of whiskey to the men. By now, the expedition was commonly seeing both long-leaf and narrowleaf cottonwood. On July 5, they passed another stream that they named “Canon-ball Creek” for its stone cobbles. Continuing upstream, they passed more creeks. “Vermillion Creek” came in from the south, and nearly opposite to it was a much larger creek that they called “Medicine Lodge Creek,” named after an Indian medicine lodge that once stood near its mouth. Based on their position, distances traveled, and the expedition map, the most likely modern candidates for Vermillion and Medicine Lodge Creeks are Sand Creek and Clear Creek respectively, which join the South Platte nearly opposite from each other.

About noon on July 5, 1820, the party had traveled over 1,000 miles and camped at the base of a “range of naked and almost perpendicular” rock. They halted in front of the “chasm through which the Platte issues from the mountains.” The diversity of wildlife at the foot of the mountains was striking. Beaver, otter, mink, and muskrat were abundant along the rivers, and “badgers, raccoons, hares, polecats, porcupines, many varieties of squirrels, panthers, wild cats, lynxes and foxes of several species” were in residence. At other times they reported elk, deer, prairie dogs, eagles, wolves, rattlesnakes, and grizzly bears.¹⁸

After exploring in the vicinity of what we now call Waterton Canyon, the expedition continued on toward the Arkansas, traveling south along a tributary of the South Platte, most likely Plum Creek. Long’s expedition provides the earliest reliable descriptions of the Colorado High Plains and was the first to map the South Platte and its tributaries near the foothills. Perhaps most

significantly, on the expedition's map, Long prominently displayed the words "GREAT DESERT" across Colorado's High Plains between the South Platte and Arkansas Rivers. "I do not hesitate in giving the opinion, that it is almost wholly unfit for cultivation, and of course uninhabitable by a people depending upon agriculture for their subsistence," Long wrote. "Although tracts of fertile land considerably extensive are occasionally to be met with," he added, "the scarcity of wood and water, almost uniformly prevalent, will prove an insuperable obstacle in the way of settling the country."¹⁹

Thus the Great American Desert was born. Later writers only reinforced the notion of a vast inhospitable, waterless plain. When Thomas Farnham, a British traveler, journeyed to the High Plains in 1839, the landscape had become even more fearsome: "It is a scene of desolation scarcely equaled on the continent, when viewed in the dearth of midsummer from the base of the hills. Above, rise in sublime confusion, mass upon mass, shattered cliffs through which is struggling the dark foliage of stunted shrub-cedars; while below you spreads far and wide the burnt and arid desert, whose solemn silence is seldom broken by the tread of any other animal than the wolf or the starved and thirsty horse which bears the traveller across its wastes."²⁰

For the generation that followed Major Stephen Harriman Long, the waterless and treeless plain across a barren prairie occupied by hostile Indians was seen as holding little prospect for settlement. But the harsh aridity implied by the word "desert" was an exaggeration fostered by a series of dry years that occurred at the time of Long's expedition. It would take other travelers with different motivations to begin challenging Long's view of the region.²¹

JOHN C. FREMONT AND THE CORPS OF TOPOGRAPHICAL ENGINEERS

Trappers and traders traveling among the Indians were the vanguard of America in the trans-Missouri West in the first decades after the Louisiana Purchase. Outside of the Mississippi River Basin, Spain (and later Mexico) claimed all of the land south of the Arkansas River, the Colorado River Basin, and land in present-day Nevada, Utah, Arizona, and California. North of the forty-second parallel, in what was known as Oregon, was a contested territory between the United States and Great Britain. The area that became Colorado was a destination for trappers and traders and was a thoroughfare for travelers to the Oregon and Spanish territories. Trappers, traders, and later

settlers led the way in the long process of Americanizing the region. When the United States government wished to extend its reach, an obscure branch of the War Department, the Corps of Topographical Engineers, often found itself in the forefront in of those efforts. Through the Corps, exploration and mapmaking by the young United States government gave substance to its geopolitical claims.

Today the Corps is all but forgotten to most Americans. In the 1840s, however, the Corps was famous. It created the maps that led migrants west. It gathered intelligence ahead of the Mexican-American War. It helped lift the veil of western topography and affixed names to landmarks that remain in use today. Exploits of the Corps sparked intense public interest. Presidents and Congress employed the Corps in the cause of American expansion.

Among the heroes of the Corps, John C. Fremont remains the most famous. Rivers and mountains across the American West remain associated with Fremont's travels. He named the Golden Gate and the Great Basin as well as many mountains, lakes, and rivers. Fremont's work helped inspire the Mormon migration to Utah. His maps guided the overland emigrations to Oregon and California.

Through several expeditions mounted in the 1840s, Fremont was charged with mapping routes for overland migration to the American West. His detailed maps of routes along the South Platte and Arkansas would aid settlers as they rushed to Colorado during the Gold Rush a few years later. Figure 1.1 is the map produced as part of the Fremont Expedition to New Mexico and the Southern Rocky Mountains. This map later helped settlers reach the Pikes Peak area during the Gold Rush. The closest Fremont came to Boulder Valley was to Fort St. Vrain on the South Platte. His report of the area was influential in convincing easterners that the valleys along the Front Range held great agricultural potential.

Fremont employed Lucien Maxwell of Taos, New Mexico, to serve as the chief hunter to the expeditions of 1842 and 1843–44. Also joining the party was a young William Gilpin, later to serve as a bodyguard to Abraham Lincoln and the first territorial governor of Colorado. Rounding out the party was Maxwell's brother-in-law, Christopher "Kit" Carson. Broad-shouldered and with clear blue eyes, Carson would go on to become a lifelong friend of Fremont. In time Carson's fame would eclipse that of all other western trappers and mountain men and perhaps Fremont himself.²²



FIGURE 1.1. A map produced in 1845 from information collected during the Fremont expedition to New Mexico and the Southern Rocky Mountains.

Fremont helped dispel Long's declaration that much of the American West, and in particular what would become Colorado, was a barren desert, devoid of potential. In vivid contrast to Long's "Great American Desert," Fremont spoke glowingly of Colorado's great agricultural potential. Fremont's observations of the rich grasslands along the base of the "Black Hills," mountains we now call the Front Range, helped inspire the westward migration to Colorado as soon as gold was found.

On his first expedition, Fremont arrived at Fort St. Vrain on July 10, 1842, where he was warmly welcomed by Ceran St. Vrain, a French Canadian from St. Louis. The trading fort was built using Mexican laborers that Ceran St. Vrain employed to make adobe bricks in the style of New Mexico. The stream directly across the South Platte from the fort now bears the St. Vrain name. When Fremont's expedition arrived, trade along the Front Range was dominated by the Bent, St. Vrain & Company, which worked the eastern plains of Colorado and traded between St. Louis and Taos. Ceran St. Vrain was one of the three partners in the company, the others being brothers

Charles and William Bent. St. Vrain and his partners were energetic, having established their trading network, two forts, a couple of ranches in northern New Mexico, and homes for themselves at Taos.²³

Fremont regretted that he did not have the time to visit the mountains to the west. On leaving the fort on July 12, the party headed down the South Platte for some distance, “which resembled a garden in the splendor of fields of varied flowers, which filled the air with fragrance.” After crossing Thompson Creek, the Cache la Poudre, the expedition headed north toward Fort Laramie.²⁴

A year later, Fremont returned during a second expedition and arrived at St. Vrain’s fort on July 2, 1843. While there, they extend the reconnaissance upstream from the previous year. Several days later they approached what is now lower downtown Denver, surprising “a grizzly bear sauntering along the [South Platte] river.” Later they halted for the night a little above Cherry Creek, likely near present-day Confluence Park in Denver.²⁵

Fremont’s enthusiasm about the region grew. Where the South Platte emerges from the mountains, Fremont found “excellent grass and rushes for the animals” and many “beautiful flowers, which we had not hitherto met.” A day later Fremont had more good things to say, noting that they passed “little valleys, with pure crystal water, here leaping swiftly along.” These valleys contained “green spots of luxuriant grass.”²⁶

Farther south the exploring party had another encounter with the local fauna. Riding quickly, they came upon a large grizzly bear that was busy digging roots. On seeing them, the grizzly “charged upon us with such sudden energy that several of us came near losing our saddles.” In short order, the explorers put six rifle balls in the bear, killing him. Not wishing to waste any meat, Fremont found that he “was miserably poor, and added nothing to our stock of provisions.”²⁷

Notwithstanding the excitement of a grizzly bear encounter, Fremont liked what he saw. On July 11, 1843, he summed the impressions that were gathering in his mind over the last few days. “The soil of all this country is excellent, admirably adapted to agricultural purposes, and would support a large agricultural and pastoral population,” Fremont wrote. “A glance at the map, along our several lines of travel, will show you that this plain is watered by many streams. Throughout the western half of the plain, these are shallow, with sandy beds, becoming deeper as they reach the richer lands approaching the Missouri river.”²⁸

Here Fremont forcefully contradicts Long's view that the region was "almost wholly unfit for cultivation." Boosters of western migration welcomed Fremont's revisionist reports. Nevertheless, it would be another fifteen years before the Gold Rush and the flood of migrants to Colorado began. But when they did come, it was Fremont's words and maps that led the way.

NOTES

1. James, *Account of an Expedition*, 3:236.
2. City of Boulder Forestry Division, <https://bouldercolorado.gov/parks-rec/the-benefits-of-trees>.
3. Bixby, *History of Clear Creek*.
4. "Clovis-era Tool Cache"; Dell'Amore, "Ancient Camels Butchered in Colorado"; Yohe and Bamforth, "Late Pleistocene Protein Residues."
5. Gleichman and Gleichman, *Prehistoric Paleo-Indian Cultures*; G. C. Frison and M. L. Larson, *Prehistoric Hunter-Gathers of the High Plains and Rockies*, 3rd ed. (Walnut Creek, CA: Left Coast Press, 2009); Gleichman, Gleichman, and Karhu, "Excavations at the Rock Creek Site."
6. This section utilizes the translation of Coronado's journals from Winship's *Journey of Coronado*. Winship does not assert that Coronado entered what is modern-day Colorado, but I think that it is highly likely. Coronado's was the second group of Spaniards to see the American Southwest. The first known were Cabeza de Vaca and three others, lone survivors of the 300-man Navarez expedition that marooned near Tampa Bay, Florida, on April 15, 1528. Also see Weber, *Spanish Frontier*.
7. Winship, *Journey of Coronado*, 65.
8. *Ibid.*, 201, 214. The expedition used dead-reckoning methods to estimate latitude. Dead reckoning is a navigation method that was known to the Spaniards of the time so the statement that they reached fortieth parallel is probably quite accurate. Coronado reported the distances they traveled using the obsolete Spanish unit of distance, the league. A Spanish league is equivalent to about 4.2 kilometers, or about 2.6 miles.
9. Isenberg, *Destruction of the Buffalo*, 34.
10. This information comes from one of two maps that were attached to Dodge, *Journal of the March*.
11. Hyde, *Life of George Bent*; see also West, *Contested Plains*, 74.
12. Dolin, *Fur, Fortune, and Empire*; Isenberg, *Destruction of the Buffalo*.
13. Isenberg, *Destruction of the Buffalo*, 45.

14. James, *Account of an Expedition*, 1:2.
15. *Ibid.*, 2:160, 180; 3:227.
16. *Ibid.*, 2:180.
17. *Ibid.*, 3:228; The term “freshet” refers to increased streamflows seen after a storm.
18. *Ibid.*, 3:236.
19. *Ibid.*
20. Farnham, *Travels in the Great Western Prairies*, 137.
21. Lawson and Stockton, “Desert Myth and Climatic Reality.” These authors used tree ring data to establish a statistical relationship with known climate conditions to infer climate conditions on the High Plains back to 1700. They concluded that when Stephen Long passed through in 1819–20 and John Fremont in 1842–44, severe drought conditions were prevalent.
22. Fremont, *Report of the Exploring Expedition*, 9.
23. In 1842, Taos and New Mexico were still part of Mexico.
24. Fremont, *Report of the Exploring Expedition*, 32.
25. *Ibid.*, 112.
26. *Ibid.*, 113.
27. *Ibid.*, 114. The encounter was on July 11, 1843.
28. *Ibid.*