WITHER THE FRUITED PLAIN:

NINETEENTH CENTURY

DROUGHTS IN THE

SOUTHERN PLAINS

By

KEVIN ZACHARY SWEENEY

Bachelor of Science
University of Oklahoma
Norman, Oklahoma
1985

Master of Arts
Northwestern Oklahoma State University
Alva, Oklahoma
1995

Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
in partial fulfillment of
the requirements for
the Degree of
DOCTOR OF PHILOSOPHY
August, 2001

WITHER THE FRUITED PLAIN:

NINETEENTH CENTURY

DROUGHTS IN THE

SOUTHERN PLAINS

Thesis Approved:

L. G. Moses

Thesis Adviser

Michael F. Logan

Dean of the Graduate College

ACKNOWLEDGMENTS

Where does one begin to recognize the gratitude associated with giving advice, sources, and recommendations regarding a dissertation? It is amazing how long the list grows. I once sat incredulous at how authors seemed to be thanking everyone from their preschool nanny to their household pets in their acknowledgments and here I am adding my list to the front of this humble dissertation. I realize how helpful all these people were in influencing this project.

Various archives and county seat offices were extremely important to my research, and their staffs were quite resourceful in pointing out resources and locating material. These archives include the Western Collection at Oklahoma University, the Southwest Collection at Texas Tech University, and the newspaper and archive departments at the Oklahoma Historical Society. Glenn MacIntyre at the Museum of the Cherokee Strip in Enid, Oklahoma, was extremely helpful in coming up with the idea of looking at the old tax rolls for Garfield County. The County Treasury Officers of Woodward, Grant, and Kay Counties were quick to share anecdotes and were game to dig through cobwebs, climb ladders, or wrack the memories to uncover the early tax roll records. I was awed by the alacrity John Phillips exhibited in running down sources and looking up citation methods for obscure government documents in the Edmon Lowe Library at Oklahoma State University. Also on the fifth floor, government documents

section of the Edmon Lowe Library, Faye Richardson always proved cheerful and helpful in obtaining valuable documents.

Fellow graduate students and staff also contributed to this dissertation. My peers provided valuable exchange of ideas, possible sources, and archive locations. Most significant of these were Tom Franzmann for his sharing of sources concerning drought in Indian Territory during the Civil War, Mark Van de Logt and Todd Leahy for passing on citations from tribal records concerning the Poncas' and Kiowas' experience with extreme aridity, and Greg Maphet for his input on basic organization frameworks and knowledge of southern Plains' history. Many thanks go to Susan Oliver for formatting my manuscript to the Graduate College's standards.

Two professors outside of the Oklahoma State University History department took time out of their busy schedules to pass on important sources, knowledge and ideas. David Stahle from Arkansas University patiently answered lengthy questions concerning dendrochronological research. Howard Johnson at the Oklahoma Climatological Survey in Norman, Oklahoma, shared his personal micro-films of the Indian Territory and Oklahoma Territory U. S. military installations' meteorological records and graciously gave information concerning drought trends in the southern Plains during the nineteenth and twentieth centuries.

Certain professors in the Oklahoma State University History Department outside of my committee also provided valuable reviews of my research. It was in Richard Rohrs' Methods seminar that I wrote the first chapter of this dissertation. His criticisms were always enlightening and his humorous manner made the pill much easier to swallow. Joe Stout's U. S. West writing seminar was the forge for tempering chapter

two. His warnings to understand what questions I was asking, to ground my research in primary documents and to stick to the thesis were extremely important and I hope that he would be proud of this work. Paul Bischoff tutored me on how to create maps from Corel Draw, and for that I am grateful. Also, Ron Petrin sat down and discussed the organization for chapter four. His door was always open and his insight acute.

While compiling this modest piece, finances were a constant source of anxiety. The Oklahoma State University History Department was instrumental in alleviating that worry. I would like to thank Bill Bryans for nine semesters of employment providing crucial experience teaching at the college level. Also, the Department provided a hefty graduate research scholarship that allowed me to finish the dissertation earlier than expected. I am indebted to Michael Logan for allowing me to work as his Center for Water Research Environmental Institute Grant Program research assistant. I would also like to thank the Homer L. Knight, O. A. Hilton, and Berlin B. Chapman Scholarship coordinators for providing valuable financial support during my research.

I was fortunate to have an extremely capable and supportive dissertation committee. Brad Bays provided guidance and feedback from his historical geography perspective. Neil Hackett is a marvelous example to follow in his commitment to undergraduate and graduate students. Michael Logan was always interested in this dissertation and provided many motivational lectures when I would enter his office in extreme frustration. George Moses is a true mentor and I am proud and privileged to have sat at his seminar table, in his office and at his home where I never failed to learn more about history and life. These gentlemen are more than professors, they are personal friends, a fine line I hope to emulate some day.

Typically, family comes last in the long line of thank you's. They are the people we most often take for granted and I am as guilty as anyone. My mother and father, Bob and Janie Partnoy, painstakingly proofed the manuscript and gave pertinent criticisms, while reassuring me that the work was salvageable. My son and daughter, Duncan and Morgan, reminded me that as Harry Chapin wrote, "it's got to be the going, not the getting there, that's good." Finally, the exclamation point to my life, my wife, Robin, was all men to all things. She cracked the whip, bolstered my confidence, endured a significant reduction in family income, and contributed to countless debates over what information should be included, and what information should be mentioned first. She did not stand behind me but beside me. To all, thank you, and I hope this dissertation does not embarrass your helpfulness.

PREFACE

The summer of 2000 was extremely hard on many farmers in the southern Plains. Their stock tanks had dried up and local pastures were denuded of grasses. It is expensive, but not impossible to purchase hay to feed the stock through these dry spells or haul the cattle to sources of water, but it is practically impossible to bring sufficient amounts of water to large herds of cattle. Ranchers then sold many of their livestock rather than watch them dehydrate, causing a glut on the cattle market and declining prices. This process has been repeated many times in the southern Plains, because drought is a part of life in the region.

Scholars have written an incredible amount about the droughts of the twentieth century, but have not spent as much time on the century preceding it. There were three major drought trends during the nineteenth century, and all were comparable to the drought of the 1930s. This study looks at these periods of aridity in the southern Plains, focusing on how different people reacted to the severely dry spells. Drought influenced the report of Stephen Long to claim the Plains were a "Great American Desert," the removal of eastern tribes to the trans-Mississippi West, the increased warfare between the Comanches and the United States and between the southern Plains tribes and their Indian neighbors, the non-Indian settlement of the region, and the Cherokee Outlet Land Run of 1893.

The study of nineteenth century droughts on the southern Plains is significant

because these severe dry periods triggered incredible demographic dislocation and aggressive behavior between peoples. As the United States became acquainted with the southern Plains, it formed new policies to deal with the effects of drought. The New Deal's reaction to the "Dust Bowl" was predicated on previous encounters with excessive aridity during the nineteenth and early twentieth centuries. Further, an understanding of aridity's repercussions on the environment and human populations can shed added light on historical topics that have yet to integrate the two.

TABLE OF CONTENTS

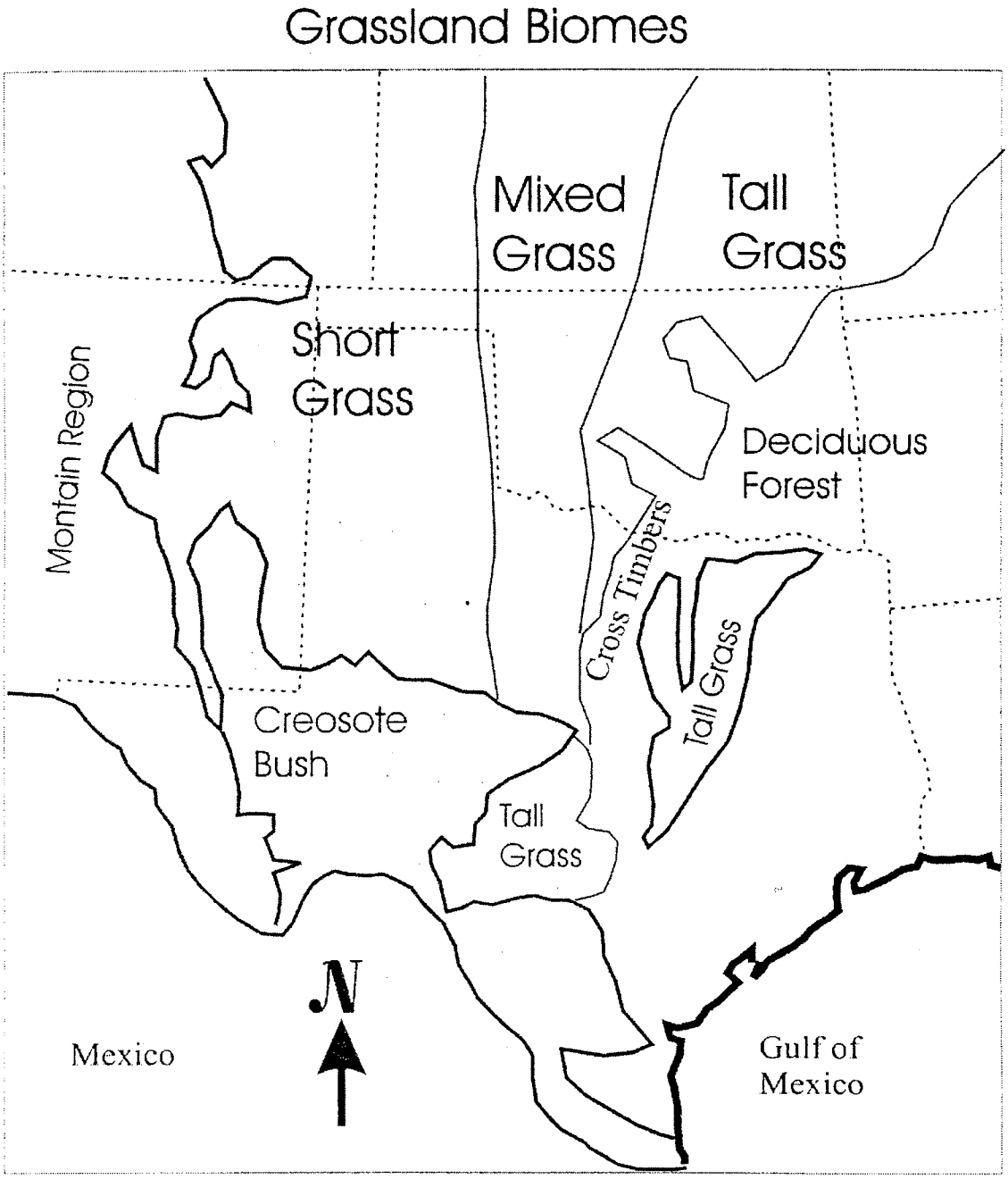
LIST OF FIGURES

CHAPTER 1

INTRODUCTION

The Southern Great Plains exist in delicate balance. During the nineteenth century, the area considered Plains was quite larger than modern convention allows. Marked by the dominance of grassland, the southern Plains ranged from the Arkansas River in the north to the Sonoran Desert near the northern rim of the Rio Grande valley in the south. The front range of the Rocky Mountains provided a convenient western boundary for the southern Plains and to the east they were bounded by the Texas Hill Country and the Cross Timbers that run from the ninety-eighth meridian in a northward direction to the South Canadian River and then in a northeasterly direction to the timbered Ozark Plateau. Tall grasses marked the eastern portion of this region. The mixed grass prairie occupied a central strip in the southern Plains as the tall grasses continued to grow along the rivers and streams and short grasses dominated the intervening uplands. The far western area of the southern Plains, considered the High Plains, was defined by the almost exclusive presence of short grasses; but trends of wet or dry years could push the borders of these grass regions to the east or west (fig. 1).

In some years, precipitation occurred sufficiently to support extensive agriculture in the region; in other years rainfall totals describe a desert. These facts dictated the level and quality of life in the area for plants, animals and human society. There is no universally accepted statistical description of drought. Eleven inches of rainfall might support the growth of two crops in the Salt River valley of central Arizona while such a



Biomes of the south-central United States adapted from Walter P. Webb. The Great Plains (Lincoln: University of Nebraska Press, 1981), 30.

Fig. 1

meager amount of rainfall would surely constitute a drought in western Oklahoma. Some years may receive their yearly average for rainfall and still experience a drought due to the absence of moisture during the critical growing seasons for crops. For these reasons, drought is mostly in the eye of the beholder.

During periods of excessive aridity, visual cues surrounded nineteenth century residents of the southern Plains. In times of lower than average precipitation, certain species of grasses give way to hardier, more drought resistant cousins. If drought conditions persisted long enough, the short grasses thinned out on the High Plains and spread into the lower plains displacing the tall grasses that require more moisture. In turn, the tall grasses spread eastward displacing other plants that had thinned out as a result of the drought. Wildlife followed their biomes to greener pastures in search of the grasses that were most beneficial to them or the prey they were most fitted to hunt. When the rains returned, the grasses resumed thriving in their more common locations luring herbivores and their predators back to the Plains as well. The Paleo-Indians of the Southern Plains had to learn to exist with these climatic extremes.

The latest prehistoric people to inhabit the southern grasslands began migrating onto the Plains from roughly 800-900 C. E. These Plains Woodland people built temporary shelters near the forested river and creek bottoms where their techniques for survival could be successfully replicated. Their hunting and fishing was sufficient to provide a fairly broad diet including shell-fish, catfish, gar, deer, antelope, bison, and rabbit; the ingathering of wild plants including barley, sunflowers, maygrass, and smartweed: and a horticultural economy based on the cultivation of corn and beans. Their villages were small, generally made up of less than fifty persons and were wisely

located above the valley floor to avoid the periodic floods that are typical of the area.[1]

Over time, these people learned to adapt quite well to their environment and to exploit all available avenues of subsistence. Their dwellings became more permanent as they increased the intensity of their cultivation of crops and eventually became a collection of linked family compounds scattered along the valley rims. These villagers planted in the spring and discouraged the proliferation of weeds in their gardens by hoeing on a regular basis until early summer. Then when the crop could be left to grow in the warmth of the mostly cloudless sky, small groups journeyed onto the grasslands proper to hunt bison. Others continued to hunt in the wooded river valleys and to trade with other groups, both to the east and to the west. They harvested in the fall and cached the crop surpluses in storage pits for the coming winter. The remainder of the fall included more bison hunting and the preservation of a meat source for the cold period as well.

During wet cycles, some groups would move onto the High Plains and turn to a more intensive exploitation of the bison herds. These tribes were less dependent on the cultivation of crops and may have traded bison products for maize and other items with cultures who lived along the major rivers.[2] During the drier climatic cycles, these Plains groups moved off of the High Plains and gathered along the springs or river sources that still provided water. Between 1200-1450 C. E., an arid mega-trend dominated the region forcing inhabitants to abandon the whole Plains area for the more humid woodlands farther east.[3] Reliance on cultivation waned in these eastern Plains sites and the cultures relied more heavily on bison for their survival as the prolonged dry cycle expanded the bison ecosystem to the east. The scarcity of water may have also simplified the process

of hunting buffalo, for all that was required was to wait patiently around the receding number of watering holes for the arrival of the shaggy animals. By 1450, there were no horticultural tribes on the High Plains perhaps due to a combination of population pressures, the prolonged drier climate, and the possible arrival of Athapascan tribal groups who had migrated from north-central Canada. These factors influenced the horticultural groups to coalesce into larger villages further east probably to find a location where their way of life could continue in the drought conditions, and to protect them from the new Plains arrivals.

Cycles of too much and too little moisture have greatly influenced the history of the region; but writers have not always recognized the nature of the relationship of drought and flood on the southern Plains and its margins. Thus, early authors tended to describe the region in two divergent descriptions: as either a desert or a garden. Few have actually understood the region on its own terms. The public seldom listened to those who did.

The earliest European penetration into the area produced its most lasting impression. Francisco Vasquez de Coronado crossed the Llano Estacado in 1541, after a winter of famine in the Pueblos along the upper Rio Grande. A displaced Plains native the Spaniards dubbed *El Turko* convinced Coronado to order a northwestward march in search of a fabulous city brimming with gold. Coronado was sorely disappointed in the "wealth" of the Plains village he finally encountered, and was similarly disgusted with the local terrain. He wrote in his report to the king that ". . . after having journeyed across these *deserts* [italics added] seventy-seven days, I arrived at the province they call Quivira."[4] Thus, a myth of an arid wasteland was born, which would endure until the

mid-nineteenth century.

Early American explorers of the southern Plains were struck by its lack of timber and, when traveling during the dry summer months, by its aridity. Zebulon Pike traversed the region in 1806 and found it to be comparable to "the sandy deserts of Africa," praising the Plain's ability to restrict the sprawl of the United States by discouraging settlement on the grasslands.[5] Stephen Long's expedition, which followed the Platte, Arkansas, and Canadian Rivers, is noted for labeling the region, and convincing a nation that the interior plains were a "Great American Desert."[6] His report echoed the sentiments of Pike depicting the area as "almost wholly unfit for cultivation, and of course uninhabitable by a people depending upon agriculture for their subsistence."[7] Of course no one stopped to think that Long traversed the area during an incredibly severe drought, while suffering the effects of poor provisioning. At any rate this label was reproduced on countless maps provided in atlases and text books, and remained the scientific title for the region until the late 1850s.[8] It would take another twenty-four years after the Long Expedition before a sickly traveler turned scientist named Josiah Gregg challenged the permanence of this appraisal.

Gregg accompanied some merchants on their way to Santa Fe in 1831. His bouts with dyspepsia had convinced local doctors that a trip out west would do him good. The effects of the open country were so healthful for the young teacher that he hired on with certain merchants and traversed the Santa Fe trail for the next nine years serving as a bookkeeper and physician, while constantly taking notes and samples from the vegetation and wildlife he encountered. Gregg also traveled from Van Buren, Arkansas to locations in Texas and followed the Cimarron River through the Indian Territory and the Texas

Panhandle to Santa Fe. These journeys and the amount of time he spent on the southern Plains made Gregg's Commerce on the Prairies a valuable addition to the region's literature, yet his account is not without its own errors in judgement.

Commerce of the Prairies, published in 1844, represented a shift in tone from the previous literature. The amateur geographer continued to use terms like "desert" for the High Plains, but he was quite optimistic about the area to the east of them. Gregg contradicted Long's claim that the area from the ninety-sixth meridian to the Rocky Mountains was a "wide sandy desert," pointing out that the landscape from the Arkansas border to the Cross Timbers was "interspersed with prairies and glades, many of which are fertile," and wrote of west Texas that the source of the Colorado River was "delightfully watered," but bordered the "immense desert region of the Llano Estacado."[9] Gregg was decidedly optimistic toward the same area he had previously called a desert:

> The high plains seem too dry and lifeless to produce timber; yet might not the vicissitudes of nature operate a change likewise upon the seasons? Why may we not suppose that the genial influences of civilization - the extensive cultivation of the earth - might contribute to the multiplication of showers, as it certainly does of fountains?[10]

This passage foreshadowed the next major misinterpretation of the Plains as a garden growing in the desert, which owed its existence to the myth that the planting of crops and trees would result in increased precipitation by releasing water into the atmosphere through transpiration.

In the meantime, a combination of philosophical, political, and economic forces coalesced to support the settlement of the Plains. The burgeoning concept of Manifest Destiny influenced individuals such as Thomas Hart Benton and William Gilpin to promote the settlement of the grasslands by other than American Indians. Benton, a U. S.

senator from Missouri, was a strong supporter of transcontinental railroad construction, and came to laud the possibilities for settlement of the Plains. He spoke of the "Great American Desert" as a "sylvan paradise" of sufficient humidity to grant "fertility to this region." With the aid of his son-in-law, John C. Fremont, Benton sought to reverse the bad publicity the region had received.[11]

William Gilpin, who had traveled with Fremont to Oregon in 1843 and had studied under the highly respected German scholar Alexander von Humboldt, also scorned the negative publicity of the American steppe. Gilpin, in Mission of the North American People, plainly stated that "the PLAINS are not deserts," but instead the most advantaged area between the Appalachians and the Rockies.[12] Both Benton and Gilpin writing in the 1850s were joined by other interests that formed during the sectional crisis of that same decade.

The rising opposition to the spread of slavery brought on by the Kansas-Nebraska Act inspired the promotion of the central Plains as a place to live. The foremost agent in recruiting settlers for Kansas was the New England Emigrant Aid Company, which hired writers to describe the grasslands in glowing terms.[13] Its mission to fill Kansas with free-soil farm families placed it in the business of boosterism, which served to convince many that they could do God's will and reap a healthy reward for their efforts if only they would move west onto the treeless prairies. Republican Party interests were similarly motivated, but slightly more complicated. Their platform included the building of a transcontinental railroad, a Homestead Act, and the opposition to the spread of slavery into the territories. All these planks benefitted from the popularization of the Plains. Matters of money including speculation, profiteering and legitimate business interests

supported these political initiatives as well.

A combination of economic interests supported the philosophical and political motivations for settlement of the Plains and called on the theory of "rain follows the plow" to win converts. Railroad companies were especially interested in the settlement of the nation's mid-section. The federal government had given the railroads grants of land to encourage development of the West. The rail companies' sales marketers sought to convince people to relocate to the grasslands and purchase farmsteads from them on these grants. There was, of course, the added benefit that these settlers would require the services of the rail system including all of the infrastructure and auxiliary services that they were happy to provide for a price. Company managers could envision huge profits made from transporting raw materials east and finished goods west to an interior teeming with consumers in the form of small farm families. Other real estate speculators and town boosters filled newspapers with articles on the alleged increased moisture of the Plains in an effort to encourage the sale of town lots. All these boosters needed was a spokesperson to legitimize their rhetoric.

Scientific support for the theory that "rain follows the plow" came from Ferdinand Vandiveer Hayden, a member of the U. S. Geological Survey (USGS) team who had traveled extensively in the arid regions of the West. He toured the nation offering his spin on western boosterism to whomever would listen, presenting annual USGS reports emphasizing the westward expansion of successful cultivation on the Plains, and lending his name to promotional literature.[14] Under the guise of scientific research, these promoters of Plains settlement were able to convince many families to move out West and try their luck at sod busting. With their countless pamphlets, speeches and articles

they drowned out any arguments against extensive cultivation of the Plains.

One dissenter from this vision of the grassland was John Wesley Powell, the president of the USGS from 1880 to 1894 and a strong advocate of homestead reform. Powell understood the West on its own terms and was especially attuned to the nature of the semi-arid and sub-humid Plains. He argued that the High Plains could only support agriculture based on irrigation and would require much more than 160 acres to sustain a family, while the eastern region would "be subject more or less to disastrous droughts, the frequency of which will diminish from west to east."[15] These were strong contentions against the settlement of the Plains by farmers. Powell's arguments coincided with the devastating drought of the late 1880s and early 1890s in which thousands of farm families conducted a mass exodus from the Plains. It appeared as if nature had finally driven a stake through the heart of the "garden" theory; but the rains did eventually return and with them a new generation of optimism.

Once again, people moved out onto the southern Plains, accompanied with new technology, most recognizable in the form of the tractor, which allowed farmers to cultivate many more acres than previously thought possible. The "Great Plow Up" of the 1920s was triggered initially by high crop prices following the devastation of European agriculture during World War One. As overproduction glutted the market and European agricultural production resumed its prewar pace, agricultural prices began to fall. Many Plains farmers saw expanding their cultivation as their only hope to break even. Perhaps because of their desire to make a profit and the presence of more humid weather, most people once again became more convinced by Hayden's contentions than Powell's - that is until the 1930s.

Walter Prescott Webb initiated a resurgence of the interpretation of the Plains as an arid region. Born in the piney woods of Panola County, Texas, his family moved about sixty five miles west of Fort Worth to Ranger, Texas, in Eastland County when he was young. To his credit, he reached the conclusion that the southern Plains were a region marked by aridity before the effects of the Dust Bowl imprinted on everyone's mind the danger of drought on the prairies. In 1931, Webb published The Great Plains in which he stressed the plains' geography: its aridity, treelessness, and mostly unbroken landscape as preventing settlement until the nation had industrialized. Then, farmers used new technologies to subdue the plains: the six-shooter, barbed wire, windmill, and, of course, the railroad. The topography of the grasslands was also influential in determining which eastern institutions were reproduced in the region and which ones were discarded or modified. To Webb, the settler's ability to accommodate these geographical factors dictated their success on the Great Plains. Perhaps because he was from the region and understood its subtleties, he did not call the Plains a desert and omitted drought from his list of weather phenomena that plague the grassland: hot winds, Chinooks, northers, blizzards, and hailstorms.[16] Yet, when dry conditions struck the Plains later in the 1930s, Webb appeared prescient by pointing out the arid nature of the region.

It was difficult to challenge Webb's characterization of the Plains during the Dust Bowl decade; but the nation was again filled with optimism for American "know-how" following World War Two. With this confidence came a challenging view. James Malin lived through the "Dirty Thirties" and shared Webb's interest in the geography of the Great Plains. In Grasslands of North America, published in 1948, Malin worked from the assumption that the ecological environment had reached a climax under native

stewardship, but that this balance was shattered with the arrival of the horse.[17] The proliferation of equines on the grasslands led to the increase of native American populations on the Plains, a decrease in the wildlife population, including the buffalo, with the expansion of native hunting ranges, and increased grazing competition among the region's herbivores.

Malin discounted humans as the major contributors to flooding and soil erosion on the Plains. He cited the journals of a number of explorers who describe the presence of dust storms, rain swollen rivers and washed out gullies to prove that these existed before an intensive agricultural society had developed on the Plains. Malin further explained that the erosion of topsoil is common and necessary, asserting that the removal of the uppermost layers of soil discards the nutrient depleted portion of the earth and exposes a richer layer to cultivation. He pointed to the increased yields in 1945 and 1947 as supporting evidence.[18] Furthermore, Malin contended that pioneers achieved a new ecological balance on the grasslands through modifying plant and wildlife species found on the plains. Cattle replaced buffalo, and humans introduced crop rotation between legumes and nitrogen depleting plants to create equilibrium. Malin's optimistic stance reflects the post World War Two era's faith in technology. Thirty years later, this faith in human manipulation of the environment would come under criticism.

The antiwar sentiment of the late 1960s produced an atmosphere that tolerated criticisms of capitalism. One manifestation of this criticism was environmental in nature and sought to attack the economic system for its encouragement of ecologically damaging practices. Donald Worster addressed these issues as they pertain to the southern Plains in Dust Bowl, where he claimed that humans were the primary agents causing the "Dirty

Thirties" by plowing up marginal land in the 1920s.[19] This "Great Plow Up" was followed by the most severe drought on record. The two events combined to form one of the worst ecological catastrophes in human history. Worster blamed agricultural capitalism for rewarding environmentally irresponsible behavior, and in a prophetic tone called for reforms in the system.[20]

Aside from all of its worth as a critique of unregulated capitalist agriculture, Dust Bowl has a few shortcomings. Although droughts and wind storms have always been common features of the southern Plains climate, the responsibility for the Dust Bowl is placed directly on farming practices.[21] This can be overlooked, for Worster underlined the contribution of human factors so convincingly. A more serious error involves his citation of a Weather Bureau scientist who maintained that the drought of the 1930s was "the worst in the climatological history of the country."[22] This too can be explained by the limited availability of reliable climatological data. When Worster wrote Dust Bowl, Plains climate records dated back only to the late nineteenth century. More current paleoclimatological studies can estimate levels of aridity and humidity for hundreds of years in the past. These studies point out that the 1930s drought was not an aberration. Surprisingly, it was surpassed or equaled in severity on three separate occasions during the nineteenth century alone.[23]

This study investigates the three major drought trends of the nineteenth century and their effect on the development of the Southern Plains. Tree-ring samples, eolian evidence, pollen samples, and exploration journals describe the occurrence of a major drought in the 1820s, and are supported by tribal newspaper entries and Bureau of Indian Affairs reports for the 1850s drought. The later periods of low rainfall in the 1880s and

1890s are substantiated through military post weather reports, newspapers, individual reports, meteorological records, as well as government agency reports.

These extensively dry periods have profoundly influenced the history of the southern Plains. The first United States reconnaissance of the region, the Long Expedition, occurred during a major drought trend that lasted from 1818 to 1825. It is not surprising that Long and his fellow travelers considered the Plains to be a vast wilderness of little value to a nation that practiced husbandry. Long and the expedition's chronicler, Edwin James, labeled the Plains a "Great American Desert" and the official cartographic document that they submitted to the Secretary of the Interior contained this label across the area known today as the Great Plains. The Expedition's assessment of the Plains as a "Great American Desert" became widely accepted by academics. Various text- books contained copies of the Long Expedition's map and various atlases and gazetteers quoted the findings of Long and James.

As a wet cycle dominated the southern Plains from 1826 to 1845, geographic texts showed the line demarcating the desert from the prairies as receding westward. Long and James' assessment showed the desert beginning at about the ninety-sixth meridian; but by the 1830s conventional thought initiated the desert about 140 miles west at the ninety-eighth meridian. The presence of Long's desert did influence the relocation of eastern Native American tribes to the Trans-Mississippi West. The area between the western borders of Missouri and Arkansas Territory and the Great American Desert were seen as fertile and capable of cultivation. The removal of the eastern tribes to this belt of territory would allow them to learn the Euro-American methods of farming and place their backs to the desert. This last notion was extremely important for such a location would

discourage settlement to the tribes' west and prevent their complete encirclement.

The second major drought trend visited the southern Plains from 1846 to 1865. Southern Plains tribes had become a part of a vast trade network linking American and European industries with the aboriginal trade in buffalo hides. The severe and lengthy dry period pushed the buffalo herds from the southern High Plains to the east. As the Plains tribes followed these ungulates, their hunting parties encroached on the eastern Plains and removed tribes' domains. Increased warfare between tribes resulted, as did warfare between the United States and the tribes of the southern Plains.

The third drought trend between 1885 and 1896 hit as non-Indian settlement of the region dramatically increased. Booster promotion lured many farm families to the southern Plains even as this drought trend engulfed the region. The most notable booster theory of "Rain Follows the Plow," was not dispelled until the severe drought years of 1893 through 1896 convinced most farmers to look for another method of obtaining water. By the twentieth century, irrigation had replaced the theories that postulated humans could contrive artificial rain.

The concept of "possibilism" explains best the human reaction to drought on the southern Plains. Paul Vidal de la Blanche introduced this theory during his inaugural address to the Sorbonne. He claimed that the environment limited the options available to people in a given region while offering possibilities as well. Human reaction to these conditions is based largely on their traditional way of living.[24] This is evident in a comparison of Indian and non-Indian interactions with the environment during droughts. Native Americans had existed on the Plains in low population densities. During droughts, they packed up and moved to sources of water, just as the wildlife did during

times of extreme aridity. This migration was interrupted by the United States' sponsored removal of the eastern tribes to the eastern margins of the southern Plains during the 1830s. When drought returned to the region in the 1850s, the southern Plains tribes could not simply move with the buffalo herds to areas of adequate moisture and increased warfare ensued. The arrival of a high density population on the southern Plains occurred when the railroads arrived to the region during the 1880s. The environment closed the door of opportunity on agriculture based on the traditional methods employed by non-Indians. The crops most familiar to these new plains dwellers: corn and spring wheat, failed to provide a stable subsistence or profit. Farmers came to realize new methods of cultivation were needed west of the one-hundredth meridian. They turned to other crops like kaffir corn and winter wheat which were successful and borrowed concepts of irrigation from Native and Spanish examples to find a subsistence on the southern Plains.

Drought and the associated phenomena of dust storms, fires, famines and emigration are common visitors on the nation's grasslands. The most modern infamous of these dire circumstances occurred in the 1930s, but this episode should not be seen as an aberration. Efforts to control the weather have repeatedly met with failure. It was not until the New Deal of the Dust Bowl era that the nation began thinking in terms of regulating farm practices and providing relief to those who were suffering through the droughts. As mentioned by historian John Opie, the drought of the 1880s-90s triggered the growth of irrigation in the southern High Plains.[25] The Dust Bowl inspired the formation of the National Soil Conservation Society, which encouraged the building of terraces, shelter belts, and watersheds to combat soil erosion. Also, the presence of federal relief allowed more farm families to remain on the southern Plains. These

programs have markedly altered the landscape, while increasing the influence of the federal government. This later phenomenon has been evident in the region through first military posts and Indian agencies, then federally sponsored irrigation projects, and soil conservation practices.

Current paleoclimatological research has given the nation a warning. The Great American breadbasket is prone to severe and devastating periods of drought. Further human actions, aside from agricultural abuse, can be contributing to increased aridity in the region by damaging the ozone and increasing global warming.[26] The people experiencing the Dust Bowl thought they had experienced the worst that the environment has to offer, and survived. We know this is not the case. Stephen Long witnessed the effects of a drought more severe than the Dust Bowl, and such occurrences are relatively common on the Plains.[27] Perhaps people in this new century can come to understand the nation's grasslands on its own terms, as a region with characteristics that place it in some years as an "American Desert," in other years as a "Fruited Plain" and in the remaining years, somewhere in between.

CHAPTER 2

FOREST MAN MEETS GRASSLAND: FACTORS INFLUENCING THE LONG EXPEDITION'S APPRAISAL OF THE "GREAT AMERICAN DESERT"

The view from Pike's Peak is breathtaking. Situated where the Great Plains meet the Rocky Mountains, a person who has tapped its heights can look down and see as if the whole nation is laid out before her. 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 Wellesly College English professor sat on the summit of Pikes Peak inspired by the panorama and penned the words to "America the Beautiful." Her poem was set to the tune "Materna" by Samuel Augustus Ward two years later to become one of the 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: "Oh beautiful for spacious skies, for amber waves of grain. For purple mountain's majesty above the fruited plain."

The general belief of Americans living in the first half of the eighteenth-century differed greatly from this description of America's Plains. Many considered the vast grassland situated between the Ozark Plateau and the Rocky Mountains a Great American Desert and thought of the region as a barrier to westward expansion. The Long Expedition of 1820 did more to promulgate this idea than any other source.[1]

Historians have disagreed over the success of Long's 1820 military excursion.

Some have dealt harshly with the major and his command for their failure to accomplish the goals set before the expedition. These historians point to Long's neglect of locating the source of the Arkansas River and his failure to map the Red River as critical derelictions of the federally funded expedition. Another source of criticism is the misleading map and report issued by Long, portraying the area east of the Rocky Mountains and west of the ninety-sixth meridian as a desert. Ray Allen Billington in his highly influential history of the United States' frontier, Westward Expansion, claims that the expedition accomplished "almost nothing," and labels the mission a "fiasco."[2] In The American Heritage Book of the Pioneer Spirit, Alvin M. Josephy states that Long "might better have never gone west" for the expedition accomplished the opposite of its intended purpose by ending government interest in the region.[3] Although cognizant of the difficult conditions present in Long's journey, William Goetzman attacks the expedition in Army Exploration in the American West by stating that "even allowing for these limitations, men like Long . . . should have been expected to produce better results."[4]

Yet, recent scholars have stressed the importance of the party's exploration. Roger Nichols and Patrick Halley's Stephen Long and American Frontier Exploration points out that Long was the chief promoter of exploring the West after the War of 1812. His persistence won support for the scientific missions into the area during the 1820s and 1830s. Furthermore, his expedition established the precedent for using trained scientists to gather information on exploratory excursions.[5] Howard Evans, in The Natural History of the Long Expedition to the Rocky Mountains, stresses the importance of the party's scientific contributions. As a result of Long's expedition, specialists of the day were able to scrutinize the scientific data gathered in the southern Plains revealing a wealth of

information about the grassland's wildlife, flora, and native people.[6] The number of descriptions and specimens collected are staggering: sixty skins of unique animal species including the coyote, prairie gray wolf, prairie rattlesnake, and mule deer; several hundred insect specimens; the discovery of thirteen new bird and twelve new reptile species; and descriptions of bison, black bear, gray wolves, feral horses, and wild mules to name a few.[7] In Retracing Stephen H. Long's 1820 Expedition, George Goodman and Cheryl Lawson describe the Long party as representing the first attempt by scientists to record the region's life forms and aside from introducing nearly one hundred new plant species to eastern academe, these descriptions help modern scholars reconstruct the Plains environment of that era.[8]

Given these accomplishments, the Long Expedition will forever be known for its description of the Plains as a "Great American Desert." A consideration of the factors that influenced the journalists of this expedition to label the Plains a "sandy waste" allows a more complete perception of the military exploration undertaken by Long and his men. These influencing factors include the writings of explorations previous to 1819, the privation suffered by the journalists during the expedition, the occurrence of a significant drought in the region just prior to and during the Long Expedition's movement through it in the late summer of 1820, and the backgrounds of the scientists and officers of the mission. Sources include 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 eolian activity derived from the writings of the explorers. Also included is a comparison of the Long Expedition's findings with the descriptions of J. W. Abert, a lieutenant detached from John Fremont'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.

Little information existed in the early 1800s concerning the Great Plains of North America, but what did exist portrayed the Plains as arid, or more pessimistically, as a desert. Those traders, trappers, and hunters most familiar with the region left few written records of their journeys; but the members of Major Long's expedition were certainly briefed on the terrain with existing government reports, which would have included the journals of Lewis and Clark. Before the expedition, Meriwether Lewis claimed that he expected to find "barren, sterile, and sandy" soil, but his journal entries do not suggest the presence of a broad expanse of desert.[9] Yet significantly, his writings do describe many dry streams and the negation of rich soil by the dry climate.[10] Even though Lewis anticipated the presence of a desert and upon seeing it, described a region of extreme aridity, he was not willing to label it as such.

This cautiously optimistic view was not shared by Zebulon Pike, whose writings must have been available to Long and his chroniclers. Pike's journal was requisitioned by the Spanish, requiring him to write from memory. His report on the 1806 expedition states that "the vast plains of the western hemisphere, may become in time equally celebrated as the sandy deserts of Africa."[11] There were also numerous references in Pike's writings to deserts, aridity, and lack of vegetation.[12]

In 1817, the published notes of John Bradbury and Henry Brackenridge, two English gentlemen 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."[13] It is difficult to believe that Long and his men

had read all of these reports, but it is not ludicrous to consider that they were familiar with this traditional view of the area they were about to explore.

In fact, the members of Long's expedition revealed that they indeed did have preconceived notions of the geographic character of the Plains. In 1819, while still early on 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."[14] Say accepted the presence of a sandy desert as fact before he had traveled to, or seen evidence of, a severely arid region.[15] Upon his arrival at the winter quarters at Engineer's 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."[16] Captain John R. Bell, who also kept a journal of the expedition, felt this incident important enough to log as well, proving the importance this episode held in persuading the chroniclers that a wasteland awaited, while also revealing that the natives were aware of drought conditions throughout the region.[17] Say, James, Bell, and the rest of Major Long's group were expecting a hostile environment of sand, and little water.

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.[18] These pressures on War Department spending were passed on 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 versus 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.[19]

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 two-thousand dollars, which the Major was to pick up in St. Louis on his way back to Engineer's Cantonment. Long paused in St. Louis for two weeks fulfilling obligations to survey public lands near the town before progressing farther west, and then considering the urgency to receive the vital funds so great, he waited an additional week at Franklin, Missouri further postponing his expedition's departure. [20] Calhoun had sent the promised money rather tardily on April 28, 1820. It took, on the average, six weeks for correspondence to reach St. Louis from Washington, which placed the funds in St. Louis ten days or so after the expedition had departed from the cantonment in what is today eastern Nebraska![21]

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, people at Camp Missouri had planted their own gardens in an effort to supplement their meager government stores. During times of prolonged drought, the soils become compact and vegetation cover reduced. The factors render the topsoil less absorptive and more prone to flooding when heavy rains occur. In the spring of 1820, a recent flood had destroyed what little produce the garrison was cultivating. The commanding officer deemed the few horses and supplies at the fort vital and would not spare any for the expedition. Even though Long carried a note from the Secretary of War 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 at requisitioning supplies from Camp Missouri, proved critical for they set the party's starting date back a full month. Long planned to begin the project on May 1, 1820, but the party was not able to initiate their movement toward the source of the Arkansas River until June 6.[22] 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.

A list of the supplies reveals the inadequacy of provisions faced by the party. Compared to the usual rations issued to soldiers during the early nineteenth-century, this could supply the group with food for thirty days and protein in the form of meat for fourteen days; a woefully inadequate arrangement for a military expedition expecting to be in the field four months.[23] Given this minimum of provisions, it is apparent that the Major intended to rely on trade with natives and hunting for additional foodstuffs.[24] Yet, the amount of trade goods could be expected only to supplement the party's insufficient

food rations for three months.[25] This left unaccounted a full month without food. Furthermore, the equipment necessary for mapping purposes was lacking as well.[26] One wonders just how Major Long proposed to complete this venture.

Yet, as commander of the expedition Long had no alternative to proceeding 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 since the Yellowstone Expedition he led in 1819 was an abysmal failure.[27] That party was to travel up the Missouri River and construct a fort at the confluence of the Missouri and Yellowstone Rivers to establish the presence of the young nation 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 as they perished from scurvy during their winter quartering of 1819-1820.[28]

Long had not spent that winter in Fort Atkinson, but had traveled east to see Calhoun and ask for approval of a renewed effort to explore the Plains. The Secretary of War had obliged by issuing orders in writing 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.[29] In an attempt to ensure success on this new assignment, the major pushed his men and animals to their utmost endurance from the beginning of the mission.[30]

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."[31]

As ordered, Major Long divided his party on July 4, sending Lieutenant Bell with half of the force down the Arkansas River to Fort Smith while heading the remainder of the group, including the journalist Edwin James, south with the intention of locating the Red River. Even though the group's hunting demands on their vicinity's wildlife were reduced, 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.[32]

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 instead a local ravine in hope that it would prove to be a tributary of their assigned waterway. James, with a penchant for understatement, noted 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."[33] 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 vicinity of the party, they would starve. It is probable that the larger ungulates had migrated from the drought stricken region in search of water.

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 [we] could drink for near twenty-four hours" making their circumstances "extremely unpleasant."[34] Eight days later the chronicler writes that they "had for some days been almost in a starving condition."[35] By this time the lack of supplies and scarcity of traditional game had reduced Long and his men to eating animals that were not the usual fare for "forest man:" turtle, bear meat, wild horse. Before the trek was over they would eagerly consume badger and owl.[36] Even with the extreme 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 Ft. Smith.

The effects of insufficient provisioning dictated the acts of the party 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 overlooked 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.

For those existing under the influence of the elements the summer months on the southern Great Plains are quite demanding. This proved particularly true for the August of 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 the month of August ranged from 96 degrees 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 the less severe but

certainly uncomfortable sunburn and wind-burn, 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 on the Plains. While following the river bed, the party endured days of drought as James explains in his entry for August 22, "it 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."[37]

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 of the region in time, which proves to be misleading when considered with reconstructed meteorological trends over the years. The chroniclers assumed that nature was static and never thought that the conditions they observed on the Plains were any different from those usually present there. This was their biggest mistake. By taking for granted that 1819 and 1820 were average years, they excluded the possibility that the terrain they noted in their journals was suffering from extreme water deprivation, which incidentally it was.

An analysis of tree-ring data can provide the type of information needed to substantiate the occurrence of a drought in areas adjacent to the southern Plains for dates that precede the recorded weather data for the region. Specialists in the field of dendrochronology reconstruct past climate patterns through studying the wood cells produced by a tree or shrub in one year. Many factors complicate this process. Different species of trees experience growth at differing rates: for instance, deciduous oaks respond to precipitation by growing for up to twelve months after the rain has occurred, while

other trees would have quit growing months earlier. The age of the tree sampled is important as well for the older the specimen, the smaller the average ring growth. Other factors influencing the amount of growth a tree's rings were capable of expanding in a given year involve the amount of competition from other trees the sample experienced during a given time frame; the season the rain occurred in, with the understanding that moisture is more efficiently turned into energy when the tree is foliated; and the temperatures of a given cycle, which influence the amount of evapotranspiration that takes place and thus how much water is available for the plant's roots.

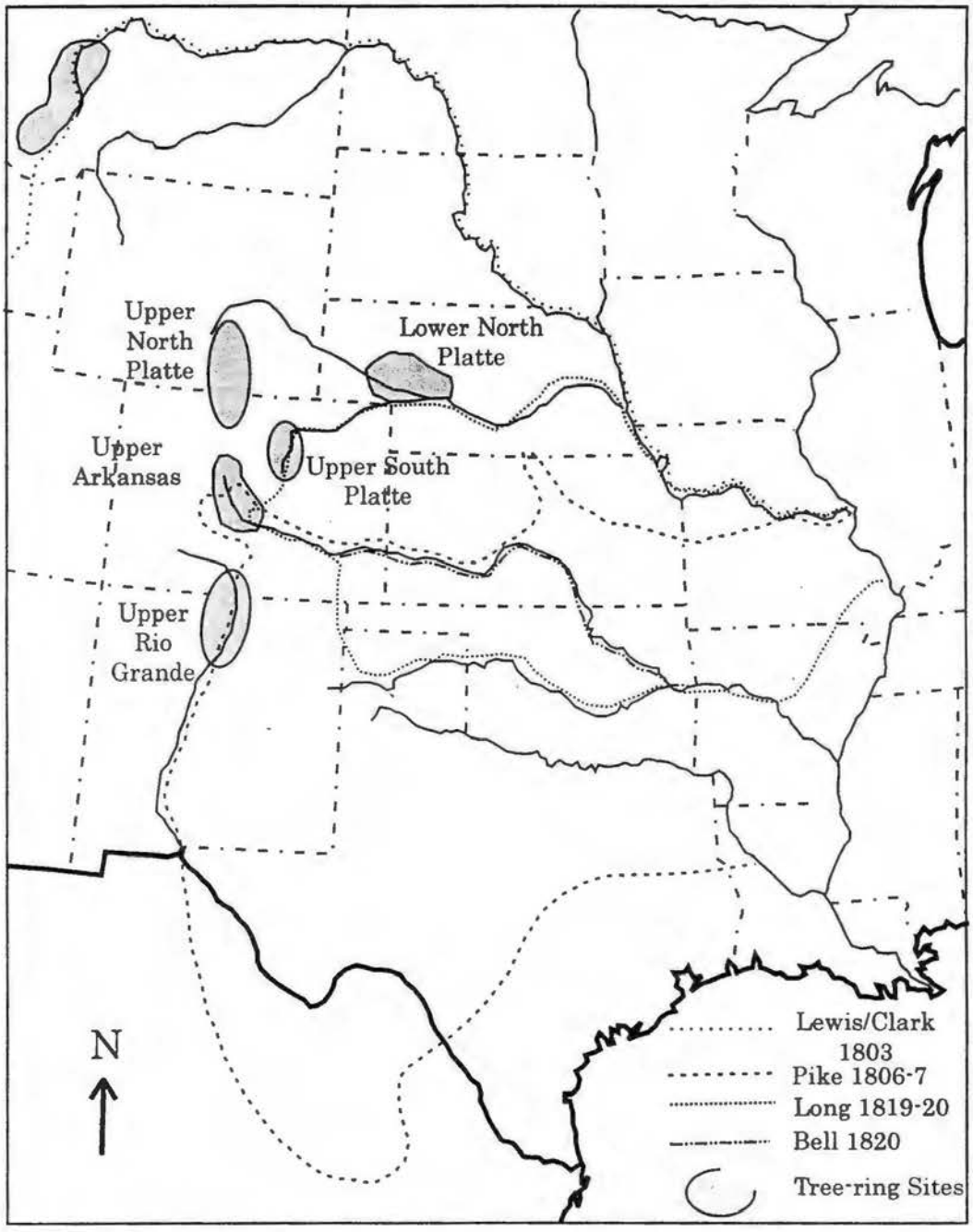
Certainly there are other disturbing factors as well: fires, blow downs, fungal outbreaks, and insect attacks that could defoliate the tree and impair its abilities to transform water into energy for tree growth. Dendrochronologists account for these possibilities by standardizing the growth of their samples statistically. 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 to be interpreted in percentages of average growth, they can project the overall pattern of rainfall for that region in a given year. The implication is that growth of less than one-hundred 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 their specimens carefully. Usually, scientists 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.

Geographer Merlin Lawson conducted one of the earlier studies concerned with drought on 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 the evaluations of the Plains as a desert by Pike and Long (fig. 2). The results of Lawson's study prove quite revealing, especially when considered with the reports of major explorations of the West. The trees studied in the Lower North Platte basin showed a growth of 130 percent in 1803 and 120 percent in 1804, and growths of 85 and 90 percent in the Upper Missouri basin for the same years.[38] This depicts above average rainfall for the North Platte region for these years, and near normal rainfall for the Upper Missouri River area, which correlates with the findings of the Lewis and Clark Expedition, who failed to note the existence of a large desert region east of the Rocky Mountains. The tree ring data shows an extremely dry year for 1806 in the Upper South Platte and Upper Rio Grande river basins with growths of 50 and 40 percent respectively.[39] The occurrence of such severe drought, places the report of Zebulon Pike in a more proper perspective, for he 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 suggests 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 of 1820, underwent a mild but prolonged drought with tree-rings expanding 80, 70, and 80 percent of their average growth for the three years in question.[40] The Upper Rio Grande basin experienced conditions much more harsh showing tree-ring growth of 60 percent for 1818, 40 percent for 1819, and 80 percent for 1820.[41] The region to leeward of this basin could expect similar drought conditions due to the prevailing winds, which carry what moisture there is available east over the Sangre de Cristo Mountains. As the air is pushed up over the mountains, it

Lawson's Tree-ring Sites and Exploration Paths



Adapted from Merlin Lawson, "Climate of the Great American Desert" University of Nebraska Studies 46 (December 1974).

Fig. 2

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 was traversing from July 27 into early August. James describes the results of this extended period of little rainfall experienced by the area; "we were still passing through a barren and desolate region affording no game, and nearly destitute of wood and water."[42]

Although Lawson did not find the drought conditions derived from this study severe enough to justify Pike's or Long's portrayal of the southern Plains as a desert, his research did trigger further studies while he continued to investigate the topic.[43] H. Harper found the occurrence of a severe drought in central Oklahoma during 1819 to hold a considerable agreement among all samples taken from locations in Payne and Johnston counties in north central and south central Oklahoma.[44]

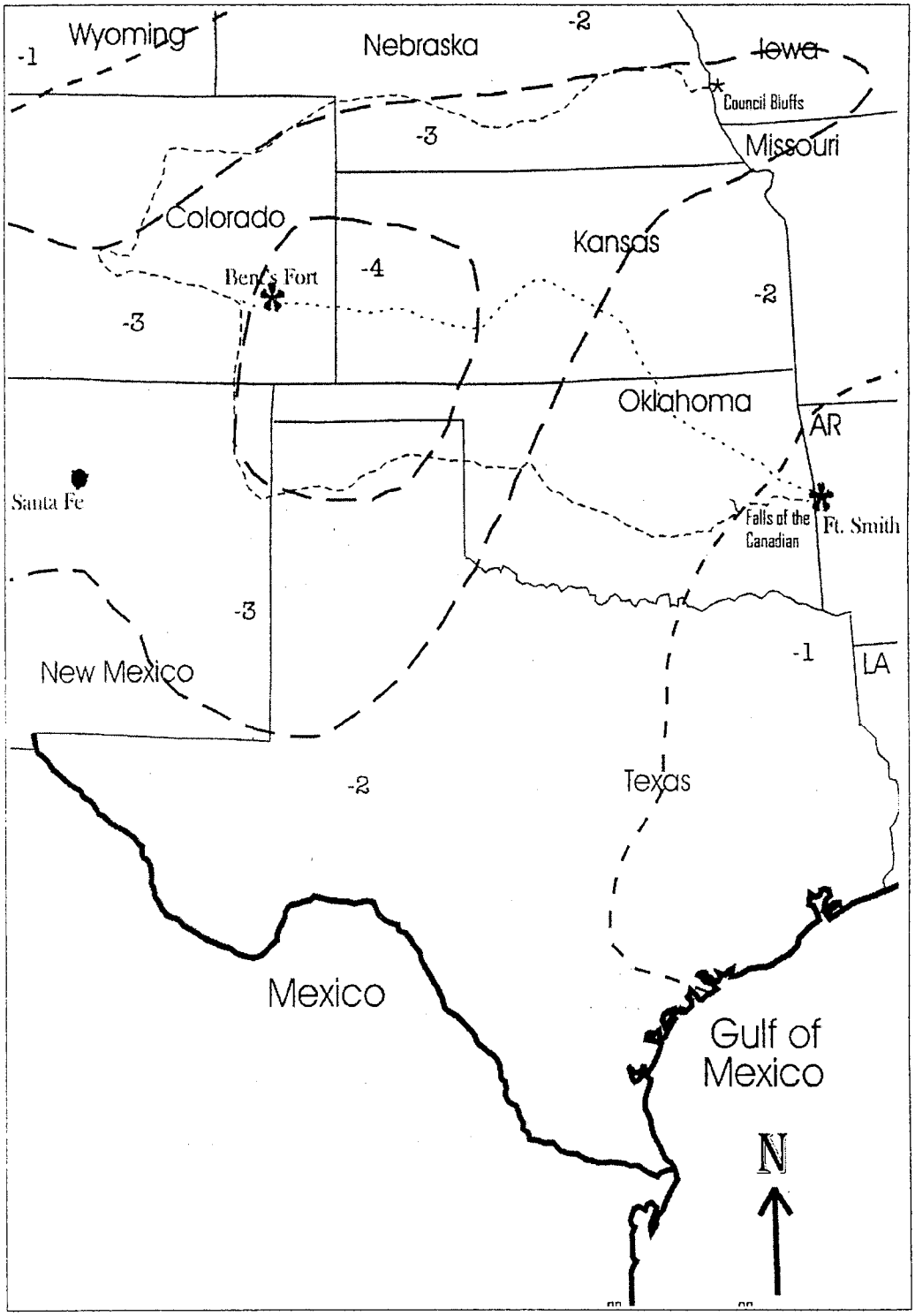
In a more recent publication, Lawson supports the conclusion that a drought did engulf the southern Plains in 1806 and 1820.[45] The absence of trees on the High Plains requires the use of an index, which uses tree-ring data from neighboring areas to reconstruct indirectly the level of soil moisture on the plains. The Palmer Drought Severity Index (PDSI) uses core samples from trees that border the grasslands or are located in isolated pockets on the Plains to transpose what the levels of humidity and aridity were like on the grasslands in a given year. It further integrates the cumulative effects of aridity or humidity over consecutive months taking into account the effects of potential and actual evapotransipiration, water infiltration into the soil and runoff making it the best method available to evaluate soil moisture.[46] Lawson and Charles Stockton

tested the PDSI against the climatological records available for the American Plains dating from 1931 to 1962 and found these regional reconstructions surprisingly accurate, but tending to underestimate extreme conditions.[47] 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![48]

Stockton and David Meko verified this study. During the summers of 1980 and 1981, they collected tree ring samples from Quanah, Texas, the Arbuckle Mountain region of south central Oklahoma, and Lake Eufaula in eastern Oklahoma. These scholars successfully tested their method for calibrating the tree rings against weather records from 1933-1977. This study also found that the 1930s drought was milder than the drought of the 1820s.[49]

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.[50] Cores extracted from samples in the Wichita Mountains, along the Canadian River, on the slope of the Capuline volcano and in southeastern Colorado make this data fairly reliable. 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 middle Plains (fig. 3). Each successive year of low rainfall would increase the severity of the drought on the landscape causing the denudation of vegetative cover from the soil in some areas.

The Long Expedition's Path and PDSIs for 1820



Adapted From E. R. Cook, D. M Meko and C. W. Stockton. US Drought Area Index Reconstruction. International Tree-ring Data Bank. Boulder, CO: NOAA/NGDC Paleoclimatology Program, 1998.

Fig. 3

In 1998, Connie Woodhouse and Jonathan Overpeck, specialists in climate reconstruction, conducted an investigation into past droughts on the central Plains. They collected evidence from all available sources of paleoclimatilogical data including historical documents, tree-rings, archaeological artifacts, lake-bed sediment, and geomorphic evidence to assess the frequency and severity of droughts on the nation's grasslands. These authors found that the southern Plains experienced a prolonged severe drought from 1818 to 1822, which is roughly equivalent in severity to the extreme drought experience on the southern Plains from 1953 to 1956.[51]

The most 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 three-hundred years.[52] The authors do mention that local droughts, such as those occurring on the southern Plains in the 1820s, 1850s, and 1950s, may have proved more severe than the 1930s episode for their specific locations.

Descriptions of eolian activity further substantiate the presence of a severe drought upon the Plains during the Expedition's journey. The north banks of rivers in the High Plains and Gypsum Hills 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]."[53]

Daniel Muhs and Vance Holliday, experts on wind born soil erosion known as eolian activity, 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.[54] 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 no where near as active as those described repeatedly by James and Long, implying that blowing sand from uncovered dunes occurred during periods of low moisture.

The model for eolian activity was present during the drought from 1818 to 1822 along the Canadian River. Conditions of low precipitation along with high temperatures decreased the amount of vegetation on the dunes 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.[55]

The drought punished the Long party on the part of 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.

These factors alone would exaggerate the dryness of the area, but the background of the primary chroniclers further influenced them to exaggerate the region's aridity. The

chroniclers and scientists were all from the northeastern United States, an area of forests and abundant rainfall. In 1784, Stephen Long was born in Hopkinton, New Hampshire. He graduated from Dartmouth at the age of twenty-six, and after teaching for five years he joined the army and taught mathematics at West Point, the U. S. Military Academy. Long laid out the townsite 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, but this was his first journey to the High Plains.[56]

Edwin James, the expedition's physician, botanist, and author of the Account of an Expedition from Pittsburgh to the Rocky Mountains Performed in the Years 1819 and 1820 also hailed from the east: Weybridge, Vermont 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 the Major's notes to write the account of the expedition, which became the official report.[57]

Thomas Say accompanied the expedition as zoologist. In 1787, he was born in Philadelphia of Quaker lineage, and was educated near his home at the Westtown Friends' school. Although he had traveled to Florida and Georgia with Titian Peale and other classmates in 1818, he had not ventured onto the Plains of the Louisiana Territory.[58] The journey must have daily provided unique sights and experiences.

The eastern heritage of these chroniclers was further impacted by the climatic cycle during their lives. 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 when accustomed to living in a region and period of greater moisture than what could be found on the Plains in an average year.[59]

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 described 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 panhandle of Texas, James made this journal entry on August 14; "the 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 [we] left the Missouri River," while just twenty miles east of the one-hundredth meridian, and 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 were 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;

> The elevated plains we found covered with a plenteous 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] As noted previously, the absence of water can be attributed to the occurrence of droughts in the region, and likewise, in the words of Meriwether Lewis, the absence of timber can be attributed to "the ravages of fire, which the natives kindle in [the] plains at all seasons of the year," and not to the sterility of the soil.[67]

The effects of the previous literature, the lack of supplies, and the summer heat did not inhibit James from writing exactly what he saw, of course within his own subjectivity. It should be noted that the journalist 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.[68] 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 of the region

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, near the ninety-sixth meridian], . . . when the traveler arrives at this point, he has little to expect beyond, but sandy wastes and thirsty inhospitable steppes."[69] Later in the same paragraph he adds, "beyond [fifty or sixty miles above the Falls] commences the wide sandy desert, stretching westward to the base of the Rocky Mountains."

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 on the southern Plains, James took this note of his surroundings in what is today southern Blaine County, Oklahoma; "the 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."[70]

In 1845, Lieutenant J. W. Abert passed through this same stretch of the Canadian River in a year of average moisture, but his comments are drastically different. He described the topography of present Blaine County in more glowing terms: "a small creek, which in several places along its course, widened into small lakes of five feet in

depth," and a day later he noted, "plenteous rivers and wide skirted meads."[71]

Abert reached a conclusion about the possible settlement of the region which contrasts acutely with James's. 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." The possibilities of how history would be different had the Long expedition traveled through the southern Plains during a wet year, titillate the imagination, but this was not the case.

The journalists of the Long Expedition were influenced to view the Great Plains as unfit for settlement even though there was evidence that the region was habitable. The literature and conventional wisdom 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 of 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, static and unflattering, of the Plains back to Washington with them.

CHAPTER 3

BEYOND THE SHADOW OF A DROUGHT:

THE INFLUENCE OF DROUGHT ON INDIAN REMOVAL

Stephen Long immediately returned to Washington to prepare his report to the Secretary of War. 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."[1] Two years following the submission of Long's report to Washington, President James 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.[2] Although Long's report to John C. Calhoun was the official document of the expedition's findings, it was James' account that was published in 1823 by companies in Philadelphia and London. This book and Long's report would be highly influential. Their findings were respected as scientific research by contemporaries because the party had purposely included persons trained in botany, zoology, geology and other sciences. Calhoun obviously respected the scientific nature of the mission by issuing orders for the party to explore the terrain and make comments on the "soil, topography, vegetation, animal life, and mineral deposits" while also seeking the advice of the American Philosophical Society for additional topics the party should include in their investigation.[3]

The report and published account of the expedition succeeded in convincing the

government, and the public, that the Great Plains was a "Great American Desert."[4] James's journal entry for September 6, provides the most telling example, "beyond [fifty or sixty miles above the falls] commences the wide sandy desert, stretching westward to the base of the Rocky Mountains." 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, who by endorsing the idea of the Plains as uncultivatable, verified the earlier findings of Pike, and entrenched in the American mind the concept of a "Great American Desert."[5]

Perhaps a more pertinent issue is what exactly was meant by the phrase "Great American Desert." The definition of the term "desert" has undergone some modification since the early 1800s. Today, it is associated with regions of extremely low rainfall, but this was not the case nearly two hundred years ago. In 1828, Noah Webster gave the definition for "desert" in An American Dictionary of the English Language 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 uninhabited country covered with wood.[6]

It appears as if the definition was intended to describe the reasons why a given area was deserted rather than describing solely a region of little moisture. Certainly, Long and James used the term to refer to the deserted atmosphere of the southern Plains; but often the explorers used phrases to describe the type of desert they intended. These phrases are the key to understanding their specific meaning. Thus the phrase "sandy waste" would refer to a desert in keeping with the current usage of the word, and the phrase "barren waste" would refer to its lack of trees or people.

Major Long lay the boundaries for the interior desert between Council Bluffs at the ninety-sixth meridian and the Rocky Mountains at the one-hundred and fifth meridian, and between thirty-five and forty-two degrees north.[7] Dr. James published his account of the expedition in 1823 in which he writes of "the occurrence of a peculiar bed of rocks crossing the river," which have been identified as the falls of the Canadian River. He goes on to say: "In ascending, when the traveler arrives at this point, he has little to expect beyond, but sandy wastes and thirsty inhospitable steppes."[8] This would appear to place a sandy desert from a little west of the ninety-sixth meridian to the Rocky Mountains.

Long's and James's views of the region became widely accepted by the scientific community. In 1823, Edward Everett reviewed James's published version of the Account of an Expedition for Pittsburgh to the Rocky Mountains in the North American Review. Everett claims that Long's party was more qualified to conduct an extensive scientific exploration of the West than Lewis and Clark, and saw the expedition's work as a valuable addition to scientific knowledge.[9] Jedidiah Morse's New Universal Gazeteer published in 1823 representing the most current geographical dictionary, consulted Long's Expedition to the Rocky Mountains and cited James on occasion.[10] In 1825, the North American Review ran "Major Long's Second Expedition," in which the article praised Long for his "zeal and industry" in performing "the expedition to the Rocky Mountains with so much credit to the persons employed, and advantage to the cause of science."[11]

There were various published articles that used the "desert" characterization derived from Long and James to describe the Plains. In 1823, Benjamin Silliman

included a description of the Long Expedition's findings in the American Journal of Science and Arts in which he states:

> We perused with no small regret the account of the vast sandy desert, which for the distance of five hundred miles from the feet of the Rocky Mountains, presents a frightful waste, scarcely less formidable to men and animals than the deserts of Zahara [sic.]."[12]

Also, the Niles Weekly Register printed a descriptive paragraph titled, the "American Desert:"

> There is an extensive desert in the territory of the United States, west of the Mississippi, which is described in Long's Expedition to the Rocky Mountains. It extends from the base of the Rocky Mountains 400 miles to the east [near the ninety-eighth meridian], and is 500 miles from north to south. There are deep ravines in which the brooks and rivers meander, skirted by a few stunted trees, but all the elevated surface is barren desert, covered with sand, gravel, pebbles, &c. There are a few plants but nothing like a tree to be seen on these desolate plains, and seldom is a living creature to be met with. [13]

It would appear that nearly all of Webster's meanings for the term "desert" can be applied in this description of a barren, sandy and nearly treeless wilderness.

The phrase "Great American Desert" can be found on the maps displayed in various atlases and books from 1823 through 1840 as well. Thomas G. Bradford's A Comprehensive Atlas, Geographical, Historical and Commercial published in 1835 places the phrase nearly astride the one-hundredth meridian. If the label is meant to be centered in the region it describes, it implies that the desert runs from 97 to 106 degrees longitude. Other atlases place the desert anywhere between the ninety-eighth and one-hundredth meridians to the Rocky Mountains.[14] Whereas there was little uniformity to the understood boundaries of the interior desert, it quickly becomes discernable that James's work and Long's report effectively cauterized the notion of a "Great American Desert" on the American mind. A recent study found that there were 184 geography text books

during the early 1800s with entries of over 120 words describing the Plains as the Great American Desert. These books were oriented to all levels of education including those in secondary schools, colleges, academies and the well educated.[15]

There is no doubt that this description of the region on the western margins of the young nation's boundaries fit in well with the policy of Indian removal that was gathering momentum during the 1820s. Although the concept of relocating the native tribes east of the Mississippi River to areas west of the river hit the political scene with full force in the third decade of the nineteenth century, it was a policy that had roots back to the 1500s. The United States borrowed more than its language, predominant culture, and political ideas from England. They also used the British method for demarcating native groups from their own colonial settlements on a frontier.

The English set upon colonizing the Americas rather late when compared to Spain and Portugal. So, it is not surprising that the first time the word "colony" appears in British text it is referring to Spain's involvement in the Americas. In 1558, the term "plantation," stemming from the root word "plant," is used in describing colonization efforts in Ireland. After repeated "rebellions' by the native Irish, the English decide to obtain land from the local leaders through treaty or confiscation. The English would then divide the new land into counties, which would be allocated to English proprietors who would lease smaller plots to settlers from the mother Protestant island. This area of English Settlement was known as "the Pale." The Ulster natives, who could not be trusted to live amicably with the English invaders were simply removed beyond the Pale.[16] The significance of Ireland is that experiences derived there paved the way to the American colonies. Many of the first English colonizers of the "New World" had

experienced Ireland prior to their departure across the Atlantic Ocean.

Early British policies toward Native Americans involved lines of demarcation; but the most obvious and widespread example is seen in the Proclamation Line of 1763. The British Crown implemented this line between the native population and the English settlers with the hope that it would solve several problems that concerned the crown. First, it was hoped that costly Indian wars could be averted if English settlers could be kept from encroaching on tribal land. Also, prohibiting settlements in the region would allow the fur trade to continue, but in the hands of English entrepreneurs. Lastly, it would keep the colonial population close to the coast where they would be more easily taxed and more accessible to British made goods. Regardless of the reasoning, the British government induced native tribes to sell their land east of the line and remove to the area west of it.

The new born United States government followed this example at various times. The earliest attempt at organizing native tribes into their own state, separate from the non-Indian districts, occurred in 1778 in the Treaty of Fort Pitt. The absence of any natural boundaries to be used as lines of demarcation condemned the policy to failure.[17] President Jefferson's purchase of Louisiana from France in 1803 changed all this. Now the nation held an area virtually uninhabited by United States citizens and separated from the rest of the nation by the Mississippi and Missouri Rivers that could serve as an Indian reserve. Appropriately, Jefferson was the first president to espouse the idea of removing the eastern tribes to the territory west of the great rivers. He even had a plan for encouraging the natives to sell their land. Jefferson called for the establishment of "factories," or government stores, near the various tribes at which the native population

would be allowed to purchase on credit. When members of the tribe incurred enough debt, the United States government would offer a treaty trading tribal land for the absolution of debt.[18] This method of separating the tribes from their lands was successfully used on numerous occasions.

Of course, there were many examples of voluntary removal as well. As non-Indian settlers began crowding into the Trans-Appalachian region, the natives started feeling the effects of the strain on the areas natural resources. Also, tribes like the Choctaw had increased their hunting activities to pay off the debts they were accumulating at the trading posts. Eventually, their territory became hunted out. In their search for new hunting grounds, they found the only direction available for them to go was west. As early as the 1760s, shortly after the Spanish gained Louisiana, some Choctaw bands crossed the Mississippi River to settle along the Ouachita and Red Rivers at the invitation of Spanish officials.[19] Eighteen years later in 1788, the Cherokee headman, Toquo, petitioned the Spanish authorities for permission to settle in present day northern Arkansas and southern Missouri.[20] The Alabamas and Coushattas of the Creek Confederacy relocated to lower Louisiana during the late eighteenth century as well. These Native groups were encouraged by the Spanish to settle on the west side of the Mississippi River creating a buffer zone between their settlements farther south and the English on the east bank of the river who might try to push the boundary west.

During the early nineteenth century, as non-Indian settlers began encroaching on tribal lands the number of refugees moving to the region west of the "Father of Waters" grew as tribes became fractionalized by the presence of such a powerful and aggressive neighbor as the United States. During the colonial era, traditional factions within tribes

found further reason to disagree in policies towards the European nations. Some leaders found it advantageous to align themselves with the Spanish while others chose the French or the British. As a means of obtaining a stable trade network, many Indian leaders sought marriages between their daughters and European traders. This incurred a system of obligation through the ties of kinship and tied the supplier of European manufactured goods to the headman, thus sustaining his position among his people.

As the offspring of these marriages came of age, the presence of a politically powerful "mixed blood" segment of the tribe grew as well. These individuals were tied even more closely to their European connections and increased the tensions within the tribes. Competition between influential tribal leaders over securing advantageous trade contacts with European merchants caused schisms within the tribes; but the most conspicuous division in most tribes according to the English and their progeny was between "traditionalists" and "progressive."[21] These are loaded terms that are often given too much credence. Both groups might seek closer relations with Europeans to secure trade. Those who wished to maintain a more "traditional" life style often sought opportunities through the hide trade, while others chose to adopt agricultural and commercial methods that were more European to sustain themselves and their followers.

Although this factionalism led to civil war among the Muskogees pitting the Lower Creeks against their kindred from the upper reaches of their territory, most tribes did not resort to open warfare. The Cherokee tended to show their disagreement for a leader's policy by removing themselves from his area of influence. Many Cherokees moved west of the Mississippi River for this very reason as well as to escape other angry factions, to locate better hunting grounds that represented economic opportunity

associated with the hide trade and to escape non Indian encroachment. By 1820, almost one-third of all Cherokees lived west of the river.[22] Nine years later, records show that 6,000 Cherokees; 2,200 Kickapoos; 1,000 Delawares; 1,400 Shawnees; 1,400 Weas; 700 Creeks; 700 Choctaws; and 200 Piankashaws had voluntarily removed to the region as well.[23]

By the later 1820s, the debate concerning the forced removal of the eastern tribes became a national concern and the notion of a Great American Desert on the nation's western border with Mexico played a significant role in the discussion. Missionaries joined politicians and native spokespersons in pressing their opinions on the subject. Isaac McCoy, a Baptist missionary to the Potawatomies in Michigan Territory, was one of the key figures in promoting removal of the eastern tribes to the trans-Mississippi West. The reverend came to regard all efforts to "civilize" the Indians as unproductive unless the natives could be removed from the negative effects of living in contact with whites. In McCoy's eyes, the influence of whiskey peddlers was most damaging to the progress of the aborigines. It became his personal mission to work for the relocation of his flock to a suitable site for their development.

McCoy was aware of the "desert" character of the Plains. He took two groups of eastern tribesmen on a tour of his proposed relocation site. During the first of these tours he wrote in his journal that "We are limited to the regions west of Arkansas Territory, and Missouri state. Should the inhospitableness of that country deny them a place there, they will be left destitute."[24] He also discussed the "supposed scarcity of water in the prairies" as a concern during this journey, which may have impressed the reverend to keep his group near to the Missouri and Arkansas borders for he never escorted an Indian

contingent further than fifty miles west of these lines.[25]

The Baptist missionary was certainly aware of Stephen H. Long. In his published work, History of the Baptist Indian Missions, McCoy proudly notes the arrival of Long's second expedition to the preacher's mission on the St. Joseph's River in 1823, and quotes their official journal in describing the progress made toward building a school and clearing fields.[26] The reverend also cites James in describing the desert west of the Mississippi River in his Practicability of Indian Reform:

> Along the vast chain of the snow topped Andes, or Rocky Mountains, nature has spread on each side a barren desert, of irreclaimable sterility. To what extent this sandy desert spreads to the west of those mountains, and what exceptions to its barrenness may occur, we have not the means of knowing. Dr. James allows it an average width on the east side of the mountains of between 500 and 600 miles [around the ninety-sixth meridian].[27]

Interestingly, it was to this general vicinity that McCoy wished to relocate the Indians.

It is not in the nature of this study to investigate the motives behind the reverend's plan for removing the Indians but he gives his reasons for choosing such an unpromising region for native colonization. First of all, there is a strip of suitable farmland neighboring white settlements in Missouri and Arkansas. This would be the region between the settled territory of Arkansas and the state of Missouri, and the ninety-sixth or ninety-eighth meridian depending on exactly where he placed the vast desert. This area was considered by many to be premium farmland. Jedidiah Morse wrote of this section in his "Report to the Secretary of War" that it "is said to be some of the finest lands in the Arkansas Territory."[28] Also, the location of the "desert" immediately to the west of the proposed colony would preclude any white settlement to the west of the relocated tribes and prevent another encirclement of the native groups.[29] McCoy described at length the undesirability of this area giving some insight into his definition of the term "desert:"

> The vast region is not termed a desert, merely on account of the almost, or entire, absence of timber, but chiefly because the soil itself is of a quality that it cannot be rendered productive by the industry of man. No portion of our territories furnish so few inducements to civilized man to seek in it a dwelling place, as this under consideration.[30]

It appears that he considered the Plains a desert because of its lack of timber and not for reasons attached to the present usage of the word. It was common during the early part of the nineteenth century to associate soil quality with the vegetation growing upon it.[31] The lack of trees was an obvious condemnation of the soil's capabilities and McCoy seems to relish relating the "desert's" shortcomings to his readers. In fact, he shunned Morse's proposal to relocate the tribes in what was considered better country in the Northwest Territory because it would be desired by white settlers who would encircle and then force the tribes to move yet again.[32]

Finally, McCoy claims that "good grazing country" is the best environment for "people in their transition from hunter to the civilized state."[33] It is apparent that he considered the Native Americans as in the 'hunter" stage and in need of "civilizing." This statement ignores the transformation to Euro-American standards of civilization that had already begun in the southern tribes: the Cherokee, Choctaw, Chickasaw, and Creek in particular. Certainly, McCoy was more familiar with the tribes of the Old Northwest whom he felt required isolation from the vices of white society to proceed toward "civilization."

There is much turbidity in McCoy's writings concerning the influence of the "Great American Desert" concept as a factor in his removal proposal. There can be no doubt that he was privy to Long's and James's writings, and that the desert appealed to his desire to remove the natives from the bad element of white culture. McCoy was most

interested in making this arrangement permanent.[34] He was aware of the previous attempts to gain a homeland for the tribes on an individual basis, and he was committed to procuring a residence that would never be tampered with, thus the importance of having a desert to the rear of the tribal reserves.

Jeremiah Evarts opposed Indian removal as vehemently as McCoy supported it. Born in Sunderland, Vermont, in 1781, Evarts received his college education at Yale. After stints at teaching and practicing law, he assumed the editorship of the orthodox Congregationalist journal Panoplist. He also acted as treasurer to the American Board of Commissioners for Foreign Missions in 1811 and remained closely attached to this organization for the remainder of his life. Evarts visited the southern Indians, particularly the Cherokees on several occasions, and came to believe that if left to grow and prosper, these people could attain a high degree of civilization. His "Essays on the Present Crisis in the Condition of the American Indians," published in the National Intelligencer in 1829, attacked the state and federal governments for their treatment of the natives.

The editor was also aware of Long's writings. In his "Memorial of Citizens of Massachusetts," Evarts states "If the country west of the territory of Arkansas is correctly described by Major Long, an authorized agent of the government, it is uninhabitable."[35] This conveys academia's acceptance of the Long expedition's findings as a contribution to the field and stresses the government's sponsorship of the mission. Evarts emphasized the credentials of Long to support the conclusion that the region was not fit for human habitation, including Indians.

In other writings, he supported the Long expedition's findings. In the "Memorial of the Prudential Committee American Board of Missions" address to the Senate, Evarts

claims that "the western side of this territory [designated for Indian colonization] will be an illimitable desert . . . ."[36] He later goes into more depth on the topic of the proposed site's terrain:

> Though considerable uncertainty prevails on the subject, yet it seems admitted by all, that the far greater proportion of the contemplated new residence for the Indians, (probably four-fifths of the whole), is an immense prairie, nearly destitute of wood, deprived of running water four or five months of the year.[37]

In Evart's opinion, this would obviously render the location unfit for any people attempting to reach a state of civilization. Still later in the essay he leaves no doubt as to what area he is describing when using the term "prairie." When discussing the proposed area, Evarts claims that the tribes would be caught between the "pressing white population on the east, and a boundless prairie, . . . often called a desert" on the west.[38]

The reference to Long is obvious. Although the notion of the "Great American Desert" is now a topic of "considerable uncertainty," the descriptions as a place of little moisture and inhospitable terrain is constant. For the same reasons that McCoy considered the area perfect for Indian relocation, Evarts thought it unsatisfactory. The people he knew as Indians, the Cherokees, were horticulturalists just like the white population, not hunters. They would become despondent with the barrenness of the locale and resort to government subsidies for support, or worse. For these reasons, Evarts contended that the Indians were better off where they were, in a state of self-sufficiency and of little cost to the government.

The Cherokees were also informed on the terrain of the region west of the Mississippi River. In their address to the Senate in 1824, their spokesman voiced concern over the economic options open to them if they moved, and in so doing, relied on a

description of the region which strongly resembled the language in James's writing:

> . . . removal to the barren waste bordering the Rocky Mountains, where water and timber are scarcely to be seen, could be for no other object or inducement than to pursue the buffalo, and to wage war with the uncultivated Indians of that hemisphere.[39]

According to the delegation of the Cherokees this would represent a step backwards from civilization, thus negating the justification for removing the eastern tribes to the region west of Arkansas and Missouri.

Of significant importance to those who favored or acquiesced to removal, the motivating factor involved in choosing the area to the west of Arkansas was the presence of an undesirable region to its west. John C. Calhoun described this consideration in his Plan for Removing the Several Indian Tribes West of the Mississippi. The Secretary of War claimed that the Cherokees would be willing to emigrate west "as they have evinced a strong disposition to prevent the settlement of the whites to the west of them."[40] McCoy had stated this as of prime importance, and the Chickasaw tribe agreed. Tribal leaders signed the Treaty of Dancing Rabbit Creek in 1830 on the condition that their new lands would never be encircled by a state or territory of the United States.[41]

Politicians in favor of removal understood this would benefit their cause as well. John C. Calhoun played on the sentiments of those representing the Indians' interests in his 1825 speech before Congress titled, "A Plan for Removing the Several Indian Tribes West of the Mississippi River:"

> One of the greatest evils to which [the Indians] are subject is that incessant pressure of our population, which forces them from seat to seat, without allowing time for . . . moral and intellectual improvement . . . . To guard against this evil, so fatal to the race, there ought to be the strongest and most solemn assurance that the country given them should be theirs . . . without being disturbed by the encroachment of our citizens.[42]

In 1836, the Committee on Indian Affairs took up this same argument. It described the region of "woodless plains" to the west of the proposed site for Indian removal in a manner reminiscent of James and Long. This committee's report bounded the Indian reserve on the west with "an open almost woodless plain, four or five hundred miles in width, in which on account of the scarcity of wood, no human being ever had a permanent residence."[43]

The absence of human settlement on the Plains was most important for this was the selling point of the area designated for relocation. As the Committee on Indian Affairs stated, "With this uninhabitable region immediately to the west of the Indian Territory, [the native tribes] cannot be surrounded by a white population" and, more important to the congressmen, it would place the Indians on the nation's perimeter "in a place which will ever remain an outside."[44] Here the location of the "Great American Desert" was key because it would preclude expansion of the United States to the west leaving the proposed Indian Territory in a non-threatened location.

One of the strongest arguments for removing the tribes to the West was the threat posed by having a possibly hostile population within the United States but also within close proximity of Mexico or British North America. In the wake of the War of 1812, many congressmen were concerned with national security. In 1817, a committee report on the "Exchange of Lands with the Indians" attributed the need for Indian removal to preserve the national defense.[45] Senator Thomas Reed of Mississippi reintroduced this notion in 1827, by reminding his peers of how close the Choctaw and Chickasaw tribes had come to joining Tecumseh's forces and fighting on the side of the British during the War of 1812.[46] Isaac McCoy was aware of this factor as well. In Remarks on the

Practicability of Indian Reform, he mentions the area just west of Missouri as the ideal location of Indian colonization because it was removed from direct contact with the borders of Canada and Mexico and thus rendered the natives safe from the manipulations of British or Mexican agents.[47]

The evidence suggests that the notion of a "Great American Desert" did play a role in the location of Indian colonization. The term "desert" meant an uninhabited, uncultivated, barren, and sometimes sandy waste. Certainly this region was undesirable at that time to white settlers. This was why the area neighboring the desert was chosen as the site for Indian Territory. With a desert to the native reserve's flank and Mexico beyond that, there would be no chance that white farmers would encircle the tribes and force them to move yet again. Also, the Indian Tribes would be on the nation's perimeter and far from the manipulative exploitation of enemies to the nation's security.

The plan sounded almost too good. Move the tribes from the East to a strip of arable land beyond the shadow of the Great American Desert, and allow the various nomadic tribes of the Plains to remain on the grasslands and be slowly forced into accepting Euro-American forms of civilization. This would allow for a compact settlement of whites in the states and a compact settlement of natives in Indian Territory. The plan came to fruition shortly after the election of Andrew Jackson to the presidency. The Tennessean was an avid supporter of removal and in 1830 he obtained the passage of the Indian Removal Act from Congress. This law appropriated funds for the negotiation of removal treaties with the various tribes and authorized the president to oversee these efforts.

Almost immediately, the Choctaws agreed to cede their land east of the

Mississippi River and relocate west of it in the Treaty of Dancing Rabbit Creek signed on September 27, 1830. According to the document they would have three years to complete the task. The Creek nation agreed to removal in 1832 and by 1837 most of the Muskogees who intended to move had done so.

In October of the same year, the Chickasaws gave their formal approval to colonize in Indian Territory in the Treaty of Pontotoc Creek, although it was not until 1837 that the tribe obtained any legal claim to land west of Arkansas. The Treaty of Doaksville stipulated that for the fee of $530,000, the Chickasaw bought a share in the Choctaw lands south of the South Canadian River, north of the Red River, west of the state of Arkansas and east of the one-hundredth meridian. Most Chickasaws had moved as of 1840. After a very expensive war, the US government was able to obtain an agreement from a majority of tribal members to relocate the Seminoles in the Treaty of Payne's Landing in 1832. A year later, the Creek tribe agreed to share their claim in Indian Territory with the Seminoles.

The Cherokees were perhaps the most divided tribe over the issue of removal. There were various recognizable groups based on their geographic location or their attitude toward removal. The Western bands consisted of those residing along the Red River in Texas, and those who had built homes along the White River in Arkansas and then traded their territory in 1828 for land the United States government had obtained from the Osages in what is today northeastern Oklahoma. The Eastern bands fought removal in the courts, but finally succumbed in 1835 by signing the Treaty of New Echota. Their forced removal west further complicated the issue of identifying Cherokee groups. Some tribal members were able to escape the United States army and move up

into the mountains of western North Carolina adopting the title of Eastern Cherokees in more current times.

Perhaps this arrangement could have satisfied a good many of those involved, but the region of prairies abutting the Plains proper are also susceptible to drought. When the arid cycle returned to the Plains, the region would now bear the stressful effect of having a greater population within its borders. And the Plains tribes would not be able to retreat eastward to escape the drought! Their movement based on following the buffalo herds, which were searching for grasses was based on generations of tradition. The removed tribes would block this migration and the United States military would be there to ensure that the Plains tribes remained in their homeland, drought or not.

CHAPTER 4

THIRSTING FOR WAR, HUNGERING FOR PEACE: DROUGHT, BISON MIGRATIONS, AND SOUTHERN PLAINS TRIBES, 1846-1865

The year 1853 appeared to promise peace to Indian agents of the southern Plains. The Osage Indians journeyed close to eight hundred miles out onto the grasslands to hunt buffalo without a conflict with the Plains tribes.[1] The Cherokees sought out and came to peaceful terms with the Kiowas and Comanches.[2] The United States signed the Treaty of Fort Atkinson with those same two tribes. Even the hostilities between the Comanches and their hated enemies, the Texans, seemed to be moving to a more tranquil relationship. Texas Indian agent Robert Neighbors traveled onto the Plains and visited the Southern Comanche bands. He noted in a report to the Commissioner of Indian Affairs that "During my stay with them, I could discover nothing of any hostile or warlike disposition; and I have every reason to believe that we shall have a season of uninterrupted peace on our frontier."[3] It was also a year of adequate moisture and a bountiful harvest.[4]

The very next year witnessed a deterioration of amicable relations between the tribes of Indian Territory and the Plains tribes, and between the United States and the Kiowas and Comanches. In the spring of 1854, Indian agents reported that the Kiowas, Comanches, Plains Apaches, Arapahos and Cheyennes gathered at the Pawnee Fork of the Arkansas River in what later became the state of Kansas to form a war party with the intent of wiping out "all frontier Indians they could find on the plains."[5] Two years later, Comanche raids upon reservation Indians, *Tejanos* and whites increased dramatically in

Texas. During the following five years, relations between the Texans and the Plains Indians continued to worsen. Eventually, the reservation Indians, caught in the middle, chose to relocate north of the Red River to escape the terrorist tactics of angry Texas settlers.[6] Granted, the relationships between Plains Indians and their eastern neighbors were tenuous at best, but the question remains, "why the complete turn around in what seemed to be improving relations?"

Different theories have been presented on the subject. The Comanches and other Plains tribes thought that the presence of tribes removed from the east and growing white settlement in Texas resulted in the over hunting of the bison herds. This view is substantiated in early histories which rely heavily on government documents. For instance R. N. Richardson, in The Comanche Barrier to South Plains Settlement, notes reports of population pressure and claims that the herds were burdened with supplying too many people with food.[7]

Grant Foreman, in Advancing the Frontier, claims that the Mexican-American War was the turning point in relations between the U. S. government and the Comanches. The victory for the United States resulted in the inclusion of the southern Plains and territory further west in the young nation, which brought even more white settlers into the area, some of whom over-hunted the buffalo. This activity combined with the governmental policy of restricting the movements of the Plains Indians and resulted in warfare between the tribes and the United States.[8]

During the twentieth century, in the era of the Cold War, military explanations for historical events became more popular. In 1952, Ernest Wallace and E. Adamson Hoebel published The Comanches: Lords of the South Plains, in which they combined the new

anthropological aspect of cultural information with the old reliance on government documents and came to the conclusion that a strong military presence acted as a deterrent to Comanche aggression. In 1853, there were 3, 265 American soldiers stationed on the frontier, exceeding any year prior to the Civil War; but during the next year the government reduced troop numbers on the southern Plains. Without the U. S. military presence there was no deterrent to Plains Indian raids and Comanche depredations increased in a correlative manner.[9]

The Vietnam War triggered a reaction by many in the United States to reach a better understanding of native cultures throughout the world. This eventually became applicable to the natives in the United States. As the American Indian Movement publicized the plight of Native Americans, a re-evaluation of their history ensued. The controversy over native demographics at the time of European contact became a hot topic as well. In 1974, T. R. Ferenbach brought a new interpretation to the treatment of Comanche history with his book Comanches: The Destruction of a People. Ferenbach claimed that the Gold Rush pulled thousands of white migrants from the eastern United States to the West Coast. Two of the most popular overland trails, the Santa Fe Trail and the Canadian River route, traversed the heart of *Comancheria*. This brought United States citizens into contact with Comanches, whereas before the latter had enjoyed the benefits of relative isolation from such intensive contact. Small pox had hit the southern Plains tribes in 1816 and again in 1839 as the Santa Fe Trail came into greater use. The gold rush migrants brought with them pathogens that wrought havoc on the native population as well, such as cholera and other diseases. These illnesses swept through the Plains tribes while the presence of so many gold rush migrants added the burden of scaring off

the bison supply. According to Ferenbach, the Comanches retaliated with increased warfare.[10]

Thomas Kavanagh brings another factor into this already complicated picture by claiming that Comanche horse raids were most intense in the period from 1848 to 1852. This time frame corresponds to the era of Gold Rush trails to California and the subsequent increase in demand for horses.[11] This indicates that the escalation of warfare was a competition for livestock aimed at taking advantage of the new demand for such animals along the trails.

The majority of these interpretations agree that the absence of buffalo from the southern short grass prairies was an important impetus for degenerating relations between the Plains tribes and their neighbors; but what is not agreed upon is the cause for the absence of the bison herds. During the 1980s and 1990s, historians began to call for a more balanced view of Native Americans as humans who manipulated their environment to their own benefit. Dan Flores, in "Bison Ecology and Bison Diplomacy" gives a large part of the credit for destroying the buffalo herds to the Plains Indians, who were involved in a growing hide trade. Their hunters chose buffalo cows for their supple hides and in so doing impaired the herds ability to regenerate its population. To these factors, Flores adds but does not explore drought as a "critical element" in reducing bison numbers on the southern Plains.[12]

Elliott West provides the most current assessment of the Plains Indians crisis during the middle years of the nineteenth century in The Way to the West: Essays on the Central Plains. In discussing the major alliances of Plains tribes, West describes the presence of "buffer zones" where game could thrive and bison herds could replenish their

numbers. In this neutral area the threat of rival tribe attacks restricted the amount of hunting taking place. In 1840, the southern Plains tribes made peace with their northern neighbors, thus destroying one of these "buffer zones." The bison were forced to move east or be killed by the increased hunting activity in their old range. By the 1850s, the location of the only remaining zone was in the central Plains just east of the Comanche, Kiowa, Cheyenne and Arapaho lands; and west of the semi-sedentary Pawnees, Osages, and other tribes that the United States had removed from the east. This resulted in increased competition between these tribes for resources, notably the buffalo herds.[13] West claims the drought of the 1850s exaggerated the processes that were pushing the herds east, which included the depletion of the buffalo range by the overgrazing of Indian horse herds, the increase in hunting attendant to the growing use of the overland trails, and the deleterious effects on the ecosystem of traffic along the major trails.

David LaVere focuses on the cultural aspects of the relationship between the Plains Indians and the removed eastern tribes in Contrary Neighbors: Southern Plains and Removed Indians in Indian Territory. LaVere discusses the attitudes of these two different groups towards each other and finds that the differences in their cultures represented a barrier to amicable relations for most of their mutual past. He also points out that due to the United States' policy of buying back white captives of the Indians, and the thriving horse trade along the major western trails, warfare was more profitable than peace to both groups.[14]

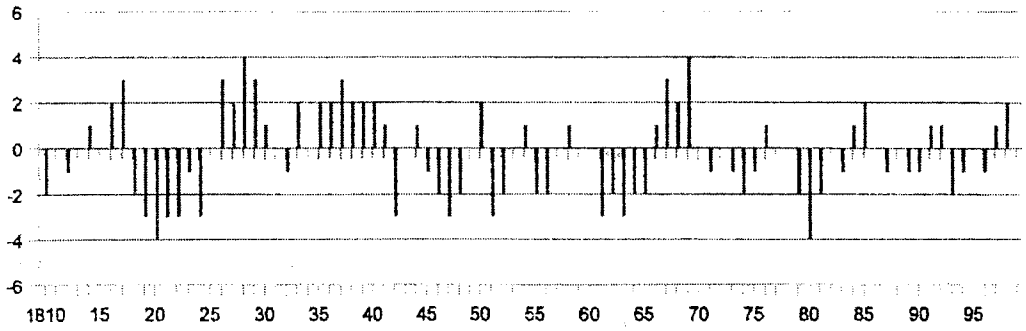
It can be argued that the buffalo migrations are more important than previously thought in regard to tribal warfare. Buffalo movements directly affected the diplomatic choices the southern Plains tribes made. More information has recently come out about

past climatic conditions. Climate reconstructions conducted by the National Geophysical Data Center (NGDC) have allowed the study of drought's effect on the location of the buffalo herds. As recorded by travelers, Indian agents, Indian school superintendents, and military personnel, a series of droughts hit the southern Plains during the twenty year span between 1846 and 1865 with the last episode being the most severe and running from 1854 to the mid 1860s. A paleoclimatological study has posited that this drought was the most severe dry spell to hit the southern Plains in the last two-hundred and forty-three years.[15] In fact, according to NGDC climate reconstructions the era from 1845 to 1865 was extremely dry allowing only five years of above average rainfall (fig. 4).[16]

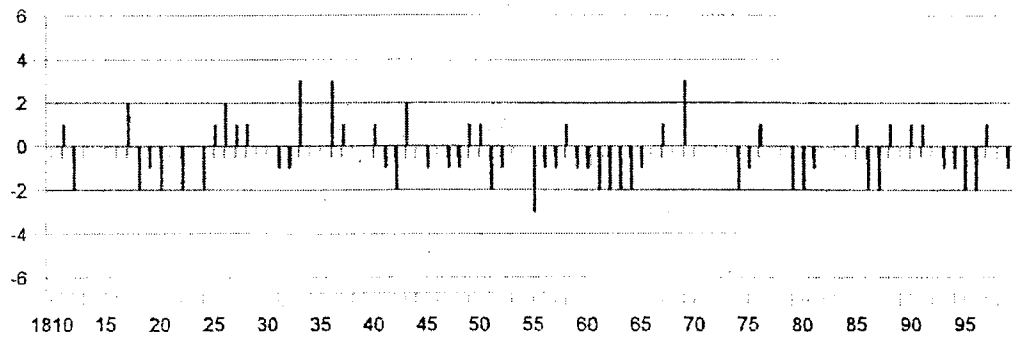
Drought handicapped Plains Indian resistance to the incursions of the United States. This period of excessive drought exaggerated the effects of the overland trails on the ecosystem, pushed the bison herds to the east and encouraged the Plains tribes either to accept reservations and commit to reliance on the federal government or to increase their raids on neighboring people and incur warfare with the United States.

Drought had affected the migrations of the bison herds for thousands of years.[17] As the lack of rainfall withered the grasses on the High Plains, the herds either moved eastward to locate sufficient pasture to sustain their population, or starved.[18] The absence of buffalo altered the relationships of the Plains tribes with their neighbors. Any people residing on the High Plains and fashioning a lifestyle dependent on the hunting of bison had to rely on trade and raiding to supplement their diet with vegetable products. During average conditions the bison herds would provide plenty of hides to trade with horticultural people for corn; but when the herds moved far enough away, the southern Plains foragers were faced with few peaceful options. During times of mild drought, the

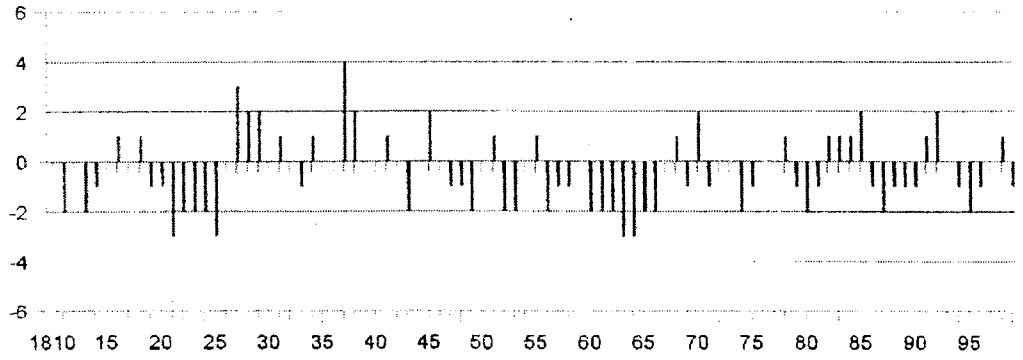
PDSI Chart for 1810-1899



Amarillo, TX PDSI



Abilene, TX PDSI



Wichita, KS PDSI

Adapted from E. R. Cook, D. M. Meko and C. W. Stockton, US Drought Area Index Reconstruction. International Tree-ring Data Bank. Boulder, CO: NOAA/NGDC Paleoclimatology Program, 1998.

Fig. 4

Plains people could migrate to the edges of the High Plains and camp at one of the many springs that bubbled up at the base of the Edwards Plateau or farther east. Also, there is evidence that paleo-foragers relied on hand dug wells for water during these times of sparse rainfall.[19] These people utilized farming and hunting to subsist on the Plains, but what would a culture specializing in hunting do during times of severe drought? They could migrate as far east as the herds wandered and risk infringing on the hunting grounds of other tribes, or raid the agricultural villages in their vicinity for necessities and barter material with which to obtain corn and other staples.

One of the results of the United States government's removal of the eastern tribes to the trans-Mississippi West was the blocking of this movement of the Plains Indians to the east during times of drought. As Comanche and Kiowa hunters moved east to hunt buffalo, they came into conflict with the settled tribes of the Indian Territory who had the support of the federal government, and without buffalo hides, the Plains Indians had little to offer their neighbors in trade, thus they had few options other than resorting to raiding, which of course, elicited a response from the federal government.

To understand just how damaging the combination of a severe drought and the presence of federally protected Indian tribes on the eastern prairies was to the Kiowas and Comanches, it is necessary to look at the prehistoric relations of High Plains natives with their neighbors, investigate the circumstances that propelled the Comanches and Kiowas to leave their more northerly homelands and journey southward onto the southern Plains, and explore the severity of the 1850s drought and its effects on the animal and human populations of the southern Plains.

In prehistoric times, Plains hunter-gatherers were dependent on trade with their

eastern and western neighbors. As Pueblo populations grew, they tended to over-hunt their immediate vicinity and were forced to become more specialized in growing crops. The intensive hunting in the region of the Pueblos forced larger game like bison and elk to flee the region or be killed off, thus leaving the sedentary groups the option of either venturing onto the Plains for a few big hunts or relying on trade with Plains nomads to procure buffalo meat. Under such circumstances these nomadic people came to rely more and more on hunting buffalo, for they could fall back on trade to procure the much needed carbohydrates in maize from the Pueblos to their west or the Caddoans to the east.[20]

Hostilities between the horticultural tribes and the Plains foragers were probably rare, because there was much more for both groups to gain from peaceful trade than from belligerence. Prior to the re-introduction and dispersion of the horse in North America, the Plains tribes were numerically and militarily inferior to the easily defensible dwellings of the Pueblos and the large villages of Caddoans with their confederated allies. If the unmounted nomads ventured an attack on the horticultural villages, they would risk losing their trade partners for good, while paying a heavier price than their counterparts. When a member of a sedentary tribe was wounded, his people could nurse him back to health while another member of the tribe took up his work in the fields. When a nomad was wounded, he had to be able to keep up with the movements of the tribe or endanger the well-being of his people. Raiding was equally risky due to the inability to escape quickly with the stolen objects. The horticulturalists would have plenty of time to organize a war party and track the slow moving raiders down.[21] In fact, the threat of attack was so slight that the early Caddo villages were not fortified.

The arrival of the Europeans and their horses altered this proto-historic trade economy. The first permanent presence of Europeans on the Plains periphery occurred when Spanish settlers entered the northern Rio Grande Basin in 1598 under the leadership of Don Juan Onate more than forty years after Coronado. They were accompanied by seven-thousand domesticated European animals: cattle, sheep, and some three-hundred horses. The Spanish disrupted the traditional Plains-Pueblo trade by implementing feudal policies aimed at conquest and pacification that they had refined while expelling the Moors from the Iberian peninsula during the fifteenth century. The king granted the right to collect tribute to a handful of prominent Spaniards who were known as *encomenderos*. This tribute was often in the form of items that the Pueblo natives had formerly traded to the Plains people for buffalo hides, such as maize and cotton blankets.[22]

There was also the *repartimiento* system that required natives to participate in a rotating labor system intended to construct public works, which included roads and bridges. *Encomenderos* could exact tribute in the form of labor, which, along with the *repartimiento,* pulled Puebloans away from their fields. These programs diminished the agricultural production of the Pueblos, forcing them to keep most of their produce to themselves. This reduced the amount of trade the Pueblos could conduct with their Plains neighbors, which, in turn, resulted in an increase in raiding by the Plains foragers of that time, the Apaches.

During the 1660s, when the Spanish prohibited Puebloan trade with the Apaches the only alternative for the Plains tribes to obtain Puebloan goods was to increase raiding.[23] No doubt, the Puebloans found these conditions intolerable, especially as drought withered their fields. In 1680 they successfully revolted and expelled the Spanish

from the upper Rio Grande valleys.

By 1680, some eighty years after the arrival of Onate and his entourage, the horses in the Spanish herds numbered in the thousands, yet only the neighboring Jumanos had incorporated the animal into their semi-sedentary culture.[24] The horticultural natives had little need of horses, and allowed them to become feral. Within one year of the revolt, the Mendoza-Lopez expedition made one of the first European observations of mounted Plains Indians. The party encountered Native horsemen near the Pecos River and reported the loss of a few horses to Indian stealth.[25] The eastern tribes of present Texas had horses by 1700 and the equines had diffused as far north as the eastern slopes of the Canadian Rockies by 1750.

The horse altered the trade economy of the southern Plains and its periphery. Once the Plains foragers procured mounts, they experienced a technological revolution. They could more easily locate the buffalo herds, and hunting the burly animals became a much more simple although still dangerous matter of riding into the galloping herd and dispatching a well aimed arrow or spear behind the animal's shoulder blade. The tribe was also able to move more quickly, allowing it to keep up with the movements of the herds across the grasslands. The easier access to the bison allowed Plains hunters to trade for more Pueblo and Caddoan goods. This, in turn, allowed the populations of the Plains tribes to grow. This growth in the Plains tribes' population, along with their new found maneuverability, gave them the advantage over their horticultural neighbors. Now a raiding party could speedily escape with the fruits of their attack.[26]

The Comanches entered the Plains at just the right time to take advantage of this mobile way of life. In the sixteenth century, the Comanche were still part of the

Shoshone people. At some point, a few bands crossed the Rockies, leaving their ancestral domain along the Snake River for the eastern slopes of the mountains in present Colorado and Wyoming.[27] Within three generations they moved south. Perhaps this migration was in search of horses and game, or they felt the pressure of the armed Siouan groups that were pushing onto the northern Plains. At any rate, by 1706, the term *Los Komantcia* began showing up in Spanish documents and by 1735, the Comanches regularly traded with the Spanish and the Pueblos of the upper Rio Grande.[28]

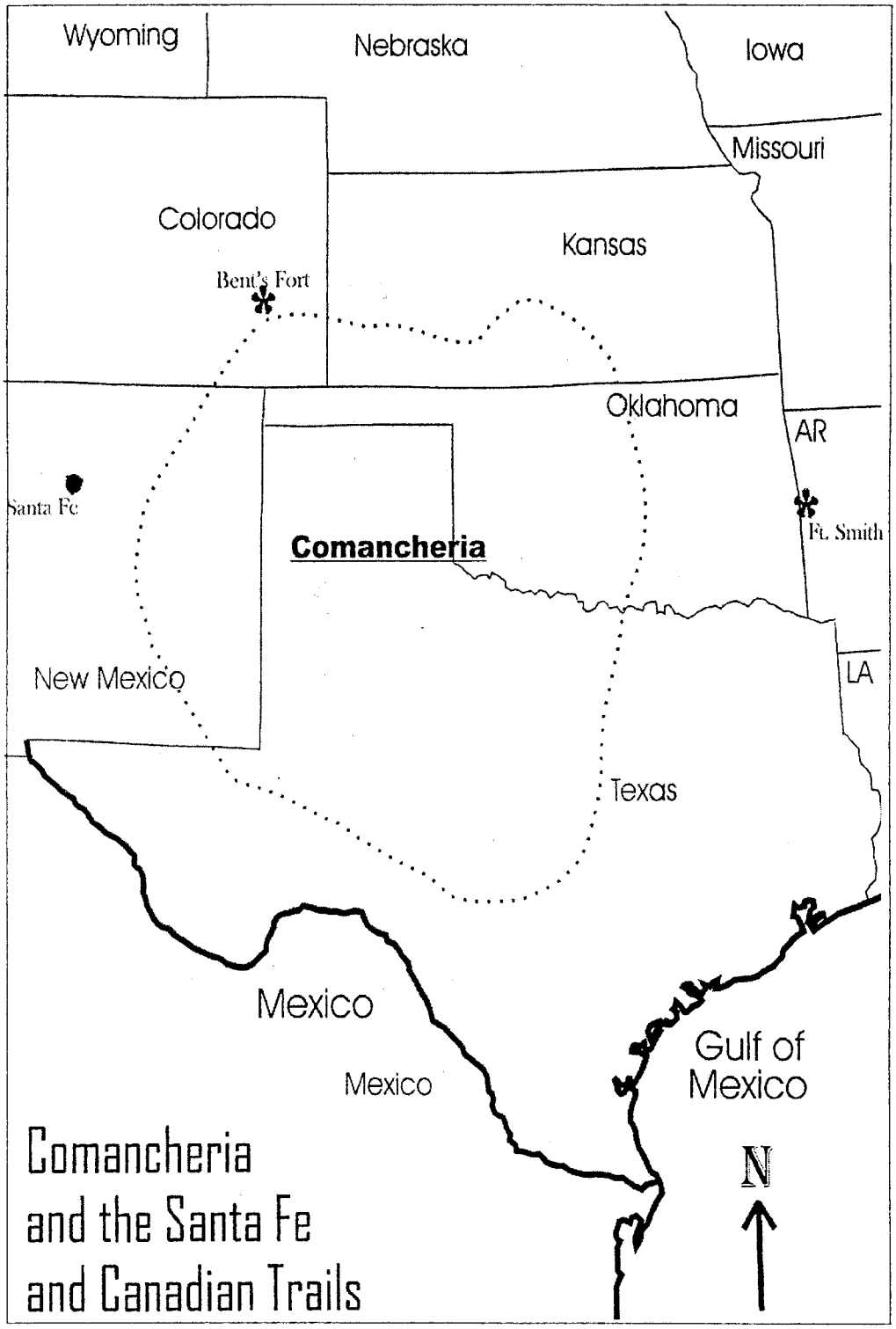
Relations between the Pueblos and Comanches soured in the late 1740s. The New Mexican governor prohibited trade between them in 1746, and, not surprisingly, the Comanches attacked the Pecos Pueblo, thereby initiating a flurry of raids on the Pueblos within the following years.[29] At about this same time, some Comanche bands secured a peace agreement with their eastern neighbors the Wichitas and established trade with the French to procure the goods they had been obtaining from the Pueblos.[30] Also during the eighteenth century, the Comanches carried on an aggressive war with the Plains Apaches, pushing them west into the New Mexico mountains. By the early 1800s, the Comanches had secured the southern Plains as their hunting grounds, which they shared with their new allies the Kiowas and the Kiowa Apaches.

The Comanches' faithlessness in honoring treaties has been misunderstood due to their loose political structure. There was no supreme chief of the extended tribe. A leader of one band could not vouch for any other group of Comanches, thus, a truce concluded with one band of Comanches, would not preclude an attack by another.[31] All through the seventeenth and eighteenth centuries, some groups of Comanches would have truces with their neighbors, while other Comanche bands would be raiding them.

As a nomadic Plains people, the Comanches depended on hunting, trading and raiding for their livelihood. To a large extent, the success of the former influenced the activities of the latter two. During times of plenty, the Comanche would have meat for their families and hides to trade for other necessities and desired objects. During periods when game was scarce, there were few hides to trade for these products. At such times the Plains warriors relied on raiding their neighbors for livestock: cattle for meat and horses and mules for barter in the acquisition of trade goods.

During the 1800s, *Comancheria* was extensive stretching from the Arkansas River in the north to the Balcones Escarpment of Texas in the south; and from the cross timbers of present-day central Oklahoma in the east to the Pecos River in the west (fig. 5).[32] There was good reason for protecting such a vast hunting range. The southern Plains bison herds migrated east during the spring and summer to take advantage of the tall grass prairies, which provided succulent nutrients only during those seasons. When the tall grasses turned brown, the ungulates moved back west during the approach of colder weather to take advantage of the High Plains short grasses, which continued to grow throughout the winter.[33]

On a more local level, this general movement coincided with migration from river basin to upland. During the colder months the bison moved closer to the river and creek valleys to take advantage of the sheltering stands of trees and to escape the effects of the cold winter winds. In the spring, when the tall grasses lining these valleys began to sprout, the bison where ready to take advantage of them. As the warmer months came, the buffalo moved up onto the intervening highlands to graze on the short grasses.[34] The Comanche people followed the movements of the buffalo as had their precontact



Om Rupert Norval Richardson. The Comanche Barrier to the South Plains Settlement. Glendale, CA: Arthur H. Clark co., 1933.

Fig. 5

predecessors. In a region so vast and unbroken by natural barriers, the bison could usually find green pastures somewhere. With the horse the Plains Shoshones could usually locate the bison herds.

The welfare of the Comanche people depended on the buffalo hunts for more than meat. To both the east and the west, a growing trade in buffalo hides was burgeoning. During the late 1700s, the Towiaches dominated the eastern trade of the Comanches through their strategically located village eight-hundred miles up the Red River from Natchitoches. The Towiaches exchanged corn, beans, pumpkins and tobacco with the "Hietans," as they knew the Comanches, for buffalo robes, mules and horses.[35] The Comanches also traded for dried pumpkins, pumpkin seeds, and corn with the Kiowas and Wichitas north of the Red River.[36] The Plains Shoshones frequented the Pueblo trade fairs bartering buffalo hides, meat, tallow, horses, mules and slaves for Spanish metal goods, maize, bridles, textiles, sugar and tobacco.[37] This proved so lucrative for the Spaniards that in 1786, Juan Bautista de Anza began a policy that allowed New Mexican traders, who came to be known as *Comancheros*, to journey out onto the Plains to trade with the Comanches. This was done not only with a profit motive in mind but also to ensure peaceful relations with the Plains tribe under the assumption that a lack of trade would result in an increase of raids on New Mexican communities.[38]

The Comanches achieved the position of supplier of horses and buffalo hides through a fluid system of treaties, truces, and mutual understandings. While they maintained peace with the New Mexicans, they were obtaining slaves and horses from Mexico and Texas. If relations fell apart with the New Mexicans, they shifted their trade elsewhere and commenced raiding in New Mexico for captives and livestock.

Occasionally they raided one ranch for horses, and then traded these animals to another settler some miles away.[39]

American traders established posts on the Plains to take advantage of the huge Indian supply of buffalo robes, which were in demand in eastern markets.[40] The Comanches had become integrated into a market economy. To some degree, they became dependent on manufactured goods, as, similarly, they had always been dependent on their neighbor's grain. When drought returned to the Plains, it triggered a chain reaction that disrupted the fragile balance which the residents of the Plains had established during the previous forty years. That drought began depriving the ecosystem of water in the latter half of the 1840s, but hit with full force in 1854 and continued for the next ten years.

In the mid-1800s, the problems for the Plains tribes continued to mount. The results of the Treaty of Guadalupe-Hidalgo in 1848 were not in their favor. In it, Mexico transferred to the United States all of the southern Plains and the territory westward to the Pacific Ocean. This ended the ability of the Comanches and other Plains people to play the Mexican and United States governments against each other. In addition, the discovery of gold in California triggered a tremendous migration which followed the Santa Fe Trail through the heart of Comanche land. It is estimated that 3,000 gold rush participants traveled along the Canadian River in 1849.[41] With the emigrants came diseases which devastated the Plains tribes. A cholera epidemic took the lives of over half of the Comanche people and continued to sweep through the Kiowas, Kiowa Apaches and Southern Cheyennes during the first year of the argonaut migration.[42] These effects devastated the ecological balance of the southern Plains.

In The Way to the West, Elliott West describes the effects of the gold rush

migration along the Arkansas River. Understandably, the river valleys were crucial to the welfare of the buffalo and native populations. During the winters, Plains animals and humans used the river valleys' protective canyon walls or sheltering trees to escape the brunt of winter storms, to find forage, and to gain access to a reliable supply of water. The growing native population with their huge horse herds taxed the ecological stability of these valleys. Captain R. B. Marcy, during his military excursion to the region, described in 1852 the effects of Comanche and Kiowa use of the North Fork of the Red River valley:

> Vestiges of their camps were everywhere observed along the course of the valley, from the Wichita mountains to the sources; and the numerous remains of stumps of trees, which had been cut down by them at various periods indicated that this had been a favorable resort for them during many years . . . . From the great extent of surface upon which the grass was cropped at some of the camping places, and from the multitude of tracks still remaining, we inferred that they were supplied with immense numbers of animals; and they are undoubtedly attracted here by the superior quality of the grass and the great abundance of cotton-wood which is found along the borders of the streams, upon the bark of which they fatten their favorite horses in the winter season.[43]

During the spring and fall, buffalos and natives evacuated the river valleys for the short grasses on the uplands, thus allowing the valleys to recover from the intense grazing by buffalo and horse herds. When the Gold Rush occurred, non-Indian travelers began to use the river valleys to graze their livestock and provide firewood for their camps during the spring, summer and fall. The continuous use of the valley grasses and trees by animals and humans left no opportunity for the valley flora to regenerate.[44] This lack of regeneration could certainly have influenced the bison herds' relocation to other valley systems where their demands were sustained.

But the Plains Indians had been complaining about dwindling buffalo populations

for some time. A frontier settler of Texas, Noah Smithwick, recalled a conversation with a principal man of the Penateka Comanches named Muguara that occurred during his stay in 1839 and 1840. The Texan reconstructs an eloquent discourse by Muguara on the effects of the presence of non-Indian settlers in his people's hunting grounds.

> We have set up our lodges in these groves and swung our children from these boughs from time immemorial. When game beats away from us we pull down our lodges and move away leaving no trace to frighten it, and in a little while, it comes back. But the white man comes and cuts down the trees, building houses and fences, and the buffalos get frightened and leave and never come back, and the Indians are left to starve, or, if we follow the game, we trespass on the hunting grounds of the other tribes and war ensues.[45]

As is readily evident from this discourse, already by the late 1830s, the Comanches were blaming whites for the diminishing bison herds. In addition, by 1845, Kiowas and Comanches were complaining to officers at Fort Atkinson that the New Mexico buffalo hunters were killing off too many buffalos.[46]

Non-Indian residents of the area were aware of the declining and migrating bison populations as well. An unknown author claimed that in 1822, buffalos abounded near Fort Smith, but that ten years later they could not be found within one-hundred miles of the post.[47] The adventurer Charles Latrobe agreed that by the fall of 1832, he had traveled over one-hundred miles from "the remotest limit" of Arkansas Territory and had still not encountered a herd of bison.[48] Yet, as late as 1841, the herds were still located to the far west of the grasslands. Indian agent William Armstrong reported that since the arrival of the eastern tribes to their region in the eastern prairies the Osages were having to range farther west to locate the buffalo, and that this predicament was likely to lead to hostilities between the Osages and the Plains Indians.[49]

Yet, by the mid 1840s, the herds had moved eastward. George Ruxton, a man of

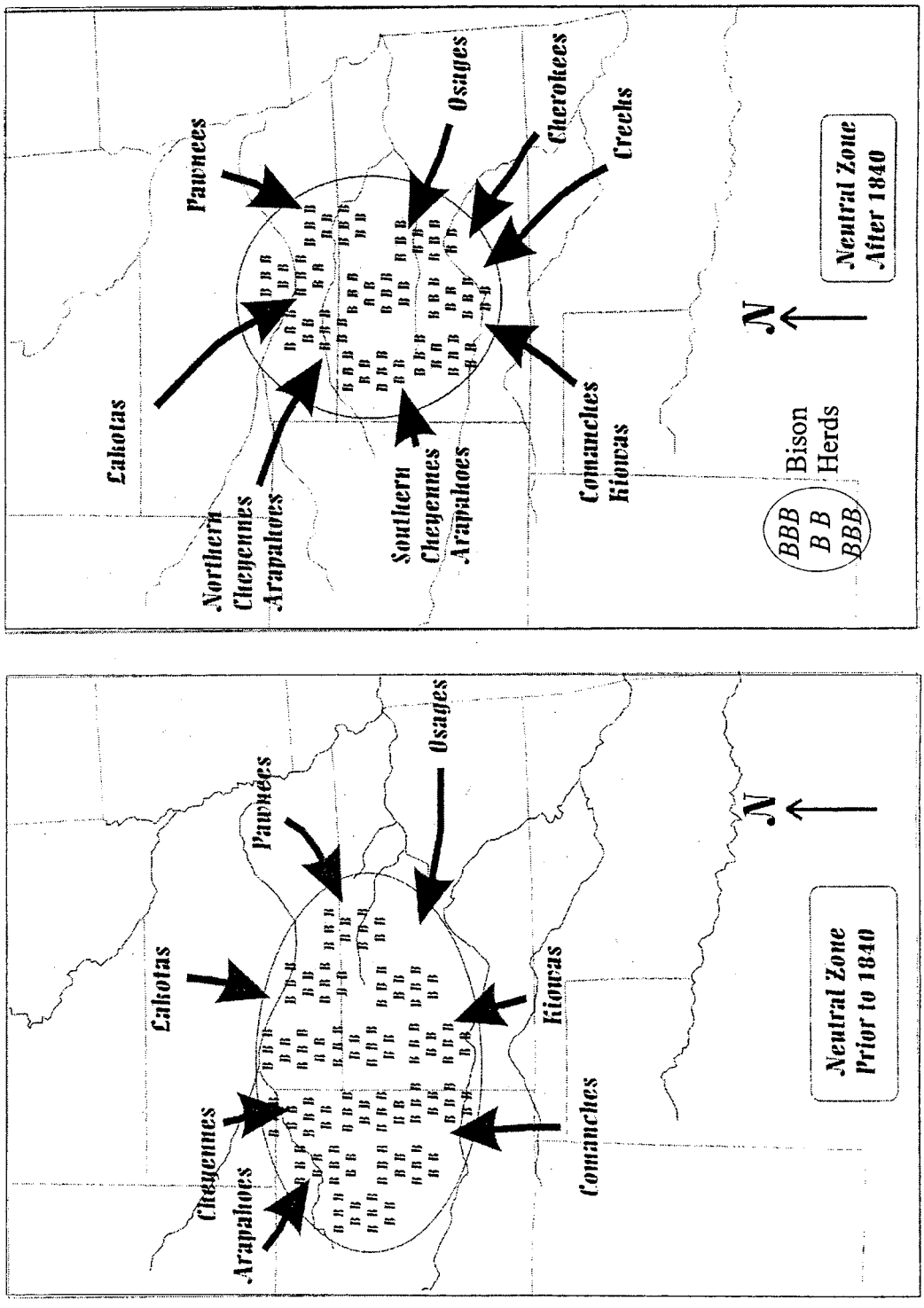
means who traveled through Old and New Mexico and crossed the Plains along the Arkansas River in 1846, noted "It is a singular fact that within the last two years the prairies, extending from the mountains to a hundred miles or so down the Arkansas have been entirely abandoned by the Buffalo."[50] Yet further east near the Coon Creeks close to the one-hundredth meridian he did see buffalo so thick that hardly a patch of grass ten yards square was exposed to the sun.[51] In 1852, Captain Marcy also noticed the disappearance of the herds, which he blamed on the slaughter of the animals by white men. He claimed the buffalo herds had moved north of the Red River and were confined to a "narrow belt of country between the outer settlements and the base of the Rocky Mountains."[52] In fact, the presence of a single buffalo near the Cross Timbers in the vicinity of Fort Worth during that same year was so newsworthy that it was reported in the Clarksville Standard paper.[53]

Why would the bison herds prove so difficult to locate? There were a series of factors that could cause such wide dispersals. The buffalo hide trade had expanded in 1846 to an estimated 100,000 skins yearly.[54] The native hunters considered buffalo cows of between two to five years old as prime for the suppleness of their hides. The killing of these cows greatly reduced the herds' ability to reproduce in the face of such intensive hunting.[55] There is also the presence of the eastern Indians and, of course, the Texas settlers who were pouring into the southern tall grass prairies. They certainly would have pushed the herds to the west. Then after 1840, the peace agreement between the southern Plains and middle Plains tribes would have erased the presence of a "neutral zone" in which the herds could replenish their numbers because the threat of bumping into an enemy hunting party discouraged all neighboring tribes from venturing into the area.[56]

Such circumstances would have encouraged bison to move east into the only remaining "neutral zone:" north of the Arkansas and between the semi-sedentary horticultural tribes of the Missouri River basin and the one-hundred and first meridian (fig. 6).[57] These factors culminated during the 1850s with the destruction of river-valley ecosystems along the major trails caused by the gold rush travelers, traders, and the Indian horse herds to push the bison east or perish.

Given that these factors all contributed to the movement of the bison herds, the presence of a drought must take center stage in dictating the locations of the buffalo. During a series of dry years, the grasses first attempt to economize their use of water by placing most of their resources into extending their root systems to tap every obtainable H_2O molecule in the soil.[58] If this fails, the grasses become dormant or even die off exposing the soil. During these periods of drought, cacti take advantage of the weakened competition and expand into the exposed areas. There is no doubt that large grazing mammals would find this intolerable and would migrate toward regions with more grass cover and water.

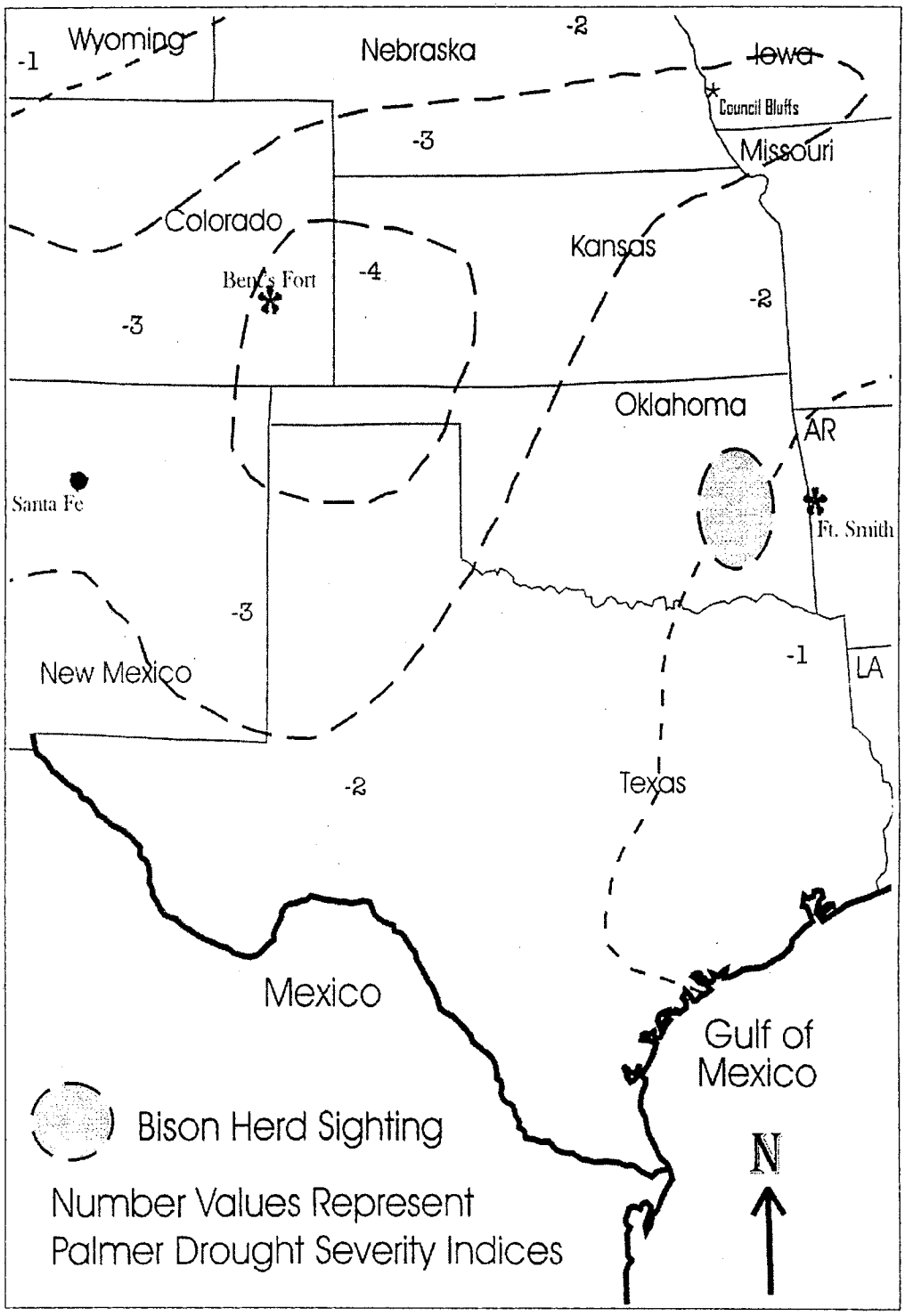
As can be seen by the PDSI map for 1822, a severe drought hit the southern Plains during those years explaining why their were reports of buffalo so far east in the 1820s (fig. 7). It is likely that the herds moved back to the High Plains in the 1830s and early 1840s because those were fairly wet years and the grasses were able to sustain the large bison population on the shortgrass prairies. In fact, the PDSI map for 1832 shows a mild drought on the southern Plains, but wet conditions in the upper Arkansas River valley (fig. 8). This explains why Latrobe complained of not encountering any herds of bison in 1832.



Adapted from Elliot West, The Way to the West (Albuquerque: University of New Mexico Press, 1995).

Fig. 6

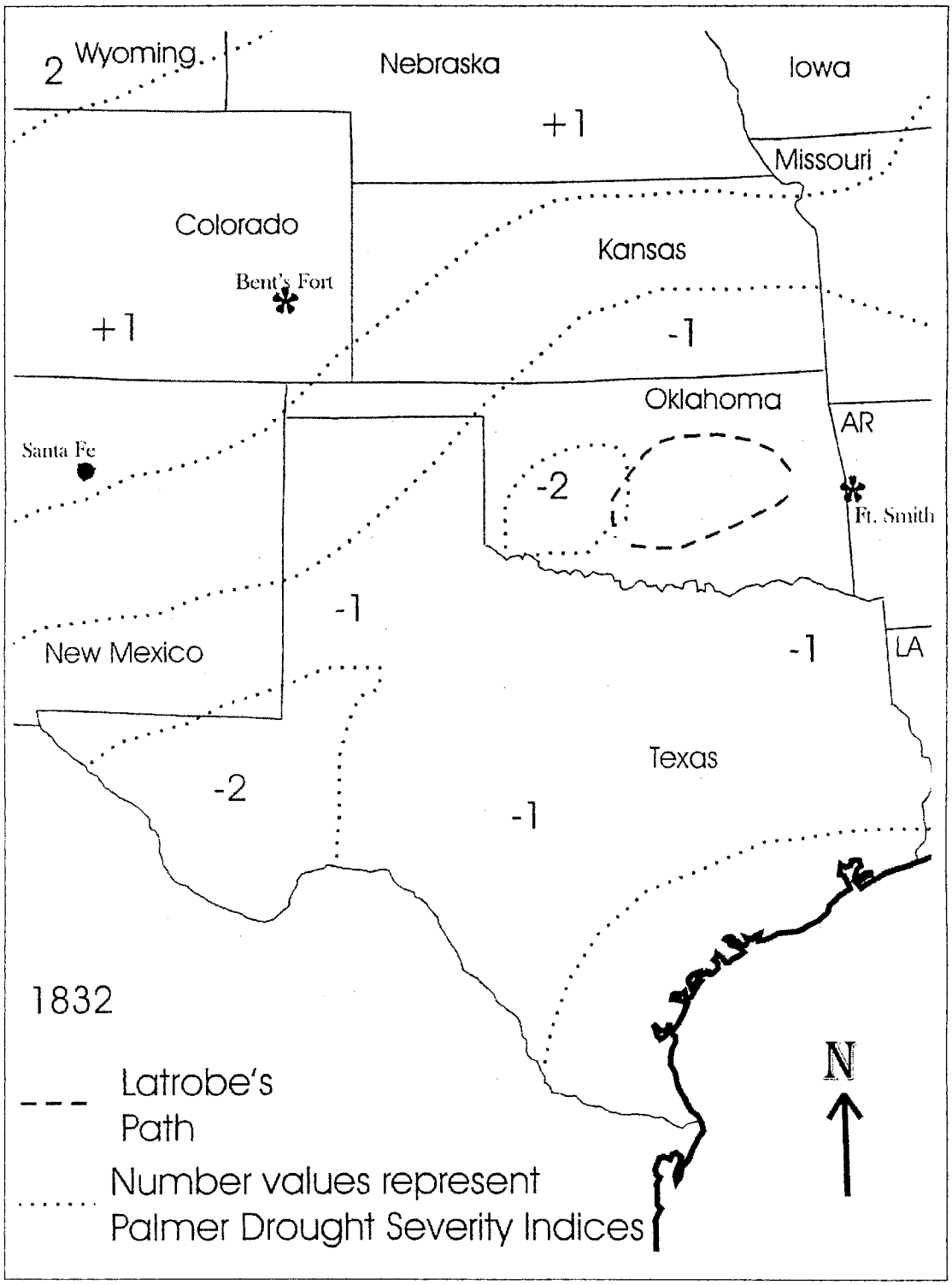
Bison Sightings and PDSIs for 1822



Adapted from E. R. Cook, D. M. Meko and C. W. Stockton. US Drought Area Index Reconstructions. International Tree-ring Data Bank. Boulder, CO: NOAA? NGDC Paleoclimatology Program, 1998.

Fig. 7

Latrobe's Path and PDSIs for 1832



Adapted from E. R. Cook, D. M. Meko and C. W. Stockton. US Drought Area Index Reconstruction. International Tree-ring Data Bank. Boulder, CO: NOAA/NGDC Paleoclimatology Program, 1998.

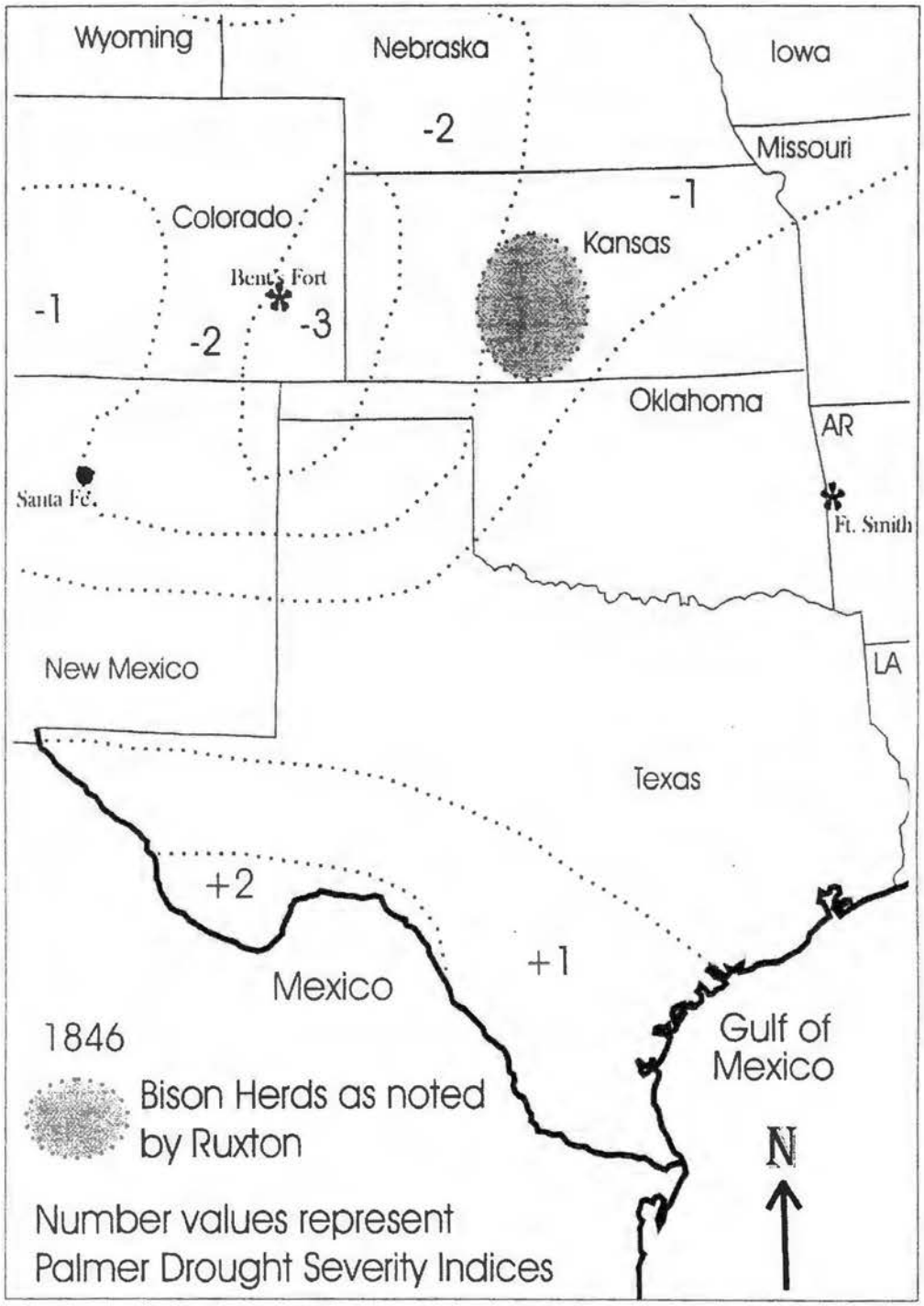
Fig. 8

Drought explains the bison movements during the later 1840s and early 1850s as well. In Texas, the herds moved towards the settlements that had been supposedly pushing them ever westward. The subsequent movement of the Comanches with the herds strained their relations with the Texans.[59] George Ruxton noted that the region from the Rocky Mountains to one-hundred miles down river had been abandoned by the buffalo as well, but that he had seen them further east.[60] This movement corresponds with drought on the High Plains from 1846 through 1848, as substantiated by the National Geophysical Data Center's climate reconstructions (fig. 9).[61]

Again in the early 1850s, the herds were located on the High Plains as the region just to its east was hit by two years of drought. In 1850, Joseph Smith, a nineteen year old boy from Buffalo, New York, accompanied a survey unit ordered to map the boundary between the Cherokee and Creek lands. Smith's diary is full of expectations of adventure, buffalos, and Indians. Yet what he found was a very dry and hot grassland. The party was forced to drink from muddy puddles of water while following the course of the Arkansas River in July.[62] In fact, it was so dry that the lack of water threatened to terminate the survey and force the party to return to Fort Gibson.[63] Lieutenant Heth, an officer at Fort Atkinson near present day Dodge City, Kansas, wrote that from August 1850 to August 1851 it had not rained in any noteworthy amount within one-hundred miles of the post, leaving very little grass for the animals to eat. With the exception of twelve mules and twelve horses, the draft animals were sent to Fort Leavenworth to alleviate the expense of freighting hay across the prairie to feed the stock.[64]

In that same year, Thomas Fitzpatrick, the Indian agent for the Upper Arkansas agency, wrote that his journey west to Fort Atkinson was marked by "a very unusual

Bison Sightings and PDSIs for 1846



Adapted from E. R. Cook, D. M. Meko and C. W. Stockton. US Drought Area Index Reconstruction. International Tree-ring Data Bank. Boulder, CO: NOAA/ NGDC Paleoclimatology Program, 1998.

Fig. 9

scarcity of water." When his group came upon the Arkansas River they found two small, stagnant pools of water emitting an extremely offensive smell due to the number of dead fish lying on the dry river bed.[65] Interestingly, Fitzpatrick claimed that same year that buffalo abounded miles away, in the region between the Arkansas River and Fort Laramie.[66] Not surprisingly, Charles Halleck, a visitor to Fort Atkinson in 1852 noticed the absence of bison and the effect this had on gathering fuel for their fireplace, "'buffalo chips' . . . once found in great abundance, are now quite scarce."[67]

The severe droughts of the 1850s hit just as the major trails were chewing away at the Canadian and Arkansas River valley grasses; but even without the presence of the Santa Fe and California Trails the drought would have pushed the large herbivores eastward, and, if need be, northward. This process of ecological adaptation to climatic factors explains why the herds would move toward the rapidly settled Kansas frontier during the mid 1850s and why Fort Griffin in the far southern Plains could be the outfitting headquarters for buffalo hunters in the 1870s as years of average or higher rainfall amounts returned to the shortgrass Plains.

The result of this series of droughts, was a total disruption of the southern Plains trade system and increased warfare. The Plains nomads could not procure enough buffalo hides to barter for much-needed supplies of corn, guns and other industrial goods, on which they had become dependent. The horticulturalists also did not have corn to trade with the Plains nomads for buffalo hides, thus placing themselves at a disadvantage with their Anglo neighbors from whom they procured industrial goods. The presence of the removed eastern tribes further halted the time honored method of dealing with drought on the southern Plains by disrupting the migration of Plains tribes east as they escaped the

drought, located water and followed the bison herds. These forces kept the Plains tribes on the withering grasslands during the drought and left the nomads starving with few options other than warfare as a means to obtain the necessities of survival or, alternatively, relying on the United States government to provide those necessities.

Living in the heart of the southern Plains, the Comanches and Kiowas bore the brunt of the effects of the drought trend from 1846 to 1865. During the absence of the buffalo, the Plains natives were faced with starvation. J. W. Whitefield, the person appointed to oversee the Upper Arkansas agency, reported in 1854 that the Indians had begun stopping the passing wagons to beg for coffee and sugar, items for which they normally traded.[68] The next year he mentioned that the Comanches had resorted to eating their horses and mules, thereby diminishing their herds to the point requiring replenishment. This, Whitefield claimed, was the reason for their "frequent forays into Old and New Mexico."[69]

Some bands chose to accept reservation life and looked to the United States government for relief. A strategy for survival that would be reproduced to include non-Indian farmers during the drought of the 1930s. One Comanche leader, Tibbalo, asked his Muskogee neighbors to intercede on behalf of his people with the U. S. government. His request pointed out that "there were 5,000 of his tribe in a destitute condition" camped along the Arkansas River just west of the land granted to the removed eastern tribes. His people needed some of the land back between the Arkansas and Red Rivers, which they had previously signed away.[70] This points out the new dilemma in which the Comanches found themselves: They could not move east to follow the herds without going to war with the eastern tribes and offending the United States. Yet to stay on the

burnt up shortgrass prairies was to starve. Many were even willing to take up agriculture and live on a reservation just west of the Muskogee tribe if a treaty could be worked out.[71]

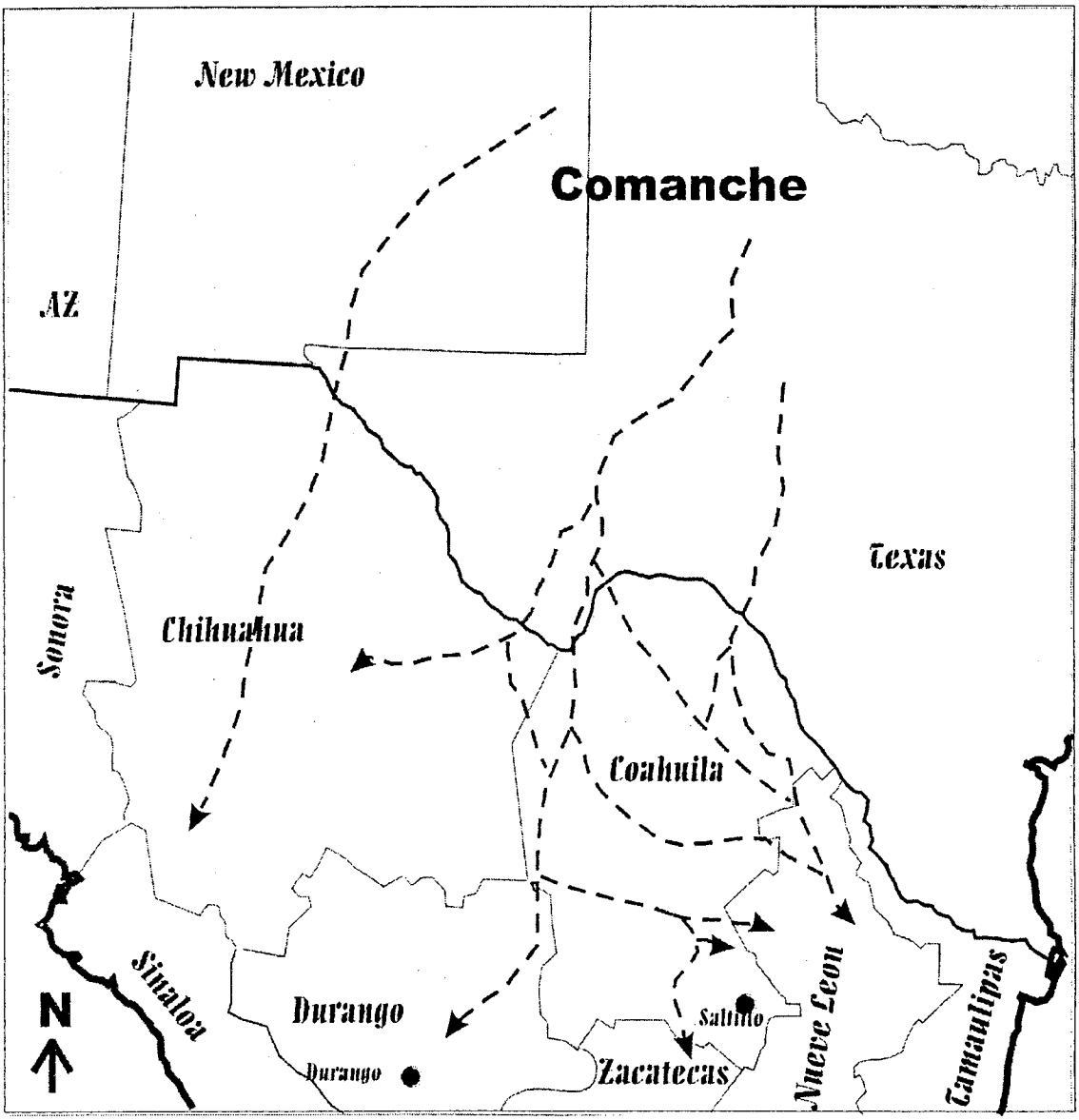
In Texas, the southern Comanches found themselves in similar circumstances. During 1852, immediately following the drought years of 1850 and 1851, the special agent for the Texas Indians, Horace Capron, found the Comanches in a state of "extreme hunger bordering on starvation." Capron relates a speech given by headmen Ketumseh and Sanaco in which they eloquently describe the predicament of their people.

> Over this vast country, where for centuries our ancestors roamed in undisputed possession, free and happy, what have we left? The game, our main dependence, is killed and driven off, and we are forced into the most sterile and barren portions to starve. We see nothing but extermination for us, and we await the result with stolid indifference.[72]

By 1855, conditions had deteriorated to the point that these bands of Penateka Comanches were more than willing to accept life on a 20,000 acre area near Fort Belknap known as the Clear Fork Reserve.

While some bands settled, other groups turned to raiding. The effect of drought on their horse herds was as catastrophic to their way of life as the absence of the buffalo. The Comanches had been pivotal in the horse trade since their arrival on the southern Plains in the early 1700s. Now that they were relying on the equine for meat, the burden became doubly necessary that they find a source of horses and mules. Mexico was the traditional objective of Comanche raids. Following trails from the Llano southward all the way to Zacatecas and Durango in Mexico, Comanche war parties visited the rancheros yearly to take horses and mules and drive the livestock north to their homelands (fig. 10). The United States attempted to curb these acts, but the Kiowas and Comanches flatly refused to end these annual forays.[73]

Comanche War Trails into Mexico



Adapted from Rupert Norval Richardson. The Comanche Barrier to the South Plains Settlement. Glendale, CA: Arthur H. Clark Co., 1933.

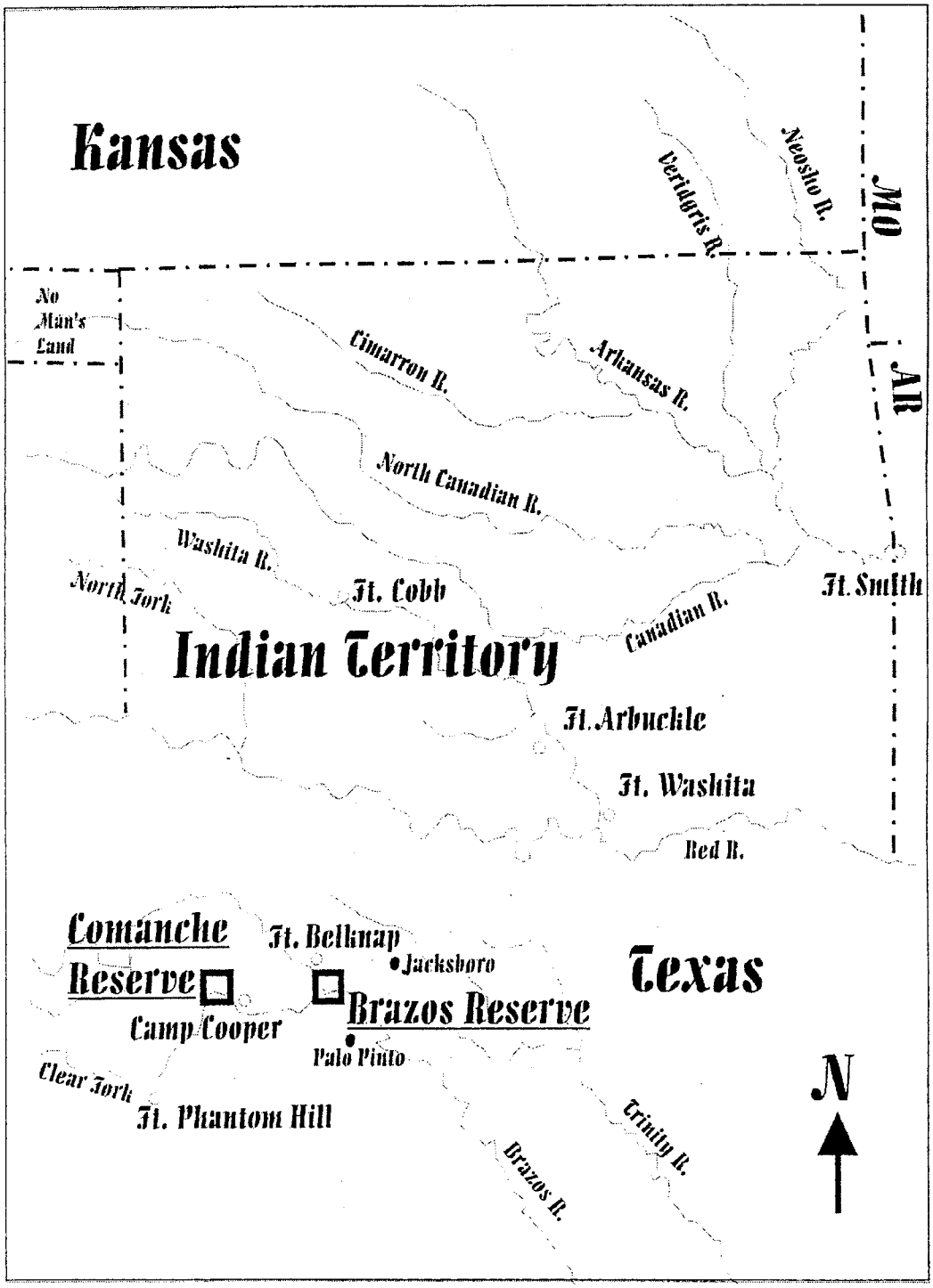
Fig. 10

Still, the efforts of the United States to discourage raiding into Mexico actually encouraged forays north of the Rio Grande. After 1854, Kiowas increasingly turned their attention on their neighbors to the west, the Navajos and Utes. U. S. military authorities were able on occasion to turn the Kiowa war parties back, but the farms and ranches of northeastern New Mexico then had to endure the raids instead.[74] In 1857, Kiowa warriors raided the environs of Las Vegas and Moro, New Mexico. The following year they invaded north-central New Mexico with the intention of obtaining horses at the expense of the Utes.[75]

Raids increased to the east of the Plains as well. Douglass Cooper, the Choctaw and Chickasaw agent, claimed that in 1857 "a state of war existed along the Choctaw and Texas frontiers." In 1858, residents around Fort Arbuckle reported the loss of more than seventy horses due to theft.[76] Also during this time, Comanche raids into Texas grew in frequency and intensity.[77]

Even the Caddos, the long time trade partners of the Comanches were not safe from attack. The Caddos lost their position of Comanche-Louisiana middlemen to American entrepreneurs like William Bent who set up a post on the upper Arkansas River. What remained of the once powerful Caddo Confederacy, after epidemics caused by European pathogens swept through their tribes, migrated both north and south out of Texas, only to return once land was made available to them. The same year that Ketumseh's Penatekas accepted the boundaries of the Clear Fork Reserve, the largest portion of the Caddos, Wacos, Tawakonis, and Tonkawas moved onto the Brazos Reserve about thirty miles straight east of the Clear Fork reservation (fig. 11). Both reserves were placed under the able administration of Robert Neighbors, the Texas Indian

Texas Indian Reserves



Adapted from F. Todd Smith. The Caddos, the Wichitas and the United States. College Station: Texas A & M University Press, 1996.

Fig. 11

agent.

During their stay on the Texas Reserve, the Caddos suffered from Comanche raids just as much as the surrounding Texas settlers did. The attacks increased with the intensification of the drought from 1854 to 1859. Comanche raids created near panic along the Texas frontier in the spring of 1855. Neighbors initiated a policy of confining the agency Indians to the reservation in order to find out if any of them were committing the acts and to protect the peaceful natives from white reprisals.[78] In mid-September, word got back to the Brazos Reserve that the northern Comanches had declared war on all inhabitants south of the Red River, both red and white alike.[79]

Meanwhile, the drought continued to burn up the countryside. Eighteen fifty-five was an "extremely dry season" in which the crops did not make.[80] Again in 1856, grasshoppers plagued the crops in the spring and then from June to August an "extreme drought" retarded the growth of grasses and crops.[81] The Reserve had experienced such bad weather since its creation that the Clear Fork agent, John Baylor, proposed the planting of wheat instead of corn because the "frequent droughts" rendered the latter less profitable.[82]

There was no relief from the sun nor from the northern Comanches who continued to raid the surrounding countryside as well as the Brazos Reserve. Indian attacks along the Brazos and Colorado Rivers killed seven non-Indian settlers, took 600 horses and caused $60,000 of damages in 1857 alone.[83] The drought also continued through the year but not with the intensity it had exerted over the previous two years. The Brazos agent, S. P. Ross, gave permission to the Brazos Reserve Indians to hunt outside its boundaries during the winter, even though the Comanche attacks of the previous spring "produced

the highest degree of excitement and the most virulent indignation against the Indians," according to the new Clear Fork agent, Matthew Leeper. Once again in January of 1858, the agents forbade the Indians from leaving their now virtual prison on the reservations.[84] In an effort to retrieve some of their stock stolen the previous fall and prove their friendship to their non-Indian neighbors, 109 reserve Indians joined a punitive expedition in April of 1858 headed by the senior captain of the Texas Rangers, Major John "Rip" Ford, and 102 rangers. The force attacked and scattered a band of Nokoni Comanches to the north of the Canadian River near the Antelope Hills.

The northern Comanches replenished their lost stock of horses by raiding their Chickasaw neighbors. Within a few weeks of Ford's attack on the Comanche village, sixty horses were taken from Chickasaw farms.[85] Then in August, Comanche raids once again increased on the Texas frontier. Major Earl Van Dorn organized a new force to track and punish the bands who had committed the attacks and 125 reserve Indians were quick to join up. Tragically, Van Dorn's force attacked Buffalo Hump's band of Penetekas who had camped along Rush Creek on their way to a peace conference at Fort Arbuckle. Although this act was clearly a tragedy, the Texans and their reserve Indian allies considered it a complete victory.

Still, the reserve Indians were caught between drought and the effects of northern Comanche depredations. That same year, Ross communicated his quandary to Neighbors:

> From the 10th of June the Indians had no rain on their crops until they were entirely parched up by the drought. This fact and their being obliged to confine themselves to the limits of the reserve have caused a deficiency in the supplies required for subsistence . . . .[86]

Certainly these conditions, along with the seemingly more favorable view of the reserve Indians taken by settlers after the two "victories" in Indian Territory, had some bearing on

Ross's decision to allow a few Anadarkos and Caddos led by Choctaw Tom to go south of the reservation boundary and graze their horses. One must remember that the lack of healthy grasses on the reserve due to the drought created the necessity for this action.

Not all Texas settlers were convinced of the reserve Indians good faith by their participation in the expeditions. The extended drought had surely also taken an economic toll on the Texas farmers and ranchers. During this time of economic crisis the raids by the northern Comanches must have seemed all the more onerous. In times of distress, people look for scapegoats and the accusative fingers of many white settler's pointed to the reserve Indians. The Wacos, Tawokonis, and Kichis were believed to be involved in raiding Texas settlements in 1854 before they moved to the Texas reserves.[87] Many settlers found it hard to believe that the reserve Comanches were totally innocent of involvement with their cousins in raiding Texas farms.

It was in this atmosphere that Choctaw Tom and his group left the reserve to graze their horses. Some settlers told Tom that they did not want any Indians near their homes and that he and his followers had better return to the reserve or suffer the consequences. Tom agreed to return to the reserve but could not resist an invitation by another group of Texas settlers to hunt bear a little further down river. Unfortunately, on the night of December 26, a party of men from Erath County waited near the Indian camp and in the wee morning hours attacked, killing four men and three women and wounding eight more, of whom three were children.

These Texas settlers acted out just another sordid chapter of frontier relations. Shortly after the massacre, an armed vigilante band threatened to attack the reserve. Neighbors realized that under such circumstances, the most prudent course of action was

to relocate the reserve north of the Red River. The Texas reserves were shut down in 1859, forcing the peaceful Indians to move once again to a new reservation in the Leased District of Indian Territory. The evicted Comanches, Caddos, Wacos, Tawokonis and Tonkawas moved north in a destitute condition. The absence of any livestock, stolen by raiding Indians and white settlers alike, meant that they would have no personal wealth upon their arrival in Indian Territory. Robert Neighbors, for all of his trouble, had become the most hated man in northern Texas and while on his way to retrieve the few Indian possessions remaining on the reserve was eventually shot by a stranger.

For the next five years the people of the Wichita Agency would endure continued conditions of extreme aridity. In 1860, not only did the drought burn up the agency's crops, but it also badly damaged the reserve's grass cover further limiting attempts at ranching.[88] Although the Wichitas and Caddos had a long tradition of farming on the Plains, local officials often questioned the ability and work ethic of the natives. In an 1862 report of the CSA War Department, a confederate official lamented that,

> From certain causes, the failures of the crops, &c., joined to the ignorance, and, in many instances, no doubt, the unthriftiness of these Reserve Indians, they have from the time of their settlement upon the Leased District . . . always been dependent upon the United States for supplies.[89]

Again in 1863 the agency's crops failed due to drought and Confederate commanders continued to provide corn to the "most needy among them."[90]

The drought certainly contributed to the events that drove the reserve Indians into Indian Territory. The dry weather had necessitated the grazing of livestock off of the reserve, while placing Texas settlers in a vice between Indian raids and low crop yields. Their emotions were as ignitable as the dry Texas grass in 1859, and the reserve Indians were caught in the crosswinds of a firestorm of settler discontent and anger.

During the years preceding and during the United States' Civil War, the southern Plains was engulfed in its own form of internecine strife. Plains Indians attacked their eastern and western neighbors with more frequency than ever before. Drought must bear a large portion of the blame for this eruption of warfare. Certainly, Plains nomads had long relied on raiding to supplement their horse herds, population and trade items; but the 1850s seem unique for their excessive bloodletting. Plains tribes, in an attempt to reclaim their control of the hide trade, allied with the intention of driving all the prairie peoples out of the grasslands.

The drought had pushed the bison herds east towards white settlements with the largest herds locating north of the Arkansas River and east of the one-hundredth meridian. The common belief of that time, that the herds were being hunted into extinction in the southern Plains, was only partially true. Hunting had taken its toll on the buffalo population, but drought had made their existence on the southern Plains untenable. Thus their movement to the east and north.

Lydia C. Jones who had moved to Montague County, Texas, in 1855 as a young girl, remembered the thousands of shaggy beasts. In her mind, the bison movements were tied to the availability of water.

> Red river was standing in holes then and [the buffalo] left the plains and came in [near Belcherville, Texas] to better range and water [.] [T]he soldiers began to think they would have to leave them on account of the dry weather and dust. When it began to rain the buffalo went back west.[91]

In 1861, while Plains Indians were still very much involved in the hide trade, the bison returned to the region south of the Red River. John C. Irwin, a young boy when his family moved to the area near the old Clear Fork Reserve, claimed that

When we arrived at Camp Cooper there were a few buffalo in the country

> but after the soldiers left [for the Civil War] they came in by the thousands. I have seen them in their migrations both north and south, pass for a week at a time passing all day long by the thousands.[92]

Again, on April 21, 1866, the Waco Register reported that "the buffalo range 60 miles this side of Cooper and Phantom Hill, which has not been the case . . . for the last four or five years."[93]

Lydia Jones's explanation for the movement of the buffalo herds makes the most sense. Dry weather pushed the bison herds to other locales. The return of rains to the High Plains would call them back. How else could the herds return to the southern Plains, where Comanche, Kiowa, and New Mexico hunters, and Texas settlers still prepared for the great buffalo hunts of the 1870s and 1880s?

The prolonged drought exaggerated the processes that were destroying the Plains Indians' way of life. By magnifying the overgrazing along the major river valleys committed by Indian horses and the cattle of non-Indian immigrants, the drought encouraged the movement of the bison herds to the east. It destroyed the traditional trade network of the southern Plains and its periphery by depriving the Plains Indians of buffalo robes or horses, and the horticultural tribes of a maize surplus. The resulting starvation among Plains tribes motivated some bands to seek treaties with the United States in which certain bands became dependent on annuities, whereas others increased raiding their neighbors.

The traditional culture required the Plains tribes to follow the bison herds to the east, forcing the Comanches and Kiowas to battle eastern tribes who held an advantage in weapon technology through their trade with white entrepreneurs. This advantage became blatantly obvious when the Plains tribes attempted to wipe out the frontier Indians in the

spring of 1854 and were repulsed by a much smaller group of well armed Sauk and Fox hunters. When it became clear that the eastern Indians would be able to hold their new territory, bequeathed to them by the United States (who did not consult the Comanches or Kiowas), the traditional movement east during times of drought was no longer an alternative. Thus the year 1854 was pivotal. Due to the droughts, the Plains Indians found themselves caught between starvation or warfare, leaving some thirsting for war and others hungering for peace.

CHAPTER 5

A BIBLICAL CATASTROPHE: DROUGHT ON THE MARGINS OF THE SOUTHERN PLAINS, 1850-1861

The drought also affected people living on the margins of the southern Plains. Certain groups spent a portion of their year on the grasslands and the other part in the mountains to the west of the Plains or the Cross Timbers and more wooded areas just to the region's east. Tribes on both flanks of the Plains proper interacted with the region and its more permanent residents on a regular basis and would have been affected by any droughts that hit the Southern Plains; therefore, they should be included in any discussion of the region. The Jicarilla Apache (the "Jicarillas") of northeastern New Mexico, the southern tall grass prairie tribes, and the removed eastern tribes of Indian Territory fall into this category of people on the periphery of the Plains. They sojourned on the Plains periodically to hunt and often interacted through trade or warfare with the Plains tribes.

The Jicarillas are members of an Athapascan language group of which the majority of tribes inhabit areas in the present state of Alaska and Canada. Due to their linguistic affiliation, they have been placed in the vicinity of the Mackenzie Basin in Canada at some early date. A group of these Athapascan speakers migrated southward and arrived in what is today Arizona and New Mexico between 1000 and 1500 C. E. depending on which theory one subscribes. Some researchers claim that the fall of the Anasazi culture can be attributed to drought, while others claimed it was due to an invasion around 1000 C. E. of an aggressive people who forced the Anasazi to gather in

large population centers and construct watchtowers in an effort to detect war parties. This interpretation holds that by the 1200s, the Anasazi withdrew to the south in the face of this relentless onslaught.[1] Dolores Gunnerson disagrees in The Jicarilla Apache: A Study in Survival published in 1974. She contends that the archaeological signs of conflict were the result of inter-Pueblo warfare and not some mammoth invasion. She points out abundant evidence from Spanish sources that the Pueblos constantly intrigued against each other.[2] Gunnerson puts more stock in the 1525 date of arrival for the Athapascan people as was told to Spanish officials by Pueblos.[3] At any rate, the Athapascan migrants splintered into several tribes as they took various locations in the desert southwest: the Navajos, the Chiricahuas, the Mescaleros, the Western Apaches, the Kiowa Apaches, the Lipans and the Plains Apaches who came to be known as the Jicarillas.

The arrival of the Spanish in 1541 did not immediately affect the Jicarillas, for the Europeans neglected these small villages in favor of focusing on the more wealthy Pueblos. The Pueblo Revolt from Spanish rule in 1680 did have repercussions on the Plains Apaches. As the Pueblos experienced initial success, the Spaniards fled, allowing their horse herds to go feral. Suddenly the Plains Apaches had greater access to horses and came to rely more on hunting than previously. After the Spanish returned to subjugate the Upper Rio Grande Valley, many Pueblo people sought refuge in the neighboring Apache villages. The Mountain Apache bands, who received most of these refugees, became more sedentary as a result of this infusion of Pueblo people who brought their farming techniques with them.

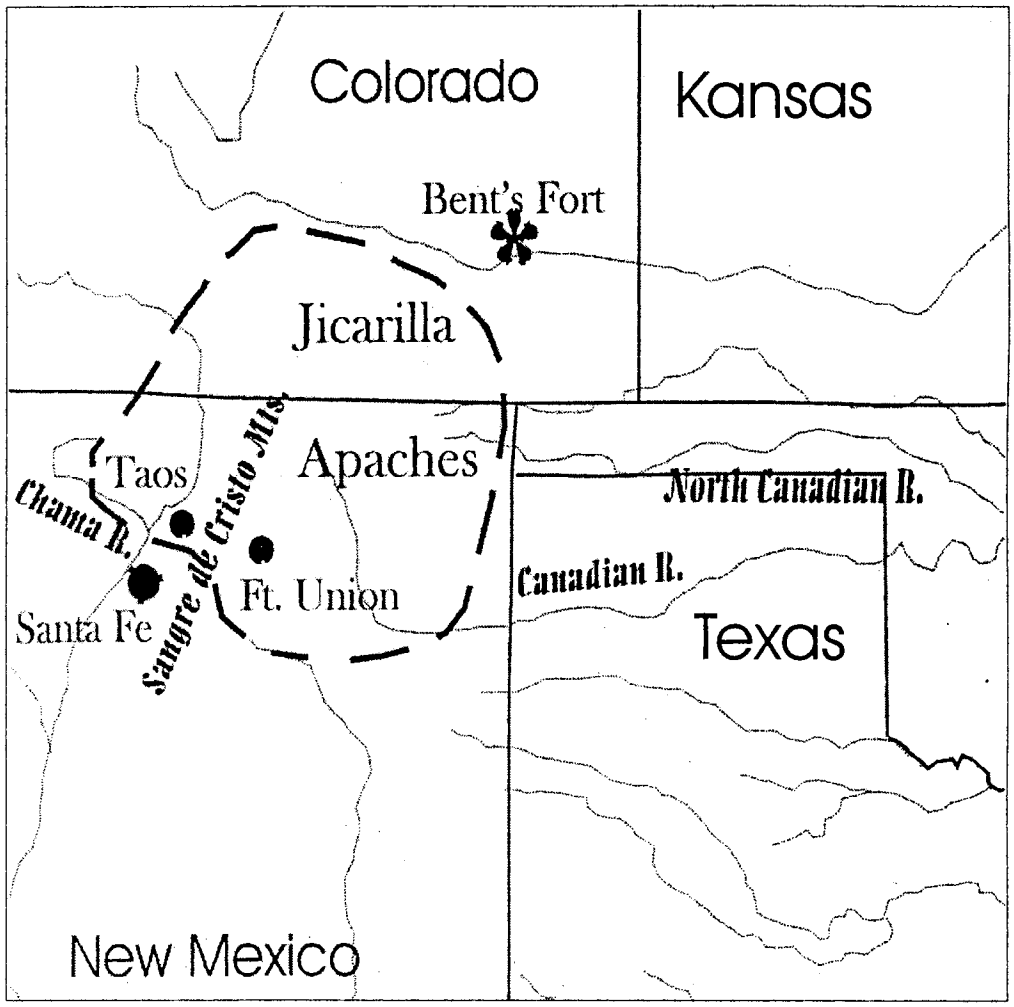
The first reference to Jicarillas as an identifiable group came around 1700 when a Spanish observer used this term to refer to the Apaches living in the Taos valley and

Raton Mountain areas.[4] Soon, all of the Apache bands claiming as their homeland the region south of the Arkansas River and along the Upper Pecos, Chama and Canadian Rivers west of the Caprock Plateau were known as Jicarillas (fig. 12). By this time there were two distinct groups of the Jicarillas: the *Olleros*, or mountain valley people who practiced horticulture intensively and the *Llaneros*, or plains dwellers, who relied primarily on hunting.

Unfortunately for the tribe, the Jicarillas did not have long to enjoy their dominance of the region to the north and east of the Pueblos; the arrival of the Plains Shoshone, or Comanches, from the north brought competition for the hunting grounds of the south-central Plains. It is not surprising that European technology played an important role in this competition. The Comanches were able to obtain firearms from French traders on the Platte and Arkansas Rivers. Spanish authorities, on the other hand, maintained a policy that forbad the trade of guns with native peoples. This gave the Plains Shoshones a distinct advantage. Comanche war parties pushed the Jicarillas farther west until they ventured out onto the Plains only with trepidation. Also, the decimation of Plains Apache villages forced the diverse tribes of Plains Apaches, the Cuartelejos, Carlanas and Faraons, to consolidate into a more unified single tribe of Jicarillas, while encouraging them to look to the Spanish for military assistance.

The Jicarillas were in the unenviable position of being used by the Spanish as a buffer to Comanche raids. The Apaches were not important enough to the Spanish to warrant much effort in protecting a series of small villages that delivered little wealth to the Europeans; thus, all through the Spanish-Comanche wars of the 1700s, the Jicarillas were allied to a benefactor that was not overly concerned with their survival. In 1723, the

Jicarilla Apache Territory



Adapted from Veronica Tiller. The Jicarilla Apache Tribe: A History, 1846-1970. Lincoln: Univerisy of Nebraska Press, 1983.

Fig. 12

Comanches so devastated the Jicarillas that they asked the Spanish to establish a mission and a presidio in Jicarilla land. In return, the tribe promised to remain loyal to Spain. Spanish authorities refused this plea and instead encouraged all of the Jicarillas to move to the mission just constructed at Taos in 1733.

These conditions continued till Juan Bautista de Anza convinced the Comanches that peaceful coexistence could prove more profitable than warfare for both parties by establishing trade fairs in 1786. After Mexico won its independence from Spain in 1821, a new set of policies began affecting the Jicarillas. The new government encouraged the settlement of its northern frontier by offering large land grants to individuals willing to promote the movement of non-Indian families to Mexico's provinces. In 1841, this settlement policy prompted the Mexican government to award 1.7 million acres of Jicarilla land to two men without, of course, consulting the natives. Fortunately for the Apaches, these large land holders accepted the presence of the native people and did not restrict their movements to any large degree.

The arrival of the United States sovereignty was another matter. General Stephen Kearney occupied Las Vegas, New Mexico, in 1846, as part of a military invasion during the Mexican-American War. The United States government refused to recognize most Mexican titles to land. As a result, the 1.7 million acre tract was quickly purchased by Lucien Maxwell in 1847. After the war's conclusion, the Treaty of Guadalupe-Hidalgo transferred the whole tribal domain to the United States, which pulled thousands of Anglo settlers to the region and increased traffic along the Santa Fe Trail right through Jicarilla territory.

The pressures on the tribe mounted. The Jicarilla depended on agriculture and

hunting for subsistence. Along with the harvests of their crops and the local hunting efforts of the men, the bands conducted fall buffalo hunts on the Plains. They also traded with their southern neighbors for horses and manufactured goods. The increased traffic of Anglos put a heavy burden on local wildlife. The excursions out onto the Plains brought them in to conflict with the Comanches and Kiowas. This led to a series of clashes between the Jicarillas and the New Mexicans, U. S. soldiers, and Comanches that persuaded band leaders to conclude a peace agreement with the United States. In 1851, headmen from the four main Jicarilla bands came to an agreement with the United States to cease raiding settlements, to return all captives and stolen property, to honor their confinement within certain territorial limits, and not to approach within fifty miles of any non-Indian settlement.

As soon as they had moved within their new territorial limits it became apparent that this agreement would not work. Drought conditions of 1850 and 1851 made agriculture unproductive and the Jicarillas could not sustain themselves on the reservation. It became inevitable for them to travel outside the reserve to find game. Headman Chacon took his band of *Olleros* to within fifty miles of San Miguel, New Mexico, to trade for some much needed supplies. On May 1, 1851, a company of United States troops intercepted them. The commander warned Chacon that his people would have to withdraw and the Jicarilla leader responded,

> I and my family are starving to death, we have made peace, we do not want to do harm as you see from our bringing women and children with us, we want to go to the clay bank at San Jose and make vessels to sell so as to procure an honest living, we can't steal and must do something to earn a living.[5]

Within two years, Chacon agreed to move his people to the Rio Puerco west of the

Rio Grande valley where they quickly broke 120 acres for cultivation. By August of 1853, their agent, E. A. Graves, was describing the effects of drought. He claimed that the cultivation attempts by the Jicarilla yielded "little corn this season occasioned by the failure of water in the Rio Puerco, which has prevented irrigation." He also stated that "This stream is now dry for the first time within recollection of the oldest inhabitants, notwithstanding there had been no unusual drought."[6] While Agent Graves understood that rainfall totals for the year had approached those for an average year, he failed to take into account the lack of snow accumulation in the mountain peaks. This snowfall was critical to summer irrigation, for as it melted the runoff provided water to the Rio Puerco, which supplied the Jicarilla's irrigation ditches. Obviously, the winter of 1852-1853 did nothing to provide this much needed snowfall.

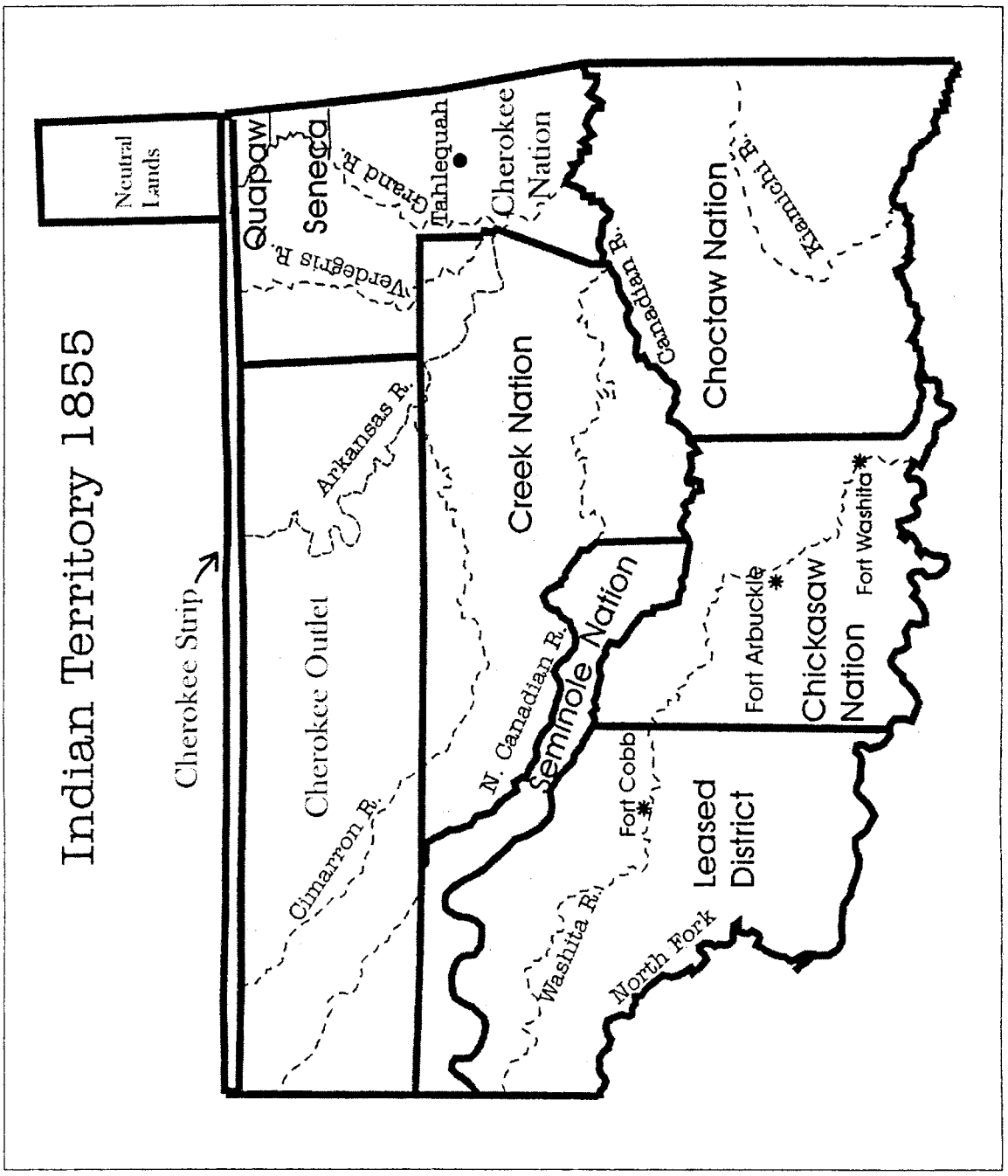
Meanwhile, budget constraints prevented the new governor of New Mexico Territory, David Meriwether, from providing adequate relief to the Jicarilla Apaches. Agent Graves understood that these peaceful people would be forced to steal food if the government failed to provide the supplies to which it had agreed.[7] Sadly, the agent's warnings fell on deaf ears. Meriwether refused to appropriate more money for Chacon's band or any of the other Jicarilla groups. The following year, as predicted, a contractor at Fort Union reported the theft of several cattle from his herds. United States soldiers tracked the stolen cattle to a *Llanero* band headed by Lobo, and a skirmish ensued. War broke out in which the United States treated all Jicarilla, even those who asked for peace, as hostile. The United States forced the submission of all the Jicarilla bands by 1855 when they gathered at the Chama River just above the town of Abiquiu to negotiate a settlement. Governor Meriwether wrote to G. W. Manypenny, the Commissioner of

Indian Affairs, that the natives were in a "destitute condition" and had to be issued provisions to "relieve their most pressing wants."[8] The United States forced the Jicarillas to give up all claims to territory in northeastern New Mexico and to remove themselves to the Rio Puerco area west of the Chama River.[9]

On the east side of the Plains, the tall grass prairie tribes and the removed eastern tribes struggled through the drought as well. The removed tribes had relocated to the eastern fringes of the southern Plains and the neighboring hill country beginning in 1828 and by 1855, they had well established reserves (fig. 13). These people had been acquainted with the weather conditions of the more humid southeastern United States and were not familiar with the fickle climate of the prairies. Fortunately for them, the period from 1828 to 1845 was wetter than usual; but the years 1846 to 1865 were quite dry and more than made up for the earlier favorable conditions.

The people of the Five Tribes -- the Choctaws, Chickasaws, Cherokees, Creeks and Seminoles -- primarily relied on agriculture for their subsistence. In fact, the traditional collective title of these tribes, the "Five Civilized Tribes," referred mainly to the acceptance by some tribal members of the plantation system as well as their adoption of Christianity. They had largely given up the traditional native method of interspersing plants of corn, beans, and squash for fields of a single crop prior to their removal to Indian Territory.

After relocating to their new home, these people continued in their reliance on agricultural production. The wealthier Choctaws and Chickasaws of the southern limits of Indian Territory were especially preoccupied with farming. Some constructed large plantations on the Red River and its tributaries and continued their reliance on the labor



Adapted from JohnMorris, Charles Goins and Edwin McReynolds. Historical Atals of Okalhaoma. Norman: University of Oklahoma Press, 1976.

Fig. 13

of slaves to work their fields and harvest the crops. Cotton was one of the main exports, which was loaded on barges and paddle boats on the Red River for transportation to New Orleans and thence to northern American or British textile mills. The various military posts of Indian Territory also consumed a substantial amount of local produce. Fort Washita purchased, on the average, 7,000 bushels of corn from nearby Chickasaw farmers.[10]

In the Cherokee and Creek lands, the major artery of traffic was the Arkansas River, but both it and the Red River had shortcomings. The Arkansas River allowed only seasonal travel past Little Rock, Arkansas, due to low water during the months from July to December. During the wet months, river traffic could proceed up river as far as Webber's Falls; but during drought the river could dry up as far east as Little Rock. The Red River likewise limited the months of water borne traffic and was not even opened to boat use until 1838 when the United States Army engineers completed the removal of an immense log-jam known as the "Red River Raft" that stretched from Natchitoches, Louisiana, to near the mouth of the Kiamichi River in what is today southeastern Oklahoma, a distance of 165 miles.[11] After the opening of the Red River to traffic, the main river freight exports from the neighboring Indian Territory were cotton, corn and pecans.[12]

During the wet era from the late 1820s through the mid 1840s, non-Indian travelers praised the territory of the Five Nations. In 1832, the famed artist George Catlin, while accompanying the Richard Irving Dodge expedition from Fort Gibson to the mouth of the False Washita River claimed that "this picturesque country of two hundred miles, over which we have passed, belongs to the Creeks and Choctaws, and affords one

of the richest and most desirable countries in the world for agricultural pursuits."[13]

Thomas Farnham, a young Vermont lawyer who had moved to Peoria, Illinois, for health reasons decided to move to Oregon country after listening to a missionary report on the marvelous condition of the land there. He departed in the Spring of 1839 and took the Santa Fe Trail west to the Rocky Mountains and points beyond. His report on the trip through the Indian Territory included many descriptions of land not on his path. One wonders where he got his information; but he was so impressed by someone's description of the area south of the Canadian River and north of the Red River that he claimed "the country [was] capable of supporting a population as dense as that of England."[14]

The avid traveler and trader Josiah Gregg did journey along the Canadian River in 1839. Gregg was on his way to Chihuahua by way of Santa Fe, where he hoped to reap a profit selling goods to Mexican citizens who were suffering the effects of a French naval blockade. The southwestern trader held a more realistic opinion of the Indian Territory, yet he still described it in glowing terms as "an unbroken succession of grassy plains and fertile glades, intersected here and there with woody belts and numerous rivulets, most of which, however, are generally dry except during the rainy season."[15]

Indeed, the tribes of Indian Territory justified these descriptions by harvesting abundant yields during this wet cycle. In 1833, the Choctaw corn crop produced a surplus of 40,000 bushels and increased this surplus to 50,000 bushels in 1836 while exporting 500 bales of cotton down the Red River.[16] The following year, Creek Nation farmers harvested a yield of corn marketed at a value of $40,000.[17] These high yields continued into the 1840s. Muskogee planters exported over 100,000 bushels of corn in 1846 and the Chickasaws sold 40,000 bushels of corn to Fort Washita the next year.[18]

Given the level of commercial agriculture in Indian Territory, whenever a major drought hit the region, it had disastrous consequences. In the two-year span from 1850 to 1851, drought visited the area forcing those residing in the Choctaw Nation to endure the effects of back-to-back years with little moisture. The Choctaw Intelligencer of Doaksville, Choctaw Nation, stated that the Red River was at its lowest stage since the Choctaws had arrived in the region and that the closest any steamer could approach Indian Territory was at Alexandria, Louisiana.[19] During this time of hardship, those relying on river transportation to export their crops to markets certainly became acquainted with the consequences of low water; but this drought lasted only two years. The oncoming drought would continue for ten years with only one year of above-average rainfall.

The initial year of this mega-drought was 1854. It began, as all droughts do, with a dry month during the critical growing season that extended to two, three and more. Local farmers must have thought it would break any day; but the conditions continued to prevail from June 15 to June of the following year with little in the way of rainfall. Military installations often kept weather records. In 1842, the United States established Fort Washita fifteen miles up the river of that same name from where it met the Red River. Records from this installation report a scanty 18.83 inches of rain during this twelve month period, which is less than half of the 38.33 inch average that the fort registered from 1844 to 1857.[20]

Local ranchers had already become involved in an extended commercial system involving cattle. Indian cattlemen pushed herds up the East Shawnee Trail to Missouri stockmen who fattened the beeves on corn meal before selling them to migrants on one of

the trails along the Missouri River, or sold them in St. Louis for butchering or resale. In 1856, the Territory's ranchers had sold most of their remaining cattle to California buyers who intended to drive the animals west to feed the thousands of people who were gathering to strike it rich in the gold rush. This allowed ranchers in Indian Territory to avoid watching their cattle perish. The creeks and springs dried up first, leaving small pools of water to be churned into mud holes by cattle frantic for water, before even these turned to cracked earth.[21]

B. F. Robinson, the official in charge of the Kansas agency, reported a failure of the Delaware Tribe's corn crop and feared that the natives would "perish of famine or from the use of unwholesome food" because of the dwindling amount of game on their reserve. He suggested that part of the Delaware and Seneca tribes' annuities "be applied to the purchase of breadstuffs" to allay the suffering.[22] The Neosho Agency likewise reported that no rain had fallen from July 1 to August 31, therefor the crops were completely burnt up.[23] Making the situation more desperate was the fact that the drought was widespread. It was impossible to ask neighboring tribes or states for relief; the whole of the southern Plains and its margins were engulfed by the drought.[24]

The military installations had to deal with the drought as well. Due to the low production of the wells, troops at Fort Washita constructed cisterns to store water. This, of course, was not very effective during the drought. The only available water was over two miles away, and it had to be hauled to the outpost daily.[25]

After a fairly wet November in which 3.54 inches of rain accumulated in the gauge at Fort Washita, the winter months proved to be extremely dry, registering only 3.25 inches for the combined months from December through March. In response to the

previous year's hardships, the agents encouraged the tribes to break more land with the intention of raising more crops and storing the excess for a reserve food supply in case it was needed. The drought had impressed this need on the agents as all reserves of corn and other seeds were consumed rather quickly in 1854.[26]

Unfortunately, another year of excessively dry conditions was in store for the people of the southern tall grass prairies. As expected in drought years, the creeks did not carry enough water to run; but into the second year of these conditions the springs began to fail as well. As water penetrates the soil and continues to follow the laws of gravity along fissures and through porous material below the earth's surface, it often finds an opening and trickles out into daylight at a spring. When there are no rejuvenating rains to replenish the underground water supply, the water table drops below the level of the springs. This phenomenon was occurring in the summer of 1855. J. W. Washburne, the agent for the Seminoles, reported that "there has been, and still is, a very great scarcity of water . . . the springs and creeks are all dry, or nearly so."[27]

The people of the southern Plains' eastern margin endured another year of hardship. The Arkansas and Red Rivers were continually too low to allow water-borne traffic, precluding the cheapest and easiest source of outside grain and other necessary supplies from arriving in the towns of Indian Territory.[28] In the words of J. C. Robinson, the superintendent of the Chickasaw Manual Labor Academy,

> . . . we have had but very little rain in this section of the country since last June one year ago, now fourteen months . . . . Our streams are dried up, stock water gone, and our springs are failing, so that the prospect before us, in this respect, is gloomy indeed.[29]

The privation created by the lack of rainfall is brought to life in the letters of John R. Whaley who, as a young Virginian down on his luck, signed up with the military for a

steady paycheck and adventure. After a long boat ride from Baltimore to New Orleans in which he was astounded by how many United States soldiers could not speak English, his troop was transported to Little Rock, Arkansas, on a steamboat and disembarked for a foot march to Fort Washita, Chickasaw Nation. Private Whaley recounted the suffering he and the other men experienced from lack of water. They were forced to drink from stagnant pools and, to no one's surprise, battled bouts of diarrhea for the remainder of their journey. This put the men in a deadly situation. Cramps and sweating dehydrated their bodies; but the only available water would be sure to worsen their condition. Whaley was one of the lucky ones, for he completed the journey all the way to Fort Washita. Five others were buried along the way.

1855 was a year of catastrophe in Biblical proportions. Just as in ancient Egypt, a plague of grasshoppers descended on the inhabitants of Indian Territory to complement the severe drought and the suffering it induced. Insects swarmed over the crops of the Indian Nations from the spring through the fall of the year.[30] It seems that conditions must have been favorable for a grasshopper population boom during 1855, as these insects require very specific climatological conditions to achieve maximum fecundity.

The factors influencing grasshopper populations are myriad and finely balanced within the ecological framework of the grasslands. Of course, the availability of food source plants is mandatory to support such a population boom. Studies have found that a mixed diet of legumes and nitrogen consuming plants is most beneficial for grasshopper reproduction. Further, to maintain these populations over the entire summer there must be enough rainfall during the critical months of May and June to ensure prolonged plant growth in the region. Reproductive rates among grasshoppers are highest during dry and

warm weather averaging 78 degrees Fahrenheit or higher. This is especially true when the preceding fall has met these criteria and a high harvest of eggs can be planted into the soil.

The other role warm and dry temperatures play in high grasshopper populations is that they discourage predators and pathogens that could reduce the numbers of these insects. The parasites and invertebrate predators, such as the Robber and Asalid flies, wasps, ants, and spiders, thrive in humid conditions. The vertebrate predators that feed on grasshoppers such as skunks, coyotes, badgers, bob cats, foxes, field mice, toads, snakes and lizards also thrive under more humid climes, as do the birds that prey on the insects, the horned lark, western meadowlark, and the lark bunting. Finally, the most threatening organisms to grasshopper populations are pathogens such as fungus diseases and certain bacteria that require humid conditions to thrive.[31]

Thus, high grasshopper mortality has been associated with rainfall and high grasshopper reproduction has been attached to warm, dry conditions. Yet, successive and extreme drought retards the growth of these insect populations as well. Lack of rainfall can reduce vegetation for feed and continued dry conditions compact the soils, prohibiting grasshopper nymphs from accessing the earth's surface and growing to maturity. Eighteen fifty-five would have presented the optimum conditions for high grasshopper populations. The warm and dry fall of 1854 encouraged high egg yields and the absence of late or early freezes allowed the eggs to make it through to the spring, which also was fairly warm and dry. The occurrence of adequate rains in May and June of 1855 gave the vegetative cover enough moisture to promote growth for the remainder of the summer and provide feed for the high insect populations. Then, the return to hot,

dry weather permitted high reproductive rates and discouraged the presence of pathogens and predators that can check grasshopper populations.

This incredible devastation brought on by the twin scourges of drought and grasshoppers wrought havoc on the daily life of the Indian Nations. Harvests were slight, local farmers had already consumed the seed supplies leaving little to plant for the upcoming year. The failure of the corn crop meant that there would be no feed for the family hogs, which were the main source of meat during the antebellum era. Most of the region's cattle had been bought by California drovers, and the arteries for importing supplies, the Arkansas and Red Rivers, were inconsistent. These conditions probably drove market prices beyond the access of the average family. In the Choctaw Nation, many were faced with famine and turned to stealing from their more wealthy neighbors for sustenance.[32]

In the atmosphere of this catastrophe, the United States government decided to appropriate funds in a belated and partial payment to the Muskogees for property tribal members had lost during the hastily conducted forced removal of the tribe from Alabama in 1836. There is little doubt that the pleas of the tribe's agents impressed government officials enough to promulgate this payment as a form of relief for the destitute tribe.

In the midst of these harsh conditions, the students of the Cherokee Nation Male Seminary in Talequah, Cherokee Nation, mentioned in their school publication that the drought in Texas was more severe than what they were experiencing.[33] The Lone Star state was in an extremely dry trend. As far east as Cold Springs in Polk county near San Jacinto, Texas, there had been only two slight showers from January 4 to May 25. Corn "twist[ed] up like dry fodder" during the middle of the day and the late cotton crop dried

up much too quickly.[34] Otis Wheeler, a farmer from this district wrote to his sister in Arkansas claiming that he would have to abandon his farmwork if rain were not soon forthcoming and go out on a "trading excursion" to subsist. He also hinted that he might be making a trip to her home. In a Biblical analogy, he cast himself as Joseph enduring the seven years of dearth mentioned in Genesis 41: 54-57:

> We are already preparing to go to Egypt for corn next winter and will be certain to go if it does not rain. Where Egypt will be then I don't know unless it is in Arkansaw (sic, author's underline).[35]

To the northeastern fringe of the southern Plains, in Kansas, there is evidence that the occurrence of dust storms preceded the cultivation of the prairies. On May 14, 1855, the Kansas Free State newspaper of Lawrence claimed that blowing dirt was more of a nuisance than Indian raids. "We are frank to confess that we have felt more inconvenience from the wind and dust, since our arrival in Kansas, than from any other source."[36]

Although 1856 was another year of drought, it was not so widespread. To be sure, certain areas experienced complete loss of crops, but other areas were able to produce a fair harvest. C. W. Dean, the superintendent of the Indian Nations, acknowledged the drought, but felt that the region would be able to supply "the wants of the people" with produce from those areas that had good harvests.[37] The following year actually brought ample amounts of rain to Indian Territory. The only setback to a perfect harvest was a late freeze on April 6, in which the thermometer reading as far south as Eagletown, Choctaw Nation, was a mere 18 degrees Fahrenheit.[38] This frost did cut back the corn, wheat and fruit crops for that spring, but bountiful harvests were reported from the Cherokee, Creek, Choctaw, and Chickasaw agents.[39] In fact, the late summer and early

fall months of September, August and October registered 11.23 inches of rainfall at Fort Washita in a year that accumulated 33.18 inches total.[40] In the Cherokee Nation this abundance of moisture ruined the wheat and oat shocks that were stacked in the fields causing them to rot in the standing water.[41] Still, the people of the Indian Nations must have been glad to take the damaging effects of too much rain after enduring the three years of too little; but if they believed that the drought was over, they were sadly mistaken.

Samuel Rutherford arrived in Indian Territory to fill the position as United States agent to the Seminole Indians in December of 1857. He had missed the previous two-year drought and experienced the year of ample rainfall in 1857. The rains continued into the spring of 1858 at such a rate that it was difficult to get into the fields to tend the crops. Colder than usual temperatures further retarded the growth of the crops; then around June 15 the rain faucet turned off all the way through August. Rutherford called this an "almost unparalleled drought," which the native residents knew was not the case.[42] His was the usual response of an Easterner to the prairie dry spells.

The Neosho Agency in southeastern Kansas Territory reported that at best the Quapaws would harvest "no more than half a crop," while the Osages were completely destitute.[43] The corn harvest would be minimal and their individual gardens had failed as well. The hunters had already returned from a trip out onto the Plains in search of buffalo, but were unable to locate the herds. The Osage Manual Labor School could not afford to increase its number of pupils due to the high prices of provisions.[44] Perhaps the drought had hit the local non-Indian population just as hard, for the Osages claimed that they had lost 200 horses to white thieves the past year, making the tribe's situation nearly

untenable. By early September, men from the tribe were so desperate that they sold the few remaining horses that they had kept from being stolen at reduced rates in order to purchase food to feed their children.[45] Their agent, Andrew Dorn, saw the Osages' condition as so poor that he recommended making a new treaty with the tribe in which the United States could favorably obtain an agreement ceding to it more Osage land for the promise of supplies.[46]

To the south, the Cherokees watched their wheat and oat crops rust in the heavy rains, but they would be able to feed themselves. Early crops had the best chance of producing well, because the drought from mid-June on burned up anything harvested late in the summer. Elias Rector, the southern superintendent, observed the typical reaction to drought on the Plains and its periphery: migration. In his report to Commissioner of Indian Affairs Charles Mix, he wrote,

> Most of the Cherokees, Creeks, Seminoles, Choctaws, and Chickasaws, cultivate the soil to a small extent; but having no individual proprietorship therein, they are continually on the wing, moving from place to place; and one sees, in traveling through their country, more deserted than inhabited houses.[47]

Although Rector perceived this desertion of homes as caused by the practice of common land holding, the more obvious reason for the absence of people inhabiting the houses can be attributed to the drought. Just as Otis Wheeler notified his sister that if it did not rain soon, he would have to leave the farm and look for another means of subsistence; so, too, the Indians of the Nations left their homes of necessity to obtain work, live with families who were better off, or simply search for water. In Kansas, the same type of environmental conditions produced an equal exodus. The Herald of Freedom out of Lawrence bemoaned "the thousands who came and have gone back

disappointed with Kansas."[48] This phenomenon was not peculiar to the 1850s, and would be repeated during later droughts as well.

The spring of 1859 provided enough moisture to ensure a good harvest of wheat. Wheat requires healthy rains in April and May and then needs a fairly dry June so that the heads can dry out and avoid rusting. This was the case during 1859 with a drought setting in after May 15 and running through late July when the corn crop required rainfall to offset the rising temperatures. Most agencies reported good wheat crops, but extremely poor corn crops.[49]

Eighteen sixty proved to be a year of more severe drought in Indian Territory. The winter was cold and dry, the spring continued uncharacteristically dry, for often the months from March to June are the wettest for the region. The Quapaws reported an entire failure of the wheat crop and a poor harvest of oats used to feed their horses.[50] Superintendent R. M. Loughridge, of the Creek Nation Tullahasee Manual Labor School, feared that the local harvest would yield only a third of its average, and that points farther west would see no fruits of their labor. Furthermore, he predicted intense and widespread suffering due to the drought.[51] Loughridge's words proved to be prophetic, for the Seminole located just to the west of the Creek Nation were more intensely affected by the drought. Agent Samuel Rutherford reported that " crops of every description will not be sufficient to meet the most moderate and reasonable wants of the tribe." He also predicted "a long and bitter experience of distress and want."[52]

The Choctaw and the Chickasaw Nations bore the most intense drought of the area. The previous year was one of hardship; but George Ainslie, the superintendent of the Koonsha Female Seminary in Good Water, Choctaw Nation, claimed that "the

prospects for the coming year [were] tenfold more gloomy."[53] Cyrus Kingsbury expressed concern for the poorer people of the Nation, wondering how they would fend for themselves with their small farms and gardens completely burned up and the Choctaws as a whole only harvesting a fourth of their usual yield in all crops combined.[54] Elias Rector urged the Commissioner of Indian Affairs, A. B. Greenwood, to recommend that the government immediately appropriate funds to pay the tribes part of the $2,981,274.30 due them according to the Treaty of 1855. In his report to the Southern Superintendent of Indian Affairs, Rector made his case forcefully by describing the loss of crops, the intense suffering the tribes experienced the past summer, and then pleaded

> Humanity urges that the department should ascertain their condition and necessities, and that as we aided in sending food to starving Ireland, so we should preserve from destruction and misery these faithful allies . . . .[55]

Congress did approve $50,000 in relief to the tribes of Kansas and Nebraska in 1860, including the beleaguered Osage and Quapaws as well as the Senecas and Shawnees; but it was not prepared yet to allocate funds for the tribes of the southern Indian Territory.[56]

The drought continued in the southern Plains and its eastern margin as the nation moved toward civil war. Shortly after Abraham Lincoln took the oath of office in March 1861, Congress appropriated to the Choctaws $250,000 of the larger award for damages incurred during their removal. The Choctaw General Council agreed that the largest part of this sum would be used as relief for the starving members of their tribe. Unfortunately, hardly any of the money actually made it to Indian Territory. As actual hostilities erupted due to the secession of the southern states, the money was either lost or stolen on the way to the Choctaw Nation.[57]

More evidence of out-migration occurred in the first two years of the 1860s. As

the drought intensified in 1860 and concerns over internecine strife mounted, it is not surprising that in the Cherokee Nation, and in the other nations of Indian Territory, many land owners sold the improvements on their farms at reduced rates allowing others to acquire substantial property rather cheaply.[58] Just before the outbreak of the Civil War, Baldwin Mollhausen traveled through Indian Territory on his way to California and reported that "the country of the Chickasaws, Choctaws, and Creeks was still thinly settled."[59] As it was his first trip through Indian Territory, he was assuming that the area had never been populated to any great extent; but it is more likely that the drought encouraged many to move to areas of opportunity, and Mollhausen simply saw the effects of this movement.

The Civil War added considerably to the Indian Nations' hardships. In 1861, Union authorities recalled the troops from the frontier outposts of Fort Washita, Fort Arbuckle, and Fort Cobb. Under the new administration, the federal government placed Indian Territory low on its list of priorities. Certainly there were more pressing matters occupying all of its energy; but the people of the Five Nations were desperate for relief and none was forthcoming. Most of the tribes' trust funds were invested in government bonds, so they had no access to the money when they needed it most. They had to rely on the federal government to dispense the funds. The tribes of Kansas had received aid, but only the Creeks and Chickasaws of Indian Territory received any promise of money or relief. This was simply the payment of money promised in treaties. This failure to appropriate funds for the destitute tribes of Indian Territory is probably due largely to the Interior Department's removal of the trust fund government bonds for other purposes.[60] Perhaps the Union assumed that the slave-holding Five Nations would automatically

swing to the Confederacy and wished to withhold any funds that might make its way into secessionist hands.

The Confederacy worked hard to negotiate treaties with the Five Nations. Indian Territory was strategically located, for it covered the state of Arkansas' flank and buffered any Union invasion of Texas from the north. It could also be the jumping off point for a southern invasion of Kansas. Trails through Indian Territory shortened the time it took to get Texas cattle, horses and other goods to Tennessee. Products and raw materials from the Nations were also prized by Confederate officials.

The removed tribes of southern Indian Territory had many reasons to distrust the United States' government as well. The Five Tribes' forced removal by government troops, the failure of the federal authorities to meet their treaty obligations, and their failure to protect the tribes from outside aggression would certainly qualify for strong reasons to lose any feeling of loyalty to the federal government. The Five Nations also held many ties to the South. Geographic proximity dictated that the tribes of Indian Territory consider invasions from Texas and Arkansas if they sided with the North. Many tribal members had relatives who lived in Southern states and held secessionist attitudes. Most of the Indian agents were staunch Southerners. These people may have had a certain degree of influence among the rank and file tribal citizens. Almost all of the river borne commerce from Indian Territory was destined for Southern locations as well. There was also the "peculiar institution" of slavery that wealthier members of the Five Tribes practiced; but this system of extractive labor was not adopted by the majority of tribal members and although the elite did hold an inordinate amount of influence over tribal politics, it was the common folk who had to give their support for any treaty to

work. [61]

Distrust of the federal government played a large role in the Five Tribes' decision to ally with the Confederacy. In 1860, William Seward gave a speech, "The National Idea, Its Perils and Triumphs" in Chicago in which he stated that "the Indian Territory, also, south of Kansas, must be vacated by the Indians."[62] Many natives of Indian Territory felt this statement was representative of Lincoln's agenda.[63] Still, underlying the political and social considerations was the stark fact that the occurrence of seven years of drought had brought the Indian Nations to a desperate point. They were in dire need of relief and the federal government refused to come through, except in the case of the Creeks and Chickasaws mentioned earlier. Again, most of that money never arrived. So, when the Confederate emissary Albert Pike visited the Five Tribes promising money, sovereignty, and political participation, the Five Tribes fairly quickly agreed to support the Confederacy.

Drought had once again influenced relations between neighbors. The Jicarillas in northern New Mexico Territory watched as the Rio Puerco dried up and their fields, which depended on irrigation, withered. Federal officials refused to authorize an increase in tribal annuities and failed to provide relief from the drought. When a couple of cows came up missing and the trail led straight to a Jicarilla village, the United States' government carried out a campaign against the tribe in which the U. S. treated all bands, even those that had long been friendly with the Anglo authorities, as enemies. The war lasted less than two years, but provided an excuse to separate the Jicarillas from their land and the federal government moved the tribe farther west to an area less desirable to non-Indian farmers.

In Indian Territory, a series of very dry years greatly reduced the Five Nations' ability to support themselves. A region that had provided abundant crop yields during the previous two decades dried up during the later 1850s and the people suffered severe famine. The usual attendants to drought, poor harvests, lower water levels, impeded river traffic, and famine pressed many to migrate out of the region or request relief from governmental agencies. No drought relief was forthcoming, although the United States' government did promise to meet some of the monetary demands of their treaty obligations with the removed tribes. When the Civil War arrived, Confederate agents pressed the Five Tribes to ally with the South promising all the things the tribes had requested from the Union. The tribes bit, and signed treaties with the secessionist government. Although the Creeks, Seminoles, and Cherokees split in their decision to ally with the South and many members of these tribes fought on the side of the North throughout the war, after the struggle, the United States punished all members of the Five Tribes with treaties that reduced their land holdings.

CHAPTER 6

BOOMER BUST: EFFECTIVE ADVERTISING AND DROUGHT ON THE SOUTHERN PLAINS, 1870 - 1890

I heard an old farmer talk one day
Telling his listeners how
In the wide new country far away
The rain follows the plow

As fast as they break it up, you see
The heart is turned to the sun
As the furrows are opened, deep and free
The tillage is begun

The earth grows mellow and more and more
It holds and sends to the sky
A moisture it never had before
When its face was hard and dry

And so, whenever the plow shears run
The clouds run overhead
And the soil that is stirred and lets in the sun
With water is always fed

I wonder if that old farmer knew
The half of his simple words
Or guess the message that eternally true
Hidden within it was heard

It fell on my ears by chance that day
But the gladness lingers now
To think that it is always God's own way
That the rainfall follows the plow

Author Unknown [1]

It is amazing how quickly the human mind forgets. Collectively speaking, Americans have exhibited selective memory, especially regarding the environment. Many Plains settlers believed there could never be another drought like that experienced during the early 1860s.[2] Boomer literature stressed ample rainfall, healthy living conditions, and good soils of the southern Plains. New theories stressed the ability of humans to alter their environment, including the weather. "Rain Follows the Plow" was the most popular of these notions promulgated during the late 1860s and remaining popular through the mid 1890s. This corresponds to the initial period of non-Indian southern Plains settlement. Of course, there were a myriad of reasons for why non-Indian settlers began swarming over the southern grasslands during this era. The removal of the Plains tribes, the extension of the rail system and, as Walter Webb has so aptly demonstrated, the technological advances of the time all made settlement seem at least feasible. It was such a belief as "Rain Follows the Plow," however, that convinced non-Indian farmers to move out on the High Plains and try to farm it.

In fact the period from 1870 to 1899 was average to dry, as Palmer Drought Severity Indices for three locations in the southern Plains during the years in question show (fig. 4). Meteorological records from United States military installations and Department of Agriculture Weather Bureau records support this finding.

Further, Reports of the Commissioner of Indian Affairs document the Indian Tribes' struggle to coax crops from drought stricken soils. The Wichita Agency reported a destroyed corn crop in 1874 due to drought and the reduction of grass cover by numerous prairie fires.[3] In 1879, according to John Shorb, United States agent to the Sac and Fox, members of the tribe were forced to drive their livestock "a great distance from

their reservation, where they found water and grazing ground, most of them remaining the entire season."[4] This drought continued up through August the following year as William Whiting, the Ponca agent, discussed dry and parched grass and frequent prairie fires in his report to the Commissioner of Indian Affairs.[5]

These reports were coming from agents of horticultural tribes: people who had been self-sufficient through agriculture for generations. During other seasons, their yields were more than ample. From 1875 through 1878 the Wichitas were quite successful at gathering crops, bringing in bountiful harvests of corn, wheat and oats.[6] These were also bumper years for the Sac and Fox farmers who, as their agent reported, had "abundant crops " in 1877 and "a surplus of corn" in 1878.[7]

Other Records substantiate that the larger era from 1870 to 1893 was not a wet trend on the southern Plains. Isolated years of drought hit locally throughout the region during the 1870s and early 1880s. Then the severe drought of 1885-1887 wracked the region. Yet, wagons from the east kept a steady stream in their movement to the Plains. This suggests that booster recruiting methods were extremely successful.

The Kansas-Nebraska Act of 1854 first opened the area to non-Indian settlement. It also unleashed competition over the future of slavery in the territory. The early booster publications for this northernmost region of the southern Plains came from "Free-Soil" agencies who opposed the expansion of slavery into the territories. These Free-Soil organizations invited people from northern states to migrate to Kansas in order to outvote the pro-slave faction and fulfill "God's calling." To make their invitation more compelling, they had to dispel the myth of the "Great American Desert." The first publication to use this strategy was E. E. Hales,' Kanzas and Nebraska, out for circulation

in 1855. Hale claimed that the area west of the Missouri border may have been a desert, but that these conditions would lessen as civilization expanded into the region.[8] That same year, two employees of the American Reform Tract and Book Society, Charles Boynton and T. B. Mason, released A Journey Through Kansas with Sketches of Nebraska in which they claimed the desert was a complete myth.[9]

The debate over the extension of slavery triggered Free-Soiler advocacy of a Homestead Law. Nothing could oppose the spread of slavery like thousands of 160 acre farms, which were too small to support "peculiar institution." Also, Abraham Lincoln and the Republican Party favored increased immigration and a Homestead Act as a means of drawing thousands of people from Europe to the land opportunities of the United States. After the Civil War, the Republican Party looked to the settlement of the nation's interior as a way to refocus the energies of the devastated country and prove to other nations that the United States was still vigorous and growing.[10] A Senatorial group traveled to the vicinity of the one-hundredth meridian near Fort Haskell, Kansas, in 1867 to evaluate the region's possibilities. This journey was conducted during a wet year. It should come as no surprise that one of its members, Senator Lyman Trumball, concluded that the American Desert label was a mistake.[11]

Railroad companies, which the United States government had subsidized through land grants to help defray the cost of constructing rail lines across the country, knew that they would benefit from the settlement of the prairies and Plains. The sale of the subsidized land and the increased transportation of goods and people on their lines would be a great boon to their enterprises. Railroads were among the active agents promoting settlement of the Plains.[12] Company promoters also sought to overturn the image of the

"Great American Desert." They claimed instead that the region was marked by incredibly fertile soils, ample rainfall, and a healthy atmosphere.[13]

The United States government granted the Atchison, Topeka and Santa Fe 3,000,000 acres of land along the company's lines. To promulgate the sale of these lands, the company quickly established the machinery to recruit settlement. A. E. Touzalin directed the land promotion department from his central office in Topeka, Kansas. He initiated a newspaper advertisement campaign and hired a staff of clerks, correspondents, land agents, newspaper reporters and advertising solicitors to assist him in boosting the region. Touzalin devoted one whole department of his agency to foreign immigration. The director of this division, C. B. Schmidt, even traveled to Russia, without the Tsar's approval, to recruit Mennonite farmers in February 1875. While on his journey, Schmidt appointed local European businessmen to act as Santa Fe agents in Germany, Austria and Switzerland.[14] Later that year, 1,900 Mennonites migrated from Russia to Marion, McPhearson, Harvey and Reno counties in south-central Kansas.[15]

During the late 1860s and early 1870s, Ferdinand Vandiveer Hadyn, who headed the United States Geological Survey, promulgated the theory that rainfall was increasing on the Plains. In his Third Annual Report, Hadyn claimed that the increase in annual rainfall was permanent. Such a pronouncement from a prominent official lent scientific support to the theory.

The Kansas-Pacific Railroad appointed Richard Smith Elliot as its industrial agent in 1870 and financed the construction of three agricultural experiment stations on the western plains of Kansas. It was the railroad's hope and Elliot's conviction that these stations would prove rainfall was increasing. The industrial agent supervised the planting

of barley, wheat, rye and corn at all three stations and constantly checked on their progress. His reports pointed to increased moisture and yields. However, the drought and economic panic of 1873 hurt his theory and the Kansas-Pacific's financial resources. The company terminated the experiment stations that same year. Still, Elliot's influence on booster literature was evident up until the 1890s.[16]

The Kansas legislature was also active in promoting the settlement of their state. In March, 1867, the state congress established a Bureau of Immigration with the intent of "filling the blank space heretofore allotted to the Great American Desert."[17] Kansas legislators used state agricultural agencies to promote settlement. In 1877, the state legislature passed a bill forming a Board of Agriculture, which became a vigorous promoter of agriculture, and thus settlement, in Kansas.[18]

As non-Indians grew more acquainted with the Plains, they learned that rainfall was consistently slight west of the one-hundredth meridian, and they began questioning railroad promotional literature. Boosters still searched for ways to convince settlers to migrate to the grasslands. They hoped to perpetuate the idea that Americans had conquered every geographic obstacle they had encountered, and that they would conquer the Plains as well.

A biology professor from the University of Nebraska, Samuel Aughey, provided the explanation for how the Plains would be conquered. On January 20, 1873, Aughey addressed the Nebraska state legislature and stated "One of the most interesting of the meteorological facts which affect [the Plains] is this - that as civilization extends westward the fall of rain increases from year to year."[19] By 1880, he had developed his "Rain Follows the Plow" theory. Aughey claimed that cultivation of the soil allowed it to

retain more moisture, and that through transpiration crop vegetative cover released more moisture into the atmosphere than grass cover. Clouds would form over these croplands and increase the rainfall. Railroad promoters latched on to this theory and maintained it into the 1890s, long after they should have realized that rainfall was not increasing.[20]

Texas boosterism and settlement followed a similar pattern. Between 1865 and 1876, buffalo hunters began working the southern Plains. As the bison population plummeted, the Plains tribes found themselves without a much needed source of food and without their major trade commodity, buffalo hides, with which they could barter for food products. This fact had to impair greatly the tribes' fighting capacity. Military conquest did remove those who still attempted to maintain their traditional way of life in 1875 when Ranald Mackenzie accepted the surrender of the Kwahadi Comanches.

This opened up the Texas Panhandle to non-Indian settlement and the first wave of settlers arrived the very next year. Hispanic sheep herders moved in from the west as Anglo cattlemen began migrating in from the east and north. The cattle industry grew out of several developments: the growing urban population in the nation's northeast section served as a huge market for beef products; the introduction of the refrigerated railroad car allowed meat to be transported long distances; and the construction of rail lines into the southern Plains provided a fairly close shipping point for most cattlemen. These ranching activities generated sizable profits and attracted outside investment, especially from Britain.

The unique aspect of Texas settlement was that the state retained its rights to the public lands within its borders. This was a result of Texas status as an independent republic prior to annexation. Aware of the liberties railroad promoters took in boosting

their land sales, the Texas state legislature decided to grant land to rail companies that was not adjacent to their lines and to give them only twelve years to dispose of the land before it reverted back to state ownership.[21] Still, as in Kansas, the railroads were the primary agent in promoting the settlement in the Texas Panhandle.[22]

The railroads arrived prior to widespread settlement in the panhandle of Texas. Although the town of Clarendon existed as a Protestant Christian colony in 1878, there were few small farmers in the region. Cattlemen operated under an open range system that used the state lands as one giant common for anyone's use. The Fort Worth and Denver line reached Clarendon in 1887, the Atchison, Topeka and Santa Fe, and the Rock Island came to the Panhandle shortly thereafter.[23] The Santa Fe railroad placed $50,000 annually in their advertising budget to employ staff writers and produce newspaper advertisements, pamphlets, tracts and monthly magazines aimed at recruiting settlers.[24]

Local and state organizations, newspapermen, real estate agents and speculators joined the rail companies in promoting the southern Plains for settlement. Their efforts were quite successful. A report of the Texas Bureau of Immigration stated that 125,000 people immigrated to the state in 1873. In 1875, that number had risen to 300,000 and the high water mark was reached the next year with 400,000 new home seekers arriving in western Texas alone.[25]

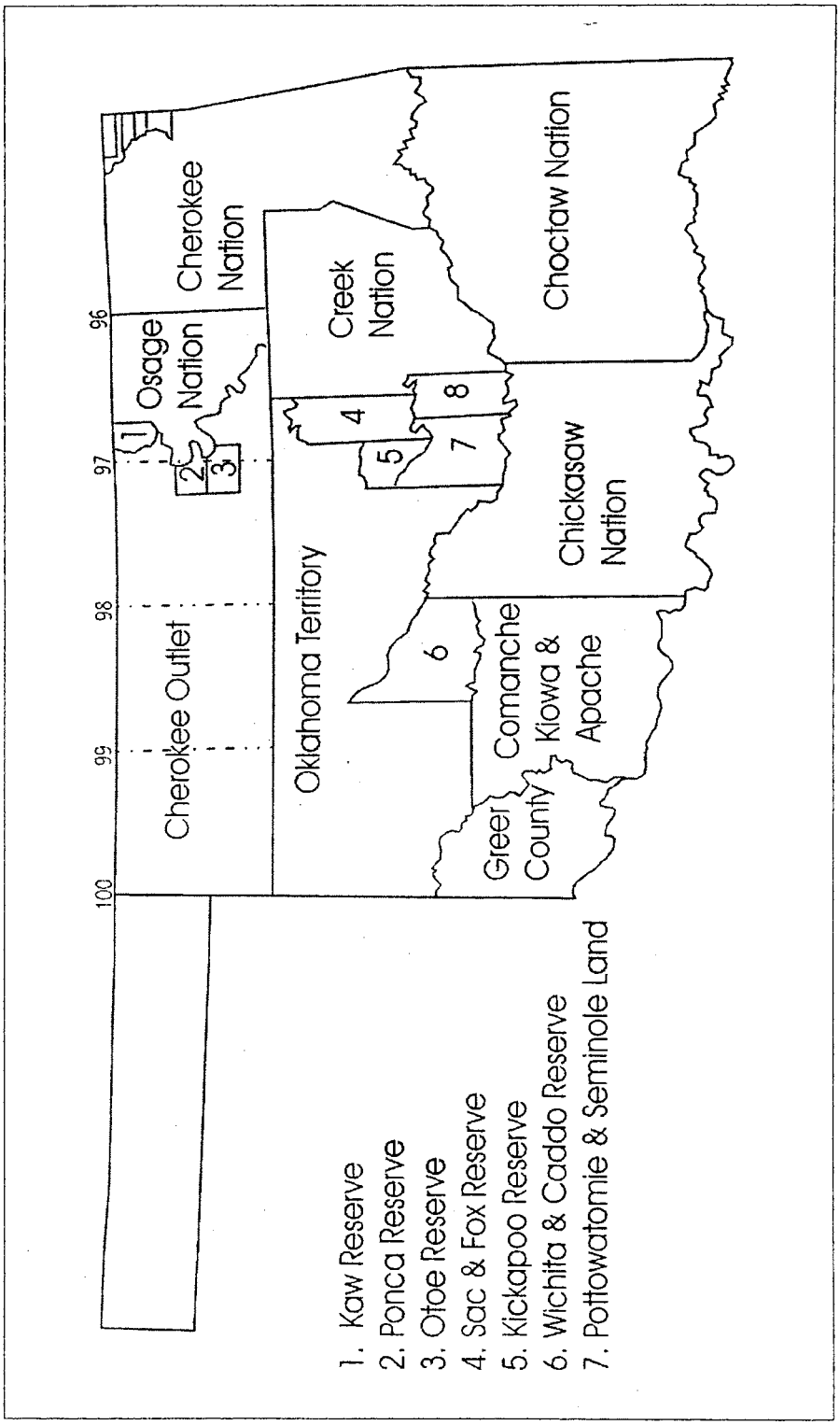
Oklahoma is unique in that it was spared widespread non-Indian settlement during the 1870s and for most of the 1880s. As Kansas to the north and Texas to the south began filling up with settlers, the Indian Territory remained a reserve for the Five Tribes, the southern Plains tribes and other refugee tribes. The Civil War had brought physical, emotional, and political catastrophe to the people of Indian Territory. Even though many

Cherokees, Muskogees, and Seminoles had fought for the Union during the fray, the fact that all of the Five Tribes had signed peace treaties with the Confederacy gave government officials the pretense to reduce tribal holdings.

The United States negotiated new treaties with the Five Tribes in 1866 in which the Indian governments lost control of their western lands, with the lone exception of the Cherokee Outlet. Portions of it were used to resettle the Osage, Tonkawa, Ponca, and Otoe tribes. The Choctaws and Chickasaws forfeited their claims to land west of the ninety-eighth meridian for $300,000. The Muskogees relinquished the western half of their reserve for thirty cents an acre. Seminole leaders signed a treaty giving up all of their holdings in Indian Territory for fifteen cents an acre and were persuaded to turn around and purchase land from the Muskogees for thirty cents an acre.

After the Medicine Lodge treaties in 1867, the Kiowas, Comanches, and Kiowa Apaches (KCA) relocated to a reserve taken from the old Choctaw and Chickasaw Leased District. This reserve was bounded on the south by the Red River, the east by the ninety-eighth meridian, and in the west by the one-hundredth meridian. The Cheyenne and Arapahos agreed to settle immediately to the north of the KCA reserve. This left an area in the center of Indian Territory free of any tribal claims (Fig. 14).

Rather quickly, so-called "Boomers" began calling for the opening of these Unassigned Lands to non-Indian settlement. As Kansas and Texas experienced incredible immigration, the number of attractive homesteads diminished. Yet, booster activities continued to recruit settlers. It was not hard for those calling for the opening of the Unassigned Lands to gain followers. By 1879, there was a sizable movement arguing that the Unassigned Lands were public domain and therefore open to settlement under the



Adapted from John Morris, Charles Goins and Edwin McReynolds. Historical Atlas of Oklahoma. Norman: University of Oklaoma Press, 1976.

Fig. 14

Homestead Act.

There is some evidence to suggest that the prominent railroads in the region sponsored the movement to open the Unassigned Lands. Two of the principal publicists agitating for the opening were Judge T. C. Sears and E. C. Boudinot. The Missouri Kansas and Texas railroad employed Sears as a company attorney and some believe that Boudinot was attached to the same firm.[26]

Perhaps the most notorious individual connected with the Boomer movement was David L. Payne. Prior to this, Payne had been fired from a postmaster position in Leavenworth, Kansas, for irregular accounts. He had already lost two of his three titles to quarter-sections in Kansas due to an over-extension of finances.[27] He was a "chronic borrower" who was rarely seen at tasks requiring hard labor even though he supported a six feet, four inch frame that carried all of two hundred and fifty pounds.[28] Payne lived with, but never married, "Ma" Haines who bore him a son they named George. In 1879; Payne formed an organization known as the Oklahoma Colony, which sold 5,000 shares to the St. Louis and San Francisco rail company.[29] He also had the support of many promoters in Wichita, Kansas, who financially supported another of his Boomer organizations, the Oklahoma Town Company.[30]

Between 1880 and 1884, Payne and his followers attempted eight filibusters of the Indian Territory. The United States military captured him on all attempts and either escorted him out of the territory or held him in confinement pending trials. After his second invasion, soldiers escorted Payne to Fort Smith to stand trial for trespassing on tribal lands and government property. While on the journey to Arkansas, the officer in charge of his military escort claimed that Payne boasted of having complete confidence

that he would emerge from the trial unscathed because he had the best legal advice in the country and he had followed his instructions explicitly. This led the officer to the conclusion that Payne and his followers were under the guidance of the major railroads.[31] At Fort Smith, Judge Isaac Parker found him guilty of trespassing on Indian lands. The judge fined Payne $1,000; but because he had no property or money with which to assess the fine, the penalty was ignored.[32] On another attempted filibuster and subsequent capture, the Boomer leader, obviously drunk, threatened to cut the throat of the first soldier to lay hands on him.[33] On November 27, 1884, Payne suffered a massive heart attack while participating in a Thanksgiving Day breakfast at the De Bernard hotel in Wellington, Kansas. After Payne's death, the reigns of the Boomer movement fell to W. L. Couch who pursued its goals with as much vigor as the fallen leader.

In early 1889, the Secretary of the Interior, William Vilas, negotiated the purchase of the Unassigned Lands from the Muskogees and Seminoles, and congress authorized President Benjamin Harrison to open the area to settlement. Harrison wasted no time in proclaiming the opening of the Unassigned Lands beginning on April 22, thus initiating the first of a series of land runs in Indian Territory out of which the "Oklahoma District" would grow.

In the face of all this boosterism, the southern Plains experienced a severe drought from late 1885 to early 1887. While it is true that as a rule, the southern Plains usually received low amounts of rainfall during the winter months, the late fall and winter of 1885-1886 were more dry than expected. Sand storms struck Fort Sill, Indian Territory; Fort Union, New Mexico; and Cleburne, Texas, during October and December.[34] From November to February, Abilene, Texas, saw no single month register over one inch of

precipitation.[35] The drought that followed for the next fifteen months was most severe in a narrow strip running from Weatherford, Texas, to Dallas, Texas, northwestward to Fort Sill, Indian Territory where rainfall statistics reveal a collection of only 15, 28, and 24 percent of the respective town's average precipitation.[36]

As spring of 1886 came to a close, the environment was exhibiting drought distress. In May, the Colorado River went dry near Brady in McCulloch County, Texas. The town of Cisco in Eastland County, Texas, was so desperate that the Houston and Texas Central Railroad ran a daily car load of water out from Albany and sold the precious liquid by the bucket or barrel.[37] Local ponds and creeks dried up into pools so small that it was easy to catch fish by hand, but difficult to locate water for livestock. Many ranchers had to move their stock, some as far as thirty miles, to find a suitable location to slake their animals' thirst, and camped out near their herds hoping to outlast the drought.[38]

Ranchers in Baylor, Throckmorton, Archer, and Young counties of Texas were so frantic to find grass and water for their cattle that they simply turned the animals loose, allowing them to follow rivers and creeks down stream. The cow hands did not try to control the desperate stock and let them destroy cultivated fields and consume the water that remained in the ponds and water holes. As of late July, thirty thousand head of starved and thirsting stock began encroaching on the water supply and fields of Jack and Wise counties. Farmers from these threatened areas organized to oppose the movement of these herds. A violent collision between the cattlemen of the migrating herds and the ranchers and farmers of Jack and Wise counties was averted only by a timely rain shower to the west. The two groups held a meeting and the cattlemen from the drought stricken

area agreed to move their stock back west.[39]

Cattle elsewhere in the drought area perished by the thousands.[40] In New Mexico, the Pecos River stopped flowing above the confluence of Salt Creek. Cattle gathered at the dwindling water holes, churning them into mud puddles, and expired under the heat.[41] Ranchers sought to unload their herds on the cattle market causing prices to plummet. Steers that had brought up to forty dollars in 1885 were worth only eight dollars in 1886.[42]

Drought created another problem for the region's farmers and ranchers. The low amount of water in the Red River made it shallower and more susceptible to freezing. When the following winter proved to be extremely cold, the river froze. An almost constant source of water during the winter was now unavailable to the cattle. Andy Addington, who had a ranch along Bear Creek near the present town of Velma, Oklahoma, recalled that

> I lost about four thousand head of cattle . . . . They died for want of water. All of the creeks went dry [ ]up and down the Red River . . . . We dug wells and everything else trying to get water. Red River froze over . . . . It froze as a result of the drouth, and we had a very severe winter.[43]

One can imagine how hard the drought hit the area's farmers as well. By mid-July, citizens of Albany, Hulltown and Breckenridge, Texas, were circulating petitions to send to the governor asking for relief.[44] Within the immediate area, those with any means did their best to aid the distraught. People of Ballinger, Texas, though suffering from lack of rainfall as well, sent a wagon full of flour, bacon, and meal to the devastated residents of Content, Texas, and followed this act of generosity with twelve other loads of supplies within the month. It is possible, however, that politics may have provided the motive for these gifts. The town leaders of Ballinger were campaigning to move the

county seat from Runnels City to their town and sorely needed the votes from Content to accomplish this.[45]

There were also private efforts to provide relief. Eastern Texas counties held meetings to assist the drought victims; but these were not well attended and failed to draw much support. Still, Wilson County sponsored a boxcar of provisions, which they sent to Runnels County, Texas. Citizens of Weatherford, Texas, purchased ten-thousand bushels of wheat for resale at cost to those of Parker County, Texas, in need. Farm and Ranch magazine donated a rail car full of mixed planting seed to the relief effort, and the Fort Worth Gazette and Dallas News cosponsored a drive that raised enough money to give every county in the drought stricken area $750.00. Other civic organizations and individuals sent boxes of clothing and canned goods as well.[46]

Larger donations arrived from outside the borders of Texas. The Merchants Exchange of St. Louis, Missouri, sent ten car loads of provisions, and the Union Stockyards of Chicago provided $1,850.00 to Governor Ireland of Texas for dissemination to the needy.[47] Leading citizens of Albany, Texas, took up a collection to send local Reverend John Brown on a tour of northern cities to solicit aid. Reverend Brown traveled to Chicago and spoke at the Produce Exchange, obtaining a $5,000.00 donation for his efforts.

There were those who opposed these attempts to raise awareness of the southern Plains drought in the nation's metropolitan centers. Many west Texas cattlemen wanted the farms to fail so that the rising number of homesteads would be abandoned as farmers moved back east. These ranchers required large land holdings to operate and saw the region as fit only for large cattle spreads, not small farm plots. Some of these cattlemen

sent their own lobbyists to shadow Reverend Brown and refute some of his arguments. Another group that hoped to stall Brown's collection efforts were local boosters who feared that the reverend's mission would dissuade people from moving and settling in the western prairies. In their minds, the negative publicity would damage booster recruiting efforts. Rail companies also attempted to convince Brown to return to West Texas, but he refused and visited New York City where he raised $500.00 from the New York Produce Exchange.[48]

Reverend Brown's trips to Chicago, New York and later Washington, D. C., did spread the news about the southern Plain's drought. In Congress, S. W. T. Lanham proposed allocating $50,000 to purchase seed to be sent to the drought area. Before this proposal reached the floor of the Senate, agents working against relief were able to convince many Senators that Brown had grossly exaggerated the dry spell. As a result, the Senate reduced the proposal to $10,000. Congressional efforts to relieve the suffering of the drought victims went for naught as President Grover Cleveland vetoed the bill on the ground that such a measure was unconstitutional, although he did donate $25.00 from his personal account as a gesture of Christian charity.[49]

All of these donations began arriving in August 1886. Each county devised its own methods of disbursing the relief. In Taylor County, Texas, a judge organized a relief committee to oversee the dispensing of aid on the basis of need. Each school district in the county elected three men to make a list of the most needy families in their districts, and the relief committee referred to these lists.[50] On December 27, 1886, county judges from the drought stricken area met to establish a system that would ensure a more fair and equitable distribution of aid. It is estimated that of the twenty-one counties represented in

the meeting, there were thirty thousand individuals living in complete destitution. The judges appealed to the Texas state legislature to provide at least $500,000 worth of relief, and they also decided to organize a national campaign to raise donations. This last proposal came under intense criticism. Those local pockets within the larger drought area that had received some rainfall did not think that it was necessary to tarnish the image of West Texas by soliciting aid. Of course, those experiencing the most dry conditions fully supported this proposal.[51]

In the meantime, 1886 was a gubernatorial election year. The drought had created a topic for candidacy. In 1887, the new governor, Lawrence Sullivan Ross, took office and supported the passage of a bill appropriating $100,000 for relief. A committee of three men traveled to the area of concern and assessed what portion of the $100,000 each county would receive. The appropriation was used to purchase corn, flour, and meal with the obvious intent of alleviating starvation. Nearly twenty-nine thousand people from thirty-seven counties in west Texas received an average of $3.25 worth of aid, with the highest percentage of county residents accepting relief coming from Baylor, Shackelford and Stephens Counties, where the figures stand at 58, 30, and 30 percent respectively.[52]

After such a dry year and a half, the grass cover had begun to die out, exposing the earth to the vagaries of the wind. 1887 was a year of dust storms. In January, Midland, Texas endured seven such storms; Abilene, Texas, was hit six times with the episode on the nineteenth of the month being the most intense. On that morning, the storm obscured the sun from view until two hours after sunrise.[53] Through February, March and April, dry conditions continued. Those who had managed to maintain their cattle herds were forced to sell at rock bottom prices or watch the animals perish from thirst. Many

ranchers started leasing land in Indian Territory and shipped their livestock to the areas that were not yet over grazed. Still, Indian Territory was not much better off. Fort Gibson suffered through three dust storms in late April alone. [54]

People began moving back east to find different locations to farm, to obtain work in order to keep their families fed, or to live with relatives until the drought broke. On the Llano Estacado, ninety percent of the more than one-thousand settlers forfeited their claims as a result of the drought.[55] One disgruntled farmer on the Caprock in Blanco County, Texas, inscribed a message on his cabin floor that read:

> 250 miles to the nearest post office
> 100 miles to wood
> 20 miles to water
> 6 inches to hell
> God Bless Our Home!
> Gone to live with the wife's folks.[56]

A Dr. Kindall, the editor of the New York Evangelist, visited the drought stricken area in 1886 and claimed that he witnessed forty-five wagons moving east through Jacksboro, Texas, in one day.[57] It is estimated that nearly fifty percent of the West Texas population moved east altogether during 1886 and 1887.[58] The census figures for 1880 and 1890 show only a slight decrease in population for the region's counties; but nearly as many families moved back into the area after 1887 and prior to the census count of 1890. There were always two streams of traffic in the southern Plains; one coming in and the other going out. During 1886 and 1887, the outward bound stream was heavier.[59]

The drought finally broke in May of 1887 with the arrival of typical spring rain storms. Thus came and went the first major drought to visit the southern Plains after its settlement by non-Indians. As such, it was remembered by the generation who had experienced it as a watershed event. Cattle prices rebounded from $3.00 a head in 1886

to $10.00 per animal.[60]

Despite the drought, boosters continued to portray the Plains as an area of promise. As in the 1830s, the limits of the "Great American Desert" were receding, in theory. As early as 1876, the Santa Fe Railroad promoters began stating that the "rainline" was in the process of moving farther west at the rate of 18 miles per year slightly preceding the advancing population.[61] Seventeen years and a major drought later, Union Pacific writers claimed in 1893 that "little by little, the Great American Desert [had] faded away."[62] J. B. Watkins, a Kansas banker, refused to lend money for establishing a homestead west of a line, which he thought would not support farming. Watkins was, however, confidant that "the rainless belt ha[d] retreated before the march of civilization."[63]

Booster literature continued to attract settlers even though the six years immediately following the 1886 drought were dry to average years of moisture. The suffering and negative publicity of the intensely arid trend of the mid 1880s was not enough to curb promotional optimism and the settlers' vision of opportunity in the south Plains. Between 1880 and 1890, the populations of southern Plains' counties continued to climb. Aside from Indian Territory, the 1880 census shows 196,125 persons residing in the southern Plains. The number had more than doubled in the 1890 count to 460,460 (fig. 15). Rain had not followed the plow, but the public was not yet fully convinced of the error in that theory.

By 1893, the southern Plains would again be beset by extremely dry weather, but this time the added burden of an economic crisis accompanied the meteorological phenomenon. The combination would prove disastrous for most farmers and ranchers in

Census Figures for Southern Plains Counties, 1870-1890

	1870	1880	1890	1900
Colorado	-------	-------	10,196	19,797
Kansas	1,723	94,823	211,529	**194,546**
New Mexico	16,058	20,638	24,204	35,484
Texas	5,843	106,856	207,908	314,435
Indian Territory	--------	--------	61,834	384,458

	1870	1880	1890	1900
Southern Plains	23,624	402,317	515,671	648,720

Department of the Interior, "Report on the Population of the United States at the Twelfth Census: 1900," (Washington, DC: GPO, 1905).

See the Appendix for county by county population figures.

Fig. 15

the region. Now the rising population on the southern Plains meant there were more people present to suffer the effects of drought. Although no single year of the dry trend from 1893 to 1896 was as severely dry as 1886, the diaspora from the Plains would be greater.

The drought was preceded by a dry winter and the high winds of spring once again produced a dust storm in western Kansas. The Meade County Globe reported that April 11, 1893, "was one of the worst days that we have ever seen in Kansas. The dust was thick in the air and drifted around in heaps like snow."[64] The arid conditions continued through the summer. An example of how the weather affected ranching in the far southern Plains is found in the diary of Robert S. Winslow, who ran a sheep operation just southeast of San Angelo, Texas, in Menard County. Ranching in this area relied heavily on windmills to pump water into tanks from which the livestock could drink. As of July 11, Winslow claimed that there was plenty of wind to operate the water pumps, but there simply was not enough water under the ground to satisfy his stock. In fact, there were only two wells remaining that produced any liquid, and by late September, only the "Home Place" well provided any water. Winslow had to sell much of his stock because he could not provide water to keep the animals alive. To reduce further his opportunity to make money, the blowing dirt and absence of rain left his animals with highly undesirable dirty coats of wool.[65]

Louis Hill, who worked as a cowhand in his youth and later ran a frontier supply store at Fort Griffith, Texas, moved to the growing Shackelford County town of Albany in 1881. Hill formed a partnership with Sam Webb a couple of years later, and the two established a real estate firm, that was involved in leasing and selling land for their own

profit and for speculators who lived within and outside ths state of Texas. The Albany News claimed that Webb and Hill did more real estate business than any other company in West Texas.[66] In 1893, however, the firm struggled. Webb and Hill indeed sold a lot of land, and the company appears to have also been responsible for collecting payments from the purchasers and sending these to the sellers. In August 1893, the partnership was finding it hard to collect these payments. A nationwide economic depression triggered by the Philadelphia and Reading Railroad's declaration of bankruptcy -- and the ensuing economic panic on Wall Street -- created a tight money market. Investors in the rail companies began selling their stock and investing in the more stable commodity of gold, causing the gold reserve to fall and the stock market to crash. By the later months of the year, 600 banks had closed their doors, 15,000 businesses had failed, 74 railroad companies had gone "belly up," and nearly 25 percent of the labor force was out of work. As if to make sure that no segment of the economy would thrive, an economic depression in Europe during the early 1890s drove crop prices down in the United States and Plains farm foreclosures increased dramatically.[67]

As a result of these conditions, many farmers found it hard to pay their debts. The drought had destroyed their crops and the depression had influenced local banks to curb lending. This left southern Plains farmers with little access to cash. Webb and Hill attempted to intercede on behalf of their neighbors by requesting extensions on the monthly payments. One such letter declared,

> . . . we have had the driest season since 1886 - in fact it is worse [authors' underline] than 1886, and it is preventing the leasing of many of your surveys. There is no grass and water - stock are suffering, and unless we have rains this month, all the stock will have to be moved out of this country, as later rains will not bring the grass in time for it to cure before frost. We are certainly having a hard time of it - the fearful depression in money matters, together with the

exceedingly dry weather, is enough to drive the people half crazy.[68]

No rain had fallen in Albany between June 15 and August 4 when a "light shower" teased the parched ground with moisture.[69] As the drought persisted into the fall, the struggle to locate water for the cattle became as acute in Shackelford County as it was for the sheep operators in Menard County. Cattlemen began to unload their stock at the local sale barns and the price for beef plummeted. Webb had made a trip to Graham, Texas, and on his way home found that he could not buy a bucket of water for his horse for the forty miles between the Brazos River and the town of Breckenridge. In Webb's own words, "the 1886 drouth was a picnic compared to the present."[70]

By September, the firm found its own finances in question. Webb and Hill had also purchased thousands of cattle to run on leased or company land. Pasture conditions were so poor and the company's resources so strained that the firm offered to sell all of their feeder cattle, some 1,500 to 2,500 heifers and steers for $20.00 a head, and 1,000 cows at $9.00 an animal.[71] This deal fell through and the partners began looking for other options. These included the leasing of land in Indian Territory that still had adequate grass, arranging deals with feed lots to house their animals until it rained again, and even moving into other entrepreneurial opportunities, such as insurance sales.[72] By October, Webb and Hill were in the unenviable position of asking their own creditors for extensions.[73] All through the winter of 1893-1894, Webb and Hill attempted to find a feed lot that could take their cattle; but the drought had left these mills empty because they had no water for the stock. Finally they were able to place 1,000 head of stock at a lot in Bryan, Texas, where rains had fallen in the spring. The drought had sapped the financial resources of Webb, who sold his share in the partnership to Judge J. A.

Matthews in 1894. After solidifying his economic standing, Webb bought his partnership back later that year.[74]

Up in Oklahoma Territory, circumstances were similar. During the fall of 1893, Charles Alling set up a tree nursery in Perry. Alling had a brilliant idea. The treeless Plains were the perfect location to sell seedlings, and he had plenty of orders as new settlers arrived from points east and attempted to reconstruct their environment to resemble the more wooded homeland they remembered. Demand for Allings seedlings outstripped his stock, requiring him to purchase $8,000 worth of additional plants. Although he sold $12,000 worth of seedlings, Allings venture met with failure, for he failed to consider the weather. The ground was so hard by 1894, that settlers could not dig holes for the plants. Furthermore, the lack of rainfall would force the farmers to use precious water on the trees when it was needed for their own and their livestock's consumption. Three carloads of seedlings returned to Alling because the shipping fees were not paid in Lawton and Anadarko, Oklahoma Territory. In a last ditch effort to save his enterprise, Alling borrowed the city of Perry's water pump, with the intention of irrigating his trees. This also failed because there simply was no adequate water supply available.[75]

As in the previous drought of 1886, there were efforts to obtain and provide relief. In 1893, Greer County, Oklahoma Territory, accumulated only 11.67 inches of rain in an area that averages 24 inches.[76] Homesteaders quickly used up their reserves of food. Without crops, grass, or water they were not able to maintain their small cattle herds or produce any vegetables for family consumption. These people were faced with starvation as the drought lengthened. A local minister named Mr. Kizzar volunteered to travel to

Fort Worth and solicit aid. Kizzar spoke at several churches in Fort Worth and described the serious plight of the pioneers in Greer County. The people of Fort Worth responded with enough donations to purchase food and ship it by rail to Quanah, Texas, and thence by wagon across the Red River.[77] Many people also took advantage of the government's policy to issue bacon and beans to those in need.[78]

Statistics for 1894 reveal the severity of the continuing drought. The United States Department of Agriculture established a Weather Bureau which organized the tabulation of climatic data at four sites throughout Oklahoma Territory. The records for Guthrie in Logan County show that 22.99 inches of rain fell in 1894, representing only two-thirds of its average precipitation. Further east the Lincoln County recorder mentions only 22.39 inches in Meeker, which usually draws 36 inches. Mangum reported eight more inches than the previous year but this was still significantly below normal. The town of Jefferson in Grant County recorded the most severe drought that year. Only 18.29 inches of rain fell, almost half of the average 32 inches (fig. 16).[79]

By the third year of drought, the whole southern Plains were ripe for wind erosion. Eighteen ninety-five was truly the year of dust storms. The two preceding years of drought combined with the desperate farmers' practice of continuing to graze their herds until they could find a buyer for their cattle had denuded much of the region's grass cover. When the winds picked up, they would lift millions of tiny particles of soil and carry them hundreds, sometimes thousands, of miles before depositing them back on the earth. J. C. Neal of the Oklahoma Agricultural and Mechanical College in Stillwater reported on January 20 that at 9:00 AM the winds began gusting up to 55 miles-per-hour and the temperature fell rapidly. Neal reported that as flashes of lightening lit the sky he

United States Department of Agriculture
Weather Bureau Reports from Voluntary Observers

Jefferson, G (Grant) County 32" avg.

	1894	1895	1896	1897
January	1.74	0.98	0.65	0.91
February	1.13	0.49	0.20	1.02
March	0.22	0.05	0.86	2.65
April	4.02	0.62	1.25	5.80
May	2.15	1.18	1.00	4.96
June	0.61	6.36	4.76	5.75
July	1.11	4.17	5.96	1.15
August	2.16	3.27	0.72	5.48
September	2.72	0.34	4.17	1.36
October	2.05	0.76	5.85	0.72
November	0.08	1.99	0.38	0.00
December	0.30	1.35	0.48	0.50
Total	18.29	21.56	26.01	30.30

Guthrie, Logan County 33" avg.

	1894	1895	1896	1897
January	2.20	1.05	0.45	1.06
February	1.43	0.04	0.28	2.11
March	3.32	0.30	1.38	1.55
April	3.29	0.85	1.56	-----
May	3.59	0.79	6.00	-----
June	0.47	5.07	6.04	-----
July	0.83	3.64	5.45	-----
August	0.15	7.99	1.57	-----
September	3.15	0.89	2.50	0.93
October	3.12	2.30	3.10	0.62
November	1.00	4.81	2.11	0.33
December	0.44	2.88	1.30	0.69
Total	22.99	30.16	31.71	------

Mangum, Greer County 25" avg.

	1894	1895	1896	1897
January	1.01	0.40	1.67	1.82
February	1..21	3.57	0.90	0.26
March	0.62	0.00	0.10	1.48
April	2.98	0.69	1.75	2.72
May	2.94	1.14	1.76	3.52
June	0.68	6.33	4.97	2.28
July	0.68	6.33	4.97	2.28
August	3.05	2.82	0.95	2.91
September	1.45	Trace	1.34	0.92
October	2.51	3.72	1.87	0.36
November	0.00	2.26	0.61	0.21
December	0.18	0.92	3.55	1.36
Total	19.07	23.39	22.85	21.07

Meeker, Lincoln County 36" avg.

	1894	1895	1896	1897
January	3.35	1.41	0.77	1.19
February	1.45	0.27	0.23	1.25
March	3.12	0.90	0.95	4.82
April	4.78	0.84	0.69	9.22
May	2.42	0.67	2.01	3.61
June	1.08	10.32	3.12	2.64
July	1.08	4.61	1.96	2.73
August	0.35	5.90	1.96	0.60
September	1.91	0.13	2.51	1.26
October	1.12	2.77	1.21	0.77
November	0.50	5.53	3.31	0.97
December	1.23	4.84	0.71	4.17
Total	22.39	38.19	19.43	33.23

Average annual precipitation taken from Howard L. Johnson and Claude E. Duchon, Atlas of Oklahoma Climate (Norman: University of Oklahoma Press, 1995), 3.1

fig. 16

could see a cloud of dust reaching 1,000 feet into the atmosphere.[80] A severe dust storm hit Enid, Oklahoma Territory, on March 19 with winds of up to eighty miles-per-hour. Travel was completely suspended as the air became filled with blowing dirt. The wheat and garden crops of local residents were "hidden from view under several inches of dust."[81]

The month of April was even more beset by blowing sand. El Reno, Oklahoma Territory, reported a storm on the sixth. Alva, Healdton, Ponca City and Pond Creek all reported dust storms on the fourteenth and fifteenth. The most notorious storm hit western Kansas on the twelfth of April, when an intense cold front was preceded by strong winds that blew loose dirt before it, forcing those in its path to endure a ferocious dust storm that piled up to six inches of dust along nearby railroad tracks. This was followed by a deadly blizzard. 5,000 head of cattle perished as they put their backs to the storm and made their way down wind. The dirt and snow piled up in the draws and creek beds obscuring the dangerous pitfalls that awaited any animal that tried to cross them, and after the snow had melted, countless carcasses lay in these low spots.

The most poignant tale associated with this weather phenomenon occurred near Johnson City in Stanton County, Kansas. As the storm approached, ten year old Charlie Dick and his eight year old sister Cora rode out bareback to round up the family's livestock with the intention of protecting them from the impending weather. Their mother reported that shortly after they left, the storm hit and raged for forty long hours. The children's father had been away in town doing business and was understandably delayed in returning to the farm. On his way home the day following the blizzard, he saw the family horse standing beside the road with two huddled figures at its feet. When he

neared the bodies, he saw his children lying with their faces together and their arms wrapped around each other in a loving embrace just as he must have seen them many times sleeping together in the warmth of their home. It is difficult to imagine the pain this scene surely caused him.[82]

There was another fatality during the storm. Bertie Orth, a thirteen year old, also rode out to bring in his family's cattle. As he was crippled, he always tied his crutches to the saddle before embarking. Bertie's body was found half a mile from his home. He either fell or was thrown from his horse. He had attempted to crawl back to shelter but he succumbed to fatigue and overexposure.[83]

The length of this drought caused a widespread reaction. After witnessing years of trying to make any crops yield, the editor of the Kingfisher Free Press in Oklahoma Territory claimed that wheat farming was "a fake and a fraud."[84] Just west of Kingfisher the Watonga Republican had a completely different message,

> Don't sacrifice your claim now, this is an unusual experience Oklahoma is passing through. Perhaps never will come again. Most of you were not able to own a claim elsewhere. You came here to get one. Where can you get another if you sacrifice this? The outlook may be dark, but it is just as bright as it was three years ago when we set our stakes in Blaine County . . . . Three Kansas and Nebraska farmers have just recently taken advantage of the present scare and bought at much less than they would have had to pay just six months ago, and Oklahoma is just as good as it was then. Brighter days will come again.[85]

Indeed, the times had been hard enough to convince many people to leave. A good example of this outward migration is evident as shown in the diary of Richard S. Cutter of Ochiltree County in the Texas Panhandle. The Cutters had migrated from Ness County, Kansas, to Texas on March 14, 1887. During the six years prior to the drought of 1893-1896, Cutter had developed a crop rotation that worked for average years. In May,

he and his sons planted cane. From mid-May to June they planted millet. In late June they harvested wheat or rye. During July they disced up the wheat and rye fields. By August they harvested millet, and in September, they harvested cane. Then the Cutters prepared the land for sowing wheat and rye, and tended to their cattle through the winter. They continued this practice during the dry year of 1893, but their yields were poor. By March, 1894, their income was suffering; but they still managed to lend $10.00 to their friends, the Meads, in Oklahoma Territory.[86]

The summer of 1894 was extremely hot. The Cutter's crops withered in the scorching wind, and when the wind stopped blowing, they fretted about pumping up water for their livestock. Then Cutter decided to forego planting another crop in the baked soil to take a trip to visit friends. On July 13, when they were usually getting ready to harvest millet, the family packed up and traveled to Harvey County, Kansas, for a two and one-half month tour of their friends' homes in McTearson, Rice, and Ness Counties.[87]

In 1895, the prospects for farming were no better. The land remained too dry to plow until May 29, when a rain moistened the soil; but by July 17, the hot, dry weather had practically destroyed the millet crop again. This time, the Cutters joined the exodus and traveled from the Texas Panhandle to Effingham County, Illinois where they stayed with relatives from September 24 to April 29, 1896. Many families who owned land on the southern Plains during this particularly dry trend must have reacted to the drought in this manner. Others may have totally given up farming on the Plains and abandoned their claims altogether. It is estimated that over a large extent of the southern Plains fifty percent, and higher, vacated the region during this drought. In a few counties, the depopulation was complete. Speaking solely in terms of proportion of population, the

mass movement of this era dwarfs that of the famous Okie migration down Highway 66 during the Dust Bowl years, and movement was generally to the east instead of west.[88]

The ever present triumvirate of drought companions were present in 1896: fires, high temperatures, and dust storms. On March 13, a "disastrous prairie fire" struck near Hardesty in Beaver County, Oklahoma Territory. It consumed the stock, grasses and buildings of James England, John Hutchinson, William Houser, T. F. McMans and George Henderson. One brave woman who was at home alone, a Mrs. Carter, fought the blaze for hours and was fortunately able to preserve her home and the family stock. "She was found lying on the prairie unconscious and painfully but not fatally burned."[89] The temperatures were also unusually hot for late spring. The Hardesty Herald reported the highest temperature to hit the area in six years on June 8, with one-hundred and three degrees Fahrenheit. The article also stated that local farmers had already turned the wheat crop under and replanted the fields in corn. The hopes for this second crop, however, were slim. It further went on to state that there was "no water in plots or holes, or on 'Peon Creek' - - unprecedented in the past six years."[90] During the week preceding September 11, an intense dust storm hit El Reno, Oklahoma Territory. According to the local news paper, "it [was] almost impossible to see the business houses on either side [of the streets] for the dust . . . ." The concerned author advised purchasing sprinklers to wet the town streets and avoid another such storm.

Non-Indians were not the only people affected by the drought. Native Americans of the Oklahoma Territory were just as susceptible to the vagaries of the weather, and even more so. Non-Indian settlers could pack up and move east to locate jobs or move in with relatives until the dry spell had past, while tribal members were either trapped on a

reservation or living on an allotment with no opportunity to move away from the drought stricken area.

In 1884, a group of reform minded people met at Lake Mohonk, New York, to discuss the future of the Indian people. These men and women considered themselves to be friends of the Indians, who, in the minds of the reformers, needed to be saved from themselves. The best way to protect Native Americans from their communally oriented culture was to destroy the reservation where the tribe held the land in common. In order to erase the communal spirit of the Indians and speed them along the way of "civilization," these reformers called for the tribal domain to be divided into individual allotments. This proposal to dissolve the reservations also appealed to those who were certainly not friends of the Indians. Western farmers, real estate speculators and railroad companies liked the idea of allotments as well, for this strategy would leave millions of acres of land unclaimed by anyone. They hoped these lands would become part of the public domain.

In 1887, Senator Henry Dawes of Massachusetts won the passage of the General Allotment Act. According to the legislation, reservation members could claim an allotment of one-hundred and sixty acres if they were a head of a household. Orphans and single males could qualify for allotments of eighty acres. To accept an allotment, a tribal member had to sign the tribal roll, and upon receiving his allotment, became a citizen of the United States, but often without voting rights, which were restricted by the states. Those who refused to sign the roll sheets either languished on the diminished reserves; or had allotments selected for them. The process of securing a tribal roll, surveying the land and assigning allotments occurred earlier among some tribes than

others. During the drought of 1893 through 1896, the Cheyenne and Arapaho, Wichita, Caddo, Iowa, Sac and Fox, and Kickapoo tribes had already been allotted lands. The Tonkawa, Ponca, Otoe, Comanche, Kiowa and Kiowa Apache tribes had not yet divided their lands into single holdings.

Almost immediately after the Cheyenne and Arapaho allotment, drought hit the southern Plains. In September, 1894, the agent at Darlington, A. E. Woodson, reported to his superiors that the dry weather had:

> A discouraging effect on the Indians. The scarcity of water (the streams all being dry) ha[d] served to bring them together in large camps at points where they could obtain a supply sufficient for all purposes.[91]

The drought was obviously impeding the attempts to "civilize" the natives. How could the allotment system work if the Indians were coming together at a central location to find water?

The drought affected other tribes as well. The Osages' corn crop was a failure in 1894 as was the Tonkawas.[92] The Poncas likewise reported a yield of only six bushels per acre of corn.[93] To the west of the southern Plains, the Jicarilla Apaches lost most of their garden vegetables and hay crop. They were unable to feed themselves or their livestock.[94]

As the drought continued into 1895, the superintendent at the Cheyenne Boarding School reported complete failures of its wheat, oats, potatoes, early corn and garden vegetables. The region must have experienced some early summer showers, for the students were optimistic about their late crops of cow peas, Kaffir corn and prairie hay; but these would not be harvested until September.[95] The absence of water caused great concern for W. J. A. Montgomery, the Superintendent of the Arapaho Boarding School at

Darlington, Oklahoma Territory. He ordered the construction of two cisterns with a combined storage capacity of eight hundred barrels of water. Montgomery claimed that this alteration of their water works system was possibly "the most important improvement made during the year."[96] Students at the Kiowa Rainy Mountain School, forty miles west of Anadarko, hauled water from a spring three miles distant until they completed the digging of a new well.[97] On the Ponca Reserve, a spring dust storm ruined the corn, oats and garden vegetables, blowing off the entire topsoil "to the depth of plowing."[98]

During the fourth consecutive year of drought, the Indian agents' frustration with trying to maintain their agencies and schools, while also showing their wards' improvements toward "civilization," mounted. The Cheyenne agency invested in a new windmill and set it up with high hopes; but in the words of A. H. Viets, "the pump is an excellent one, and if the water were there, it would handle enough to supply three plants such as this one."[99] The agent went on to state that he had been vexed constantly with maintaining a water supply for the Cheyenne School. The supply contained only three-fourths the water that was necessary to run the school. Of course, bathing was a low priority as it consumed too much precious water. Viets allowed the students a bath once every fourteen days in a rotation system alternating the privilege to the girls one week and the boys the next. During the warmer months, he sent the male students down to the river, four miles away, for their ablution, thus saving the school's water; but "when there is nothing but dry white sand in the river bed, the bath, although it may be hygienic, is not especially refreshing."[100]

The Indians were depressed by the prospects of farming during a drought as well. This was particularly true of the Plains tribes who had developed a hunting culture based

on equine mobility and the hide trade. They had survived for over a century and a half by specializing in hunting buffalos and trading for vegetable products with the Pueblos or the Caddoans. After their removal to reservations, their agents urged them to take up agriculture, and many did, even though this was considered women's work in their culture. Allotment entrenched the necessity to participate in land cultivation. The extended drought greatly demoralized members of the Cheyenne and Arapaho tribes. Environmental conditions assured their failure, yet they were stuck on their one-hundred and sixty acre allotments. Whereas non-Indian settlers could move to find work or relatives who would help them out financially, the Native Americans had to simply endure. The Cheyenne and Arapaho agent, A. E. Woodson, claimed that

> A laudable disposition has been shown by a very large majority of the Indians to cultivate their allotments, but the prevailing drought of the past two seasons has had a very discouraging effect on their efforts in this direction. The wheat and oat crops were a total failure.[101]

The drought had led both Indian and non-Indian sources to curtail traditional agriculture on the southern Plains and encourage ranching. The Cheyenne and Kiowa agents suggested that "extensive farming . . . be given up."[102] Thirty-four consecutive days with high temperatures averaging 107 degrees Fahrenheit had destroyed any hopes to raise a crop, and this was the fourth year of these circumstances. Many non-Indian farmers, experiencing the same climatic conditions, reduced their crop land and increased their pasture areas to accommodate more cattle. They had noticed that the native grasses were much hardier and survived the extremely dry conditions that had destroyed the crops.[103] The Oklahoma Agriculture Experiment Station began studying the possibilities of irrigation in Oklahoma Territory in 1896 as well.[104]

Between 1890 and 1900 there was a notable population decrease in the southern

Plains counties of Kansas and Colorado. Of the thirty-two counties of these two states that are in the southern Plains, twenty-four lost population during these years. When looking at their location on a map, the counties that did not lose population did have something in common: seven of the eight counties bordered the Arkansas River, and therefore lay along the route of the major rail line of the region. All of these southern Plains counties had experienced incredible growth during the previous decade, rising in population from a combined 52,958 to122,768 in ten years. This number then fell to 100,465 by 1900 (fig. 15).[105] The Cherokee Outlet Land Run certainly drew its share of settlers away from Kansas as all the counties that bordered Oklahoma Territory lost population. The drought of 1893 through 1896 also must have played a major role in propelling people out of southwestern Kansas. Emigration accompanied the two previous major droughts of the century as people headed east or west of the Plains to find subsistence. Just as the Cutter family loaded up their wagon and headed east to visit friends and family during the months of July, August and September when they were usually busy harvesting millet and cutting cane, countless other families must have recrossed the prairies in search of jobs or friendly faces.

The participants' experience during the Cherokee Outlet Land Run, occurring in 1893, and the following four years provide the perfect example of the drought's effect on farm settlement. The Booster voice had, like the siren's, lured many farmers to the southern Plains where they encountered the last major dry trend of the nineteenth century. Without the benefit of organized governmental aid, farmers had to fend for themselves or seek relief from neighbors who were often experiencing the same conditions. With the choice of either move or starve, most decided to leave the region until the drought

subsided, if not forever. The boom-bust cycle of the frontier experience had once again left its mark on part of the west.

CHAPTER 7

"AND THE SKIES ARE NOT CLOUDY ALL DAY:" DROUGHT AND THE CHEROKEE OUTLET LAND RUN, 1893-1897

"Not during the whole trip do we recall seeing a single cloud that suggested rain."[1]
Clyde Muchmore - Run Participant

Making a home on the range was not as easy a task in the 1890s as the song would imply. In 1892, agrarian unrest caused the formation of the Populist party, which met in Omaha, Nebraska, and outlined its call for subtreasuries, the abolishment of the national bank, the remonetization of silver, and the regulation of the railroads. An economic depression in Europe during the early 1890s drove world crop prices down. Plains farm foreclosures increased dramatically.[2]

Meanwhile, in Chicago the Columbian Exposition opened in May 1893 intent on displaying cultural and technological triumphs and showing the world just how far the continent had progressed since Columbus's landfall almost 401 years earlier. The Anthropological Building contained exhibits demonstrating the "stages of development" that the indigenous population had passed through since the arrival of Europeans.[3] On the same 664 acre fairground, the Midway Plaisance and the Exposition buildings were illuminated by technology: 120,000 incandescent bulbs and 7,000 sputtering arc lamps. Exhibits from 46 states and 36 nations documented the contributions each had made to civilization. [4]

Chicago also hosted the American Historical Association Conference honoring its

tenth anniversary. At this gathering, a 33-year-old historian named Frederick Jackson Turner gave his presentation concerned with "The Significance of the Frontier in American History" in which he claimed that the most influential factor in shaping the character of the United States, the frontier, was closed. Turner pointed out that according to 1890 census data, a map maker could not draw a continuous line marking a frontier, where fewer than two people resided within a square mile.

Nevertheless, the Cherokee Outlet still represented a sparsely settled "frontier." This area of 6,500,000 acres located in northwestern Oklahoma Territory was certainly devoid of two people per square mile; but it wouldn't be for long. On August 19, 1893, President Cleveland announced the opening of the Outlet, which ultimately was the largest area to be settled by land run. According to a report of the House of Representatives, the government was dispensing the land to the public in a manner that would ensure "that the honest homeseeker, though humble and poor, might acquire a good home for himself and his family for a small sum."[5] This idealism continued to influence interpretations of the Run, which have diverged into two basic camps: those who celebrate it and those who focus on its less than admirable qualities.

Historians have led the way in introducing the negative aspects of the Cherokee Outlet Land Run. Joe Milam in "The Opening of the Cherokee Strip," published in 1931, argued that special interest groups, most notably the railroads, were able to gain the opening of the Outlet at the expense of the Cherokees, Pawnees, and Tonkowas. He examined the hardships endured by those who made the Run. He praised the toughness and determination of those who were able to stick it out.[6] In 1962, Berlin Chapman in "The Opening of the Cherokee Outlet: An Archival Study" documented the paper trail

that led to the opening and the attempts by the federal government to prevent fraudulent access to claims. [7] The most recent work on the Cherokee Outlet Run contained in volume 71 of the Chronicles of Oklahoma includes articles concerning the challenges to Cherokee Nation sovereignty, the role of cattle corporations in the struggle to open or keep closed the area to settlement, and a discussion on the pattern of lawlessness and disorder that marked the run.[8]

Popular interpretations of the land runs have tended to portray the opening of the Cherokee Outlet as a time of opportunity for settlers. Most communities in the Outlet re-enact the land run and celebrate the egalitarian aspect of granting land to the fastest settlers to arrive. Earl Newsom's book, The Cherokee Strip, published in 1992, has the most in common with the public perception of the event. Newsom's work is celebratory in spirit and does a fine job of researching the background to the formation of the Outlet. After discussing the day of the run, he goes on to detail the history of several of the larger towns of the Outlet with booster-like exuberance.[9]

However contrary to the popular perception of the Cherokee Outlet Land Run, it was anything but an opportunity for the humble and poor home seeker. As early as March, 1893, 7,000 families gathered on the northern edge of the Outlet in anticipation of its opening to settlement; many had abandoned their camps already to seek lands in which they could settle immediately. A newspaper reporter visited ten or so of these squatter towns and claimed that not one Boomer admitted to having enough money or supplies to last until the fall.[10] The late opening date of September 16 ensured that the claimants would not have time to harvest a crop before winter, leaving only those who had enough money to make it through the winter as viable tenants of a modestly priced homestead.

Perhaps more damaging to the attempts to homestead a claim in the Cherokee Outlet was the occurrence of a four-year long drought from 1893 to 1897. Those waiting to make the Run endured incredible heat all through the summer of 1893 and into the fall. Procuring water would be a constant struggle for both humans and stock. One out of every four who actually held a claim in 1894 were gone by 1897. Drought and attendant disasters -- fires and floods -- continued to chase settlers off their claims until the drought ended. Although congress had opened the Outlet to settlement, the environment still had not given its endorsement.

The Cherokee Outlet had existed for over sixty years. The story of its formation began with the Treaty of 1817 in which several Cherokee leaders agreed to give a significant portion of their homeland along the headwaters of the Savannah River in Georgia and South Carolina, to the United States in return for an equal amount of land in Arkansas Territory. Within a few years, there were 5,000 Cherokees living along the White River and in other parts of Arkansas. By 1827, non-Indian settlers began moving in to the region in such numbers that they caused concern among Western Cherokee leaders. Tribal elders feared another encirclement by settlers and attendant demands that the Cherokees give up their land. Also, many members of the tribe had made hunting excursions out on the western Plains and worried that the non-Indian settlements would cut off these trips.

The following year, a delegation of Cherokee headmen visited Washington to protest these settlements. The trip to the nation's capitol resulted in a new treaty, which involved another exchange of land. Cherokees agreed to give up their claims to the White River country in 1827 for land in what was known as Lovely County, named after

William Lovely who negotiated with the Osages the acquisition of what would become Adair, Cherokee and Sequoyah Counties in Oklahoma. The new treaty also contained a provision establishing an outlet to the western hunting grounds fifty-eight miles wide and running from the ninety-sixth meridian to the Mexican border at one-hundred degrees longitude. In 1835, the controversial Treaty of New Echota gave the rest of the eastern Cherokee homeland to the United States and ensured the forced removal of the bulk of the Eastern Cherokee to territory acquired by the Western branch of the tribe.

As the railroads moved across the western landscape of Kansas, cattle drives from Texas crossed the Outlet on their way to train junctions. During the later 1860s and 1870s, trail bosses soon saw the advantage of lingering in the Outlet to graze their herds on the luxuriant growth of prairie grass that prospered in the absence of bison herds. The absence of buffalos also precluded the Cherokee's use of the Outlet as a hunting range. Still many members of the tribe saw an opportunity in charging grazing rights to the cattlemen. Initially, the tribe charged $.42 a head to graze on the Outlet and by 1882 this arrangement netted them a little over $41,000.[11] In 1880, those cattlemen owning grazing rights from the Cherokee Tribe met at Caldwell, Kansas, to discuss the formation of an organization that would provide a protocol for settling disagreements among cattle companies and establish a system of law and order in the Outlet. This organization came to be known as the Cherokee Strip Livestock Association.

Regardless of the Cherokee tribe's attempts to ensure that they would never again be surrounded by American settlers, the Treaty of Guadalupe-Hidalgo in 1848 ending the Mexican-American War added the area west of the one-hundredth meridian to the United States. By the 1880s, not only were the Cherokees encircled by other American settlers,

but non-Indians, known as "Boomers," were working to loose the Outlet from tribal control. Some of these activists illegally crossed into the Outlet and established settlements fulfilling a long tradition in American history of squatting on land to which they had no legal title. Under the hoary premise that "possession is nine-tenths of the law" and the smug assurance that the United States government would sanction their efforts, these "Sooners" arrived in the territory before it was opened to settlement.

Powerful special interest groups joined in calling for the opening of the Cherokee Outlet to public settlement. The St. Louis and Frisco Railroad Company bought 5,000 shares in the Indian Territory Colonization Company headed by the extremely persistent Boomer and sometime Sooner, David Payne.[12] Railroad companies employed florid writers such as Elias Boudinot and Major Gordon "Pawnee Bill" Lillie to fill the booster newspapers with articles demanding an opening to the Outlet. Within the bureaucracy of the Bureau of Indian Affairs there was a growing interest in assimilation. In 1887, the Dawes Allotment Act passed congress and the process of dividing reservations into individual allotments of between 40 and 160 acres for tribal members – and opening "Surplus" land to non-Indian settlement had begun. The Boomers called for the immediate opening of these regions.

The first area to be made available to settlement in 1889 was known as the Unassigned Lands. It was "opened" to settlement by the method of a land run. There were many problems associated with this system of land distribution, not the least of which was how to keep settlers from sneaking into the territory before the appointed hour; and how to maintain law and order in a large region populated by thousands of opportunists. Still, the opening of one section of Indian lands to settlement created a

fever for more. The government opened The Sac and Fox, Potawatomie, Shawnee, and Iowa lands in 1891 and the following year another 3.5 million acres of "surplus" Cheyenne-Arapaho land. As these other land runs occurred, thousands of down-on-their-luck farmers had joined with the railroads. Together they put enough pressure on elected officials to reconsider treaty obligations to the Cherokees. Those arguing in favor of opening the region to settlement claimed that there were no longer any buffalo in the Outlet, and even if there were, the vast majority of Cherokees no longer used the hunt to procure meat. They also pointed out that the leasing of tribal lands to the Livestock Association only ensured that revenue from the territory went to the pockets of a few Cherokees and not to the whole tribe.

In 1890, President Benjamin Harrison ordered the removal of all cattle from the Outlet, thus forcing the Cherokees, Pawnees and Tonkawas to consider selling their lands in the region to the United States. By the next year the Cherokees, fearing that they would lose the Outlet anyway and get nothing for it, agreed to sell the region to the United States for $1.29 an acre. Congress did not ratify this agreement until April 1893, and President Cleveland waited until August to proclaim that the opening of the Outlet would commence on September 16 of that same year.

The date set for the Cherokee Outlet Land Run ensured that it would not be an opportunity for the "humble farmer" even though there were certainly plenty of reasons to delay the opening till the fall. Officials needed to survey the Outlet into 160 acre claims and identify the borders so the run participants would know exactly what quarter and section they were claiming. President Cleveland further wanted the area divided into counties with county seats determined, platted and provided with a well in case there

were no other sources of water. Cleveland gave the responsibility for organizing the Run to Secretary of the Interior Hoke Smith. As of September 11, all the wells had been completed with "great difficulty" and there was concern over the capacity of the wells at Pond Creek, Alva and Woodward.[13] Interestingly, Smith had the county seats organized around a town square in a similar manner to that of his native state, Georgia.

In actuality, the organization of the Run progressed rather quickly; but for those who had gathered at the Kansas-Indian Territory border it could not occur soon enough. Daily, their funds and supplies played out. Furthermore, the delay until September assured that they could not get a crop in and harvested before the coming winter. Nor could they grow any garden crops or lay up canned vegetables for the coming cold months. Such a late start for the Run meant that only those with enough resources to make it through the winter would be able to last long enough to live on the claim the required six months out of a year to earn ownership of the land.[14]

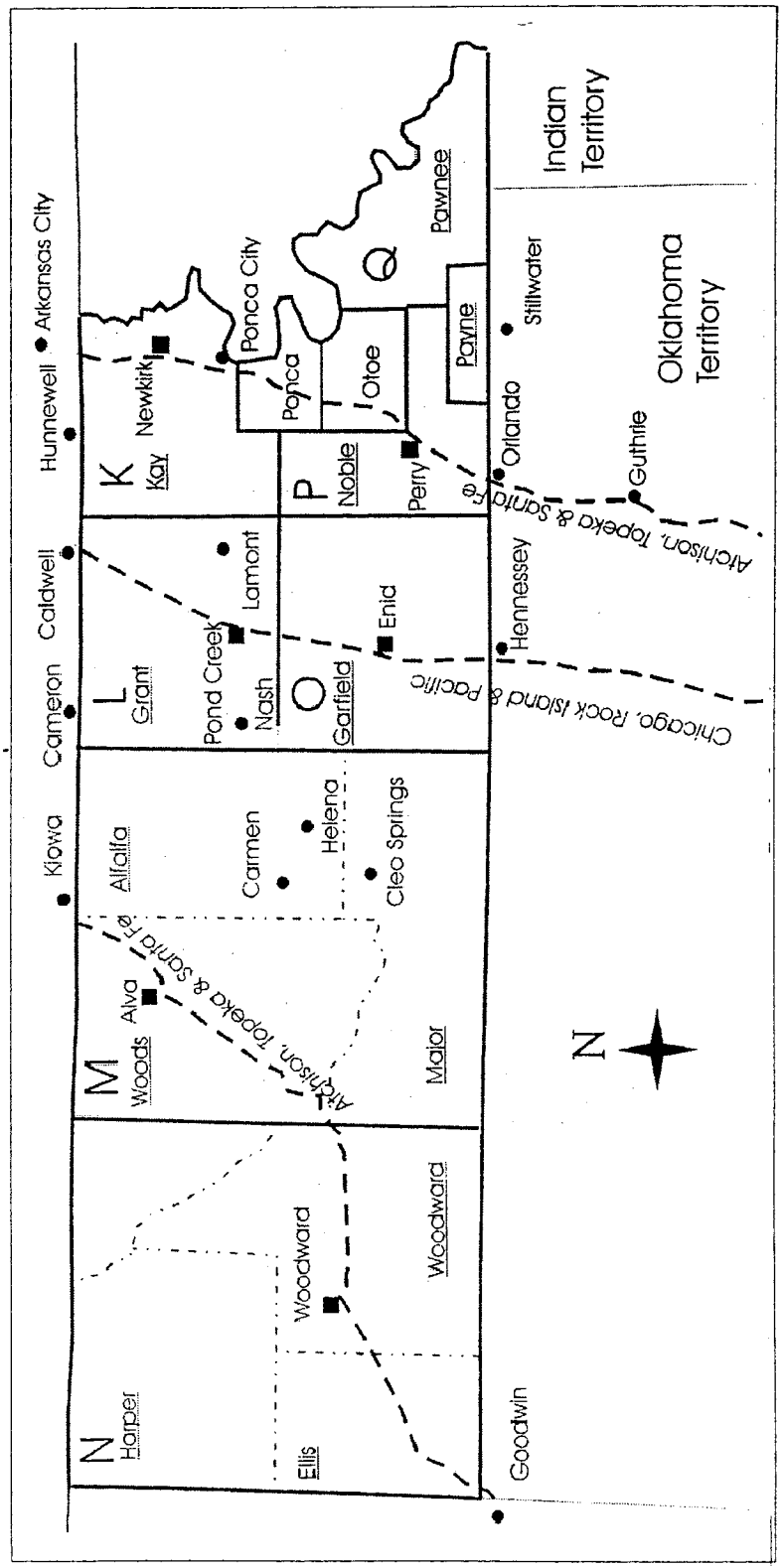
Smith hoped to avoid the problems associated with the previous land runs. He called on eight troops of cavalry and four units of infantry stationed at Forts Reno and Supply to patrol the Outlet and escort Sooners out of the territory. Although military units began these missions in July, most of the soldiers did not arrive in the Outlet until August.[15] These soldiers were also responsible for making sure the members of the Livestock Association removed all of their livestock from the area. Another problem that the military discovered was the practice of neighboring farmers and ranchers who sent crews into the Outlet to cut and bind hay for stock feed. In an effort to force out those already attempting to settle the Outlet, discourage other Sooners from entering early, prevent farmers from illegally gathering prairie hay, stop ranchers from allowing their

livestock to graze in the public domain, and expose the quarter and section markers for the Run, the military set fire to the Outlet. This practice, though implemented with the best of intentions, added to the suffering of legal settlers. Wind borne ash would plague registrants during the week prior to the Run. Afterwards, many claimants would not have pasture to graze their stock as a result of these burns.

Smith foiled further attempts to profit from the Land Run. Many of those who owned the land immediately adjacent to the Strip thought that they would sell the right to camp next to the Cherokee Outlet boundary to land runners and make a handsome sum with little labor. The Secretary checked this plan by ordering a strip of land 100 feet wide on both the north and south sides of the Outlet to be set aside for settlers. In some sections on the north, the boundary between this strip and the Outlet was plowed so that there would be no mistake as to how far onto the Outlet a land runner could camp.[16]

Smith also established registration booths at nine locations along the northern and southern borders of the Outlet. These locations included five sites in Kansas: Arkansas City, Hunnewell, Caldwell, Cameron and Kiowa; and four sites south of the Outlet: Stillwater, Orlando, Hennessey and Goodwin (fig. 17). Those wishing to participate in the Run would have to register first, swearing that they had never entered the Outlet prior to the legally proscribed hour of 12:00 Noon on September 16. Then they would present their registration forms after the Run when they actually filed their claims. This strategy failed to end the fraud associated with land runs. Counterfeit registration forms were available and some simply registered then illegally entered the Outlet early.[17] Also, this system required participants to arrive days before the actual event, requiring a further outlay of money and depriving those with limited funds from making the run.

Cherokee Outlet 1893



Adapted from John Morris, Charles Goins and Edwin McReynolds. Historical Atlas of Oklahoma. Norman: University of Oklahoma Press, 1976.

Fig. 17

It is no surprise that, given the opportunism of the Run, Smith was unable to avoid fraud. The Secretary of the Interior found that some Cherokees, who had been allowed to take their allotments prior to the Run, were intending to choose lands in the proposed county seats and then sell them to the Rock Island Railroad Company for a nice profit. To negate this activity, Smith ordered new county seats established at least three miles from the original sites. The railroads promptly refused to recognize these new county seats and even after the Run small scale civil wars erupted over which site was legitimate.

The booths opened at 7:00 AM on Monday, September 12, and the lines had been forming since 8:00 the previous morning.[18] The Guthrie Daily Leader reported on September 12, that the registration lines numbered 3,000 at Stillwater; 4,900 at Hennessey; 5,000 at Orlando; 8,000 at Kiowa; 10,000 at Caldwell; and between 8,000 and

10,000 at the other booths. The largest gathering of registrants was at Arkansas City where 15,000 lined up at the booth that had been set up outside the city limits on the open prairie four miles from water, shade, or latrines. In fact, town leaders were so concerned over a recent shortage of rainfall and its effect on their water supply that they forbade land runners the use of any city water.[19]

At Cameron, water problems were just as serious and yet the small community was transformed into a festival-like gathering. Those awaiting the Run just south of town were allowed to enter the Outlet in search of water; but they were permitted this convenience under the most rigid restrictions.[20] Yet, the registration communities could also seem quite festive and adventuresome. Ad Moore, whose family camped at

Cameron, claimed, "It was quite a two days wait with two saloons, a carnival, and revival meetings all going on at the same time."[21]

Evidence of drought was everywhere. All through that summer of 1893, rain had failed to moisten the earth. The Beaver Advocate, printed in the panhandle of Oklahoma Territory, published the U. S. Department of Agriculture's weather bulletin, which stated that "rain is badly needed in the Cherokee outlet, on its borders are encamped many thousands awaiting the opening, all small streams are dry and the crowds have to go many miles for water."[22] John T. Meese recalled that "hot winds had been blowing for months and all the vegetation was dry as tinder, and the earth was cracked open till you could run your hand down . . . in places."[23] The weather took its toll on animals as well. Over 200 horses perished on the road between Guthrie and Orlando during the week prior to the run.[24] Secretary Smith ordered railroads to haul car loads of water to various towns in the Outlet in the hope of alleviating the suffering sure to follow the excitement of the run.[25]

As a result of the heat and the drought, many spontaneous business ventures began operating. In most registration sites, water was selling for anywhere between a nickel to fifty cents a cup of water and one dollar for a barrel of the precious liquid.[26] The horse trade thrived as settlers' horses played out under the strain of carrying their owners to the jump off sites. From Monday to Thursday of the week prior to the Run, 390 horses were sold and newspapers pronounced that "fresh droves of animals are driven in every day and the prospect is that sales will continue until Saturday."[27] There were also those who were willing to relinquish their place in line for a fee of ten dollars.[28]

The Sooners were facing their own set of problems. The fires had burned a lot of the grass and those who risked illegal entry into the Outlet had to search constantly for

grass and water. The military authorities understood the Sooners' dilemma and waited at the water holes like animals of prey for the arrival of illegal immigrants. The Guthrie Daily Leader printed a piece on "How to Catch Sooners" in which it claimed ,

> It is believed that the surest and most effective way of catching sooners is to watch the few sources of water supply in the territory. Nearly all captured so far have been caught this way. After getting in they find subsistence impossible either for themselves or their animals and are compelled to hunt water.[29]

Meanwhile, the conditions at the registration booths worsened. The dry grass was quick to ignite and numerous fires crossed the Outlet. Some of these were caused by sparks from railroads and others were accidentally set off by settlers starting a camp fire or bumping over a lantern. The ash from these fires was driven by the prairie winds, stinging the eyes and filling the nostrils of those waiting in line. Heat continued abnormally high for September. The day just before the Run, September 15, was the hottest day on record up to that date with the temperature reaching 108 degrees Fahrenheit in Arkansas City.[30] An accompanying strong wind seemed to suck the moisture right out of a person's skin.

Furthermore, the health of those forced to endure the long lines and the intense heat became an issue. In their dire need, people began drinking any water, even stagnant water that was sure to hold parasites and could weaken and infect the drinker. Some ate food that had sat in the wagons too long exposed to the heat to be consumed without repercussions. Dysentery swept the lines causing dehydration among those who could ill afford the cost of water to re-hydrate themselves, and forcing many to drop out of line losing their chance to register and partake in the historic event. Women were especially prone to suffering in the heat under the heavy clothing considered proper during the late

Victorian Era.[31] The incredibly high temperatures caused a reported fifty cases of heat stroke and at least ten deaths. One of the casualties of the September heat was a Civil War veteran named Mr. Billings, who wearing his union military uniform perished within a few feet of the registration booth.[32]

The day of the Run offered no relief from the drought and intense heat. Burn-offs had created conditions that allowed even the slightest movement across the earth to produce clouds of ash. The event was hardly forgettable; but the harsh elements involved ensured that September 16, 1893 was a day no Run participant would ever forget. Lucille Gilstrap recalled the day of the Run years later,

> Rain had been scarce in Oklahoma Territory and it was both hot and dusty .... The dust was so thick you could hardly breath and everybody was hot and tired, crowding and pushing, and some fighting and cursing .... Some people had been camped there for days and there was no water to drink, except what was available in the Cimarron River.[33]

Onlookers, some of whom had traveled miles to see the historic event, must have been disappointed by the short amount of time they were able to see the historic event. After the officer in charge of initiating the Run in his area fired the gun, Joseph Redfern claimed that dust obscured his view by the time the participants had gone only a quarter of a mile. Thus, the hours he spent traveling to the border to witness an event that he could watch for only a few minutes must have seemed hardly worth the effort.[34]

As has been noted, the animals had suffered from the dry conditions as well. Many of the participants' horses were malnourished and suffering from dehydration. Often, their owners were so consumed with the opportunity of claiming a good piece of land that they neglected to take the interests of their animals under consideration or if they did, they purposely jeopardized their stock's lives. Some animals gave out, others

died from the demands placed upon them by their owners.

The burning of the prairie also meant that there would be little forage for these animals on most claims for months after the Run. This created an even greater competition for claims that somehow still held grass cover.[35] Etta Stocking, who had journeyed from Cripple Creek, Colorado, to brave the conditions in Arkansas City, drove her pony, "Billie," ahead of the crowd to an area where "grass was still standing" and staked her claim, then quickly unsaddled her horse and let it graze.[36] Amos Kealiher would brag years later that his father had claimed the "only land with vegetation" for miles around Helena, Oklahoma. Interestingly, the oral history of his family blamed the Sooners for starting the fires to discourage others from entering the region.[37] Participants jumping off from Caldwell, Kansas, also mentioned the effects of the fires on the land in Grant County, Oklahoma, revealing the high dispersal of burns both intentional and unintentional.[38]

In retrospect, it can be seen that the competition was extremely high for any claim. Of the 6,500,000 acres in the Cherokee Outlet, the United States government witheld 735,000 acres from settlement for the establishment of public schools and universities, 8,640 acres for the Chilocco Indian School, 5,600 acres for Indian allotments and 2,500 acres for county seats. This left 5,748,260 acres remaining for settlement or enough land for roughly 36,000 claims of 160 acres. When this number is compared to the number of people registered at the different sites, the amount of competition for a claim can be placed in a more meaningful perspective. The numbers of registrants at the different booths were 30,000 at Arkansas City, 15,000 at Caldwell, 15,000 at Orlando, 10,000 at Kiowa, 10,000 at Hunnewell, 10,000 at Stillwater, 10,000 at Hennessey, 5,000 at

Goodwin, and 5,000 at Cameron for a total of 110,000 registrants. That means that slightly over two-thirds of those participating in the Run would not be able to stake a claim. Even this does not take into consideration that the great majority of participants were located in the eastern half of the land available, making the competition even fiercer for a claim.[39] The Guthrie Daily Leader reported that every quarter section of quality land in the vicinity had at least two persons contesting the claim and some sections had five people vying for ownership.[40] This grand moment of opportunity would end in dismal failure for most.

The availability of grass and quarter sections were not the only factors affecting those who wished to make a successful claim. The drought had dominated the region for months. Even before the Run, editorials were positing rhetorical questions concerned with what the settlers would do when they got there. One predicted "the cry will be water and not whiskey on the Strip. Water at any price and of any quality," and another stated, "when they get to the Strip, what will the boys do with the canteens? There is no water there to fill them."[41] The Guthrie Daily Leader stated that no trace of rain had fallen on the eastern portion of the Outlet from April 1 to September 24, which is not to imply that the later ended the drought for it was simply the date of the article and it too was dry.[42] The U. S. Department of Agriculture echoed this appraisal for western sections of the Outlet, "We are now passing through one of the longest sieges of drouth ever experienced, no rain has fallen for 22 days and the present prospect for rain is not encouraging."[43] Such conditions would bake the soil into a hard crust, which would prove extremely difficult to break for the planting of crops or for the construction of the most popular improvement, the sod house.

The railroad companies did provide water at townsites that they had interest in, but boycotted the new county seats of South Enid, Perry and Pond Creek, forcing residents in these areas to depend on water from local streams or hastily dug wells. Even the efforts of "Rainmaker" Jewell were unsuccessful in coaxing moisture from the skies.[44] One was lucky indeed to have a neighbor who had access to water and was willing to share it. In many cases however, free enterprise reigned. Ed Hungerford, either by foresight or blind luck, had a water producing well near Turkey Creek. In a truly egalitarian spirit, Mr. Hungerford charged five cents a head, regardless of genus classification, to drink from his oasis.[45]

Advertisements in the newspapers reflected the need to overcome the drought conditions. The Aermotor Company of Chicago cashed in on the deficiency of water and filled the local newspapers with advertisements promoting the sale of windmill pumps. Loomis and Wyman out of Tiffin, Ohio, urged settlers to purchase their drilling machines, stressing that they could go to any depth from 100 to 2,000 feet. The Kansas City based firm of Rowell and Chase Machinery offered a free catalogue of well machinery including "augurs, rock drills, hydraulic and jetting machinery." Perhaps the most inventive advertisements should go to the marketers of Hood's Cures, who claimed that their product could cure a host of ailments which occurred in hot weather: hives, boils, pimples and "other eruptions which disfigure the face." They further claimed that "in hot weather something is needed to keep up the appetite, assist digestion, and give good healthful sleep. For these purposes, Hood's Sarasapilla is peculiarly adapted."[46] There were, of course, those advertisers who maintained the purest of optimism in the face of dire circumstances. Tower's, a company specializing in the manufacture of the

Fish Brand Slicker, "the best waterproof coat in the world," continued to run their ads. One wonders just how many Outlet settlers sported new Fish Brand Slickers during those first few winters.

The problems facing those who would settle a claim in the Cherokee Outlet forced an exodus almost as incredible as the Run. Fires, the competition over claims, and the drought brought many to the realization that they could not remain on the sun-baked prairies. By five days after the Run, hundreds of dust-covered Boomers were boarding trains departing from Outlet stations.[47] Roads were once again crowded with wagons, this time heading away from the Outlet. Frank and Mary Crissup of Elk City, Kansas, recalled seeing all the wagons as they came to participate in the Run. One they remembered especially vividly had a picture of a large jack-rabbit sitting in a field of green grass. In bold letters placed just below the picture was "Oklahoma or Bust." The day after the Run, the Crissups recalled seeing that same wagon heading north with the old script painted out and "Busted" written in its place.[48]

Many who had optimistically counted on a Ponca townsite lot to make their new livelihood left within six days of the Run leaving only 200 or so residents. In the words of one disgruntled run participant, "we are going back to Texas, where we have water to use."[49] The town of Perry went through a similar boom and bust. Within days of the Run, the population of Perry was close to 15,000. A few months later this was reduced to some 300 souls.[50] Businesses were also affected by this population loss. The saloon industry is one of the most obvious examples. Enid sprouted 51 saloons and Perry claimed 110 in the immediate days after the Run. Some two months later the number of stores vending alcoholic beverages lowered to 37 in Enid and only 52 in Perry.[51]

The dry weather continued for the next three years. In August of 1894, the Mulhall Chief reported a temperature of 114 degrees Farenheit in the shade at Woodward, Oklahoma Territory. The paper also ran an article on the effects of the drought on the corn crop:

> An Oklahoma professor says that the hot winds of July 1, 2, and 3 dried out the corn tassels to such an extent that no pollen, or very little, was available to impregnate the silks, which is necessary to the formation of perfect grains and full ears.[52]

By September, the absence of replenishing rainfall during the previous two years became evident in the region's most dependable water supply. Wells and springs began drying up. Even the subterranean water supply retreated below levels of access to animals and humans.[53]

As spring returned to the prairies in 1896, the conditions were perfect for grass fires. The ground cover was extremely dry and brittle after three years of drought. The winds associated with the Plains and the season were quick to spread the effects of any careless spark for miles. On April 15, fires raged west of the town of Perry consuming several houses and "large quantities" of prairie hay. Local officials arrested a Mr. Jones for disregarding the fire laws and causing one of these blazes. Residents of the area were so angered by such carelessness that there was talk of lynching the man.[54] Fires in Payne County that fall destroyed "thousands of acres of pasturage, causing loss of hay, corn, and buildings to many farms and fatally burning two persons."[55]

Most settlers who arrived in the Outlet with high hopes soon found that, even if they were determined to stick it out, they had to find a way to make an income. Farming simply was not a viable option for many. Yet they were caught between having to meet the six month resident status necessary to keep a claim and feeding themselves. Outlet

families proved extremely creative and resourceful in meeting these demands. John Meese, whose claim was one mile east of Lamont in today's Grant County, took his wife and children back to Belle Plain, Kansas, immediately after filing. The incredible cost of making the Run left him broke. He returned home to live with family members until he could "recuperate financially." He worked for wages of seventy-five cents to a dollar a day saving up enough to purchase supplies that would last through the six months that they stayed on the claim. He continued this strategy for the remainder of the drought.[56]

John Leierer staked his claim on the northern boundary of the present Major County then quickly returned home to Ulysses, Kansas, to make enough money to pay for his filing claim. He made the trip to Alva to file his claim, then went back to Ulysses for the winter. Leierer spent the first half of the spring on his claim but realized that he would not make a crop and went to work near Oklahoma City as a threshing crew hand. He talked a friend into staying with him on the claim the next spring. The two waited from April 10 to May 10 for rain. When none came, they traveled to Ulysses to find work.[57]

Cap Holton kept a job as a car inspector for the Frisco Railroad at Caldwell, Kansas, until 1896 even though he made the Run and held a claim near Cleo Springs in what is today Major County. His wife and children stayed on the claim while he worked in Cladwell and came home to visit them when ever the possibility arose. In this way he and his family were able to keep their claim through the drought. "About the time President McKinley was inaugurated," he came home for good "because there were other families near."[58]

Others were not fortunate enough to find adequate incomes while the drought

reduced crop yields. As early as the fall of 1893, the Oklahoma Territorial legislature appropriated $10,000 to purchase seed for distribution to needy farmers, but Governor Seay only actually spent $6,460.94 for this purpose.[59] The government also issued rations of bacon and beans to struggling families so that they could make it through until they could get a crop planted.[60] Of course, there were no yields of crops in any substantial amounts for three years. Some received military pensions from their services during the Civil War, whereas others relied on aid sent from family and friends who lived outside the Outlet.[61] The Edmond Sun Democrat described the conditions of families living in what is today southern Grant County,

> In consequence of the serious drought of last summer and this spring, there is neither grain, garden vegetables, nor grass for animals. The people in [this] drought stricken section are in utter and deplorable destitution. Many families are now without the common necessities of life, and are compelled to subsist in many cases on cornmeal and water and cracked wheat and water. There are many families which are now without money to procure even the coarse food, and unless help is forthcoming they must face the prospect of starvation. An appeal in behalf of the unfortunate inhabitants of that section has been issued by the Women's Aid Society of North Pond Creek, OK. Food, clothing and garden seeds are solicited.[62]

A committee of three leading citizens from the small community of Nash in Grant County traveled as far afield as Kansas City, Chicago, and Denver to drum up donations of food and clothing to take back with them. Andrew Anthony of the Pond Creek vicinity recalled a load of supplies that arrived from Missouri. A community store keeper housed these supplies and allowed the needy to obtain them free of cost.[63] Kansas Menonites sent items of relief to their brethren in the Outlet as well.[64]

Fortunately, by 1897 the dry trend had given way to a more humid climactic pattern; but the drought had taken its toll on the ability of "humble" homesteaders to maintain their claims. An investigation of tax rolls reveals just how devastating the

drought was on maintaining land occupancy. By recording the names of land owners in the 1894 tax rolls and comparing them to the names on the 1896 and 1897 rolls, it is possible to see how many families or individuals were able to maintain their claims. The selection of eight townships placed within the eastern two-thirds of the Outlet constitute the basis for the data gathered on the subject. These are as follows: for O (Garfield) County: Buffalo, Union, Flynn and Osborn townships; in K (Kay) County: Newkirk and Lowe townships; and in L (Grant) County: Salt Fork and Berry townships.

The results of the study prove quite interesting. Out of 1,187 land owners registered in the 1894 tax rolls, 842 remained by 1896. This constitutes a near 30 percent attrition rate. It is of further interest to look at the valuation assessments of each land owner and see if wealth had anything to do with the ability to maintain a claim. Valuation assessments are a fixed percent of a person's value associated with his land. These usually include improvements made on the land in the form of barns, fences, wells, windmills, etc. and include cattle and other livestock. In a way it is a method for understanding a person's relative material wealth. It can be assumed that most persons attempting to prove up a claim would put most of their resources into the land. It is also applicable to assume that a person whose valuation assessment was 9 would have been less wealthy than one whose assessment was 225.

The valuation assessments were divided into three categories: Low - under 30; medium - between 31 and 99; and high - over 100. The study found that the highest percentages of attrition occurred in the low group with the high category suffering the fewest losses of claims. Some claims passed to other owners through sale whereas others were simply abandoned. The tax rolls for O (Garfield) County were the only ones that

contained land descriptions thereby allowing an investigator to see if the land had either passed on to another person or had been abandoned. Not surprisingly, the poor were more prone to abandon their claims, as 15 percent of all claims by persons in the low category were vacated. They either settled on quarter-sections that were not attractive to others, or they were not able to remain on the claim long enough to ensure its sale. They of necessity moved on to other "opportunities." The medium and high groups were most involved in selling their claims as 12 and 11 percent of the claims in these two respective groups passed to other hands. Those in the wealthiest group were least likely to abandon claims. Only 6 percent of this group's claims failed to hold another tenant after their original tenant's departure. This makes sense as well, for those with greater means would be able to treat the Run as an investment. If it did not pay off they could minimize their losses by selling the claim and returning home.

If one takes into consideration the other four townships, which contain only valuation assessments without land descriptions, the numbers are more dramatic. Fifty-seven percent of the claim holders in 1894 came from the high category of valuation assessments whereas 26 percent were in the medium category and only 9 percent qualified for the low group. Thus, a clear majority of these people had a high degree of wealth available to stick out the drought.

There are some surprises when looking at the data along lines of gender. There were only 44 women from a population of 1,166 in these eight townships who appear on the tax rolls. A comparison shows that, if anything, women were more prone to remain on their claim. Thirty-eight of the women remained on their claims during these three years for a total of 86 percent, while 73 percent of the male land owners did the same.

The category with the highest degree of attrition consisted of males with low valuation assessments, of which by 1896, 35 percent were not found on the tax rolls for the township wherein they were registered two years earlier.

The prolonged drought affected land evaluations as well. As the successive years passed by without yields great enough to make a good profit, there would be less capital available to invest in improvements on the land. The tax roll data for the years from 1894 to 1896 supports this theory by revealing most claims lost value. Of the 216 claims studied in O (Garfield) County, only 46 rose in their valuation assessment, while117 dropped, 36 were registered under someone else's name, and 17 were abandoned altogether. In K (Kay) County's two Townships of 444 individuals, 217 reported lower assessments in 1896 than two years earlier, while 96 held higher assessments, and 131 names were not repeated in those years suggesting that the original owners either sold or abandoned their claims. Lastly, in L (Grant) County the numbers are similar. Out of 439 registered claim owners, 86 valuations rose, 231 fell, and 122 were no longer registered on the tax rolls. The totals for these eight townships in three different counties are striking. The sample contained 1,099 individuals of whom 565 lost valuation, 228 gained, and 306 were no longer reported in that township. It is apparent that 51 percent of the people in these areas lost valuation in their land even though they remained on the same plot of earth. Only 21 percent were able to improve their assessments while 28 percent were no longer residing in the townships.

If valuations from the following year of 1897 are considered, a year in which the rains returned to the southern Plains, the comparison to the previous year reveals the influence of drought on land assessments. In the four townships mentioned in O County,

the sample grew to 250 individuals due to the growing number of settlers arriving in the region. Out of this sample, 113 valuations rose, 98 fell, and 39 were no longer recorded. In a year with adequate moisture, 45 percent of the claims rose in value, 39 percent fell, while only 16 percent were not recorded in the rolls. With the ability to produce crops that would bring in a profit came the opportunity to make improvements on the claims and purchase more cattle, which could be run on the pastures that were now producing enough grasses to allow them to graze.

1897 is also the year that many settlers recalled a change in their fortunes. J. W. Kephart whose homestead was five miles east of Carmen in present Alfalfa County claimed it was the first year he was able to raise a wheat crop. Charlie Bennett, who resided three and one-half miles south of Helena, stated that he was finally able to make a little money from his crops that year; and, as mentioned earlier, Cap Holton decided to resign from his railroad job in Caldwell, Kansas, and live on the claim with his family.[65]

Even those with the financial resources to make the Run took a beating. Ed Bradson of Newkirk Township in K County held a valuation assessment of 468 in 1894, but by 1895 that had dwindled to 38. To no surprise, he was not recorded in the 1896 tax roll. J. S. Gilbert of Salt Fork Township in L County is the most extreme example of falling valuations. His property tallied a valuation of a whopping 2,095 points in 1894. In the 1896 tax roll his property was valued at 26 points. There were instances in which those of meager means were able to improve their situation. F. H. Nichols of Lowe Township in K County increased his property valuation from 12 points in 1894 to 25 points two years later. Still, the majority of settlers were able immediately to have claims that valued above 30 points. Most of these lost value during the first three years.

The last major drought of the nineteenth century had run its course. In its wake, it had left many families devastated financially. The Cherokee Outlet Land Run did not come through with all the lofty goals espoused at its conception. It was anything but an opportunity for the "humble and poor" home seeker. Barely a quarter of those making the Run were able to remain after the first few weeks due to the availability of claims. The week-long process of registering for claims burdened the families financially before the Run. The late season required settlers to make it through the first winter without a crop to feed themselves or to provide an income. The drought further pressed the settlers to find other work while their savings dwindled, thus inhibiting their ability to work improvements on their claims through sweat equity. Nearly 30 percent of those who held a claim in 1894 did not remain by 1897. If there was any opportunity, it surfaced for merchants in the jump-off points who profited from the thousands of would-be settlers requiring feed for their livestock, flour and other commodities for their families, and lumber, wire, and windmills for the improvement of their claims. The other big winners were the railroad companies who had lobbied for the opening of the Outlet.

The Atchison, Topeka and Santa Fe Railroad had produced a pamphlet, Cherokee Strip and Oklahoma: Opening of Cherokee Strip, Kickapoo, Pawnee and Tonkawa Reservations, in which it portrayed the Outlet as truly inviting settlement. Aside from giving specific information on the qualities of the land, guidelines for staking a claim in the Run and ticket information on how to get to the jump off points, it claimed that "east of the 98th meridian rainfall is said to be certain." The brochure further estimated that from the far northwestern corner to the southeastern tip of the Outlet, between 23 and 35 inches of rain fell annually. It should be mentioned that the pamphlet failed to state

which base years had been used to project these estimates. Rumors had circulated back east of the dry tendencies of the Plains. Perhaps in an effort to dispel this "myth" the pamphlet compared these estimated rainfall totals with points east such as Milwaukee, Wisconsin, and Mackinac, Michigan, which received only 30 and 23 inches annually. Then the brochure summed up its understanding of aridity in the region by stating quaintly "it don't much look like a continued drouth, does it?"[66] Given the seductively optimistic tone of the piece, one suspects that if only they could see into the future, they probably would have printed it anyway.

In 1873, Dan Kelly of Gaylord, Kansas, received a poem and the request that he put it to music. The author, Dr. Brewster Higley, was a local physician. His poem was to become one of the more popular tunes of the Plains. The good doctor had lived on the prairies for a few years and had come to love the natural simplicity of the region. He titled his poem, "My Western Home," but it is more recognizable today as "Home on the Range." The lyrics still evoke the heritage of the region: "Oh give me a home where the buffalo roam, where the deer and the antelope play. Where seldom is heard a discouraging word, and the sky is not cloudy all day." In the summers of 1893 through 1896, the first two claims could no longer be readily observed on the southern Plains. One can only speculate as to the veracity of the third; but about the fourth, there could be little dispute.[67]

CHAPTER 8

CONCLUSION

By the late 1890s and early 1900s, misconceptions about climatic conditions in the southern Plains were slowly being rectified. Many of these new concepts came about as a result of attempts to overcome the lack of rainfall. The promotion of rainfall through afforestation, concussion theory, chemistry and irrigation, although often misleading, helped a growing population on the Plains cope with the absence of a reliable water supply.

The "gospel of tree planting" was one of the first theories dealing with increasing rainfall on the southern Plains. After the drought of the 1860s, farmers sought any change they could make to the landscape to improve the moisture retention of the soil. Trees could help this process by providing windbreaks, thus lessening the impact of wind on evaporation. By 1868, eastern counties of Kansas were home to substantial groves of imported Austrian and Scotch pine, honey locust, elm, eastern redcedar and Osage-orange trees. This was accomplished through state funded rewards of cash payments for those who maintained a copse or line of trees for three years or more.[1]

Railroads also encouraged the afforestation of the southern Plains. In 1870, the Kansas and Pacific sponsored the planting of seedlings in three towns along their line between the ninety-eighth and one-hundred-and-second meridians.[2] The Atchison, Topeka and Santa Fe planted shelterbelts along its line in Kansas in 1872. The following

year, the company established six forestry experiment stations of 120 acres each west of the ninety-eighth meridian.[3] The Kansas City, Fort Scott and Memphis joined the ranks of afforestation experimentation by initiating a 640 acre catalpa tree farm at Farlington, Kansas, in 1879.[4] The main interest of these companies lay in attracting settlers to the southern Plains. The sponsoring of the afforestation experiments was meant to prove that trees could thrive in the arboreal-less grasslands and comfort those from the eastern woodlands who might homestead in the region.

Tree planting was growing on a national level as well. The states of Minnesota and Wisconsin adopted afforestation measures to allay the effects of the lumber industries in 1867 and 1868. J. Sterling Morton suggested to the Nebraska State Board of Agriculture in 1872 that they promote a tree-planting day and give a cash award to the individual who planted the most trees. The board accepted Sterling's proposal and initiated Arbor Day that year. The concept was so popular that the state legislature proclaimed it a state holiday two years later.

The United States' government officially recognized the importance of planting trees when congress passed the Timber Culture Act in 1873. This law gave 160 acres of public domain to any head of household who would plant 40 acres of timber and maintain it for ten years. Within five years of its passage, congressmen amended the bill, easing the requirement to ten acres of timber maintained for five years in order to encourage homesteaders to take advantage of the law.[5]

The gospel of tree planting took on new significance as some members of the scientific community supported the theory that the presence of trees helped to increase humidity. In support of the Timber Culture Bill, Phineas Hitchcock of Nebraska, stated

that ". . . the object of this bill is to encourage timber, not merely for the benefit of the soil, not merely for the value of the timber itself, but for its influence on climate."[6] In 1883, Nathanial Egleston, head of the nation's Forestry Division of the Department of Agriculture, claimed that trees could have a "direct influence . . . on the distribution of rainfall."[7] There were opponents to this line of reasoning. In 1886, the leadership of the Forestry Division fell to Dr. Bernhard Fernow who doubted the influence of trees on rainfall. He did, however, urge the establishment of research programs at the state colleges.[8] By 1890, seventeen colleges had some form of forestry related curriculum.[9]

With the drought of 1893 to 1896, the idea that planting trees could increase rainfall had waned, but scientists understood the value of shelterbelts in decreasing wind related evaporation and erosion. Between 1917 and 1920, farmers of the northern Plains planted 1,488,658 trees in 1,234 tree lines. In 1924, Congress passed the Clarke-McNary Act which provided seedlings at the government's expense to farmers for windbreaks, wood lots, and shelterbelts. As of 1934, this legislation had provided over 200,000,000 trees to the nation's agriculturalists.[10]

Other efforts to coax moisture droplets from the atmosphere had less tangible benefits. The belief that precipitation followed Fourth of July celebrations and Civil War battles led to several experiments at producing rainfall by exploding gunpowder into the sky. This concussion theory held that the combustion of explosives in the atmosphere heated the surrounding air causing it to rise, and with its ascension, the air cooled and condensed, producing droplets of moisture, which then fell to the earth. As early as 1871, Edward Powers published a book describing the relationship between military battles and rainfall. In 1880, Daniel Ruggles patented a method for obtaining rainfall through the use

of explosives. Congress appropriated $2,000 to test this theory in 1890 and in the following years added another $17,000 worth of funding to the experiments.[11] About $14,000 of this money supported the research of Major R. G. Dryenforth.

The Major's first experiment at Midland, Texas, during the summer of 1891 tested the effects of explosives at three levels of altitude. He used artillery to concuss the lower levels of the atmosphere. To test mid-levels he constructed sixty-eight explosively harnessed cloth kites and connected them with an electric wire coupled to a detonator. Finally, to reach higher altitudes, Dryenforth released sixty-eight explosive balloons of ten to twelve feet in diameter from three larger hot air balloons. It must have been quite an impressive sight, but the results were less than spectacular. A slight shower followed the test, but according to one observer, it was not worth the money and effort put into the project. The Major suffered lampooning at the hands of a disappointed or skeptical public who jokingly referred to him as "Dryhenceforth" after his second testing proved a failure in December of 1892.[12]

During times of drought, old schemes at producing rain re-emerged. In 1911, concussion theory experiments were replicated at two sites in Texas. C. W. Post conducted tests near Post City, a town he founded for speculative interests in real estate. Post obviously hoped the experiment would prove that rain could be induced to fall from the sky and encourage farm families to settle near his town forty miles southeast of Lubbock. The Texas and Pacific Railroad also conducted a concussion test near the coal mining town of Thurber along their line. Both experiments proved inconclusive.[13]

Many towns and farmers fell victim to charlatans who claimed to have the ability to make rain. A crop's death due to drought is torturously slow. The farmer had put the

sweat of his brow into working and then planting the fields and it must have been difficult to stand hopelessly by and watch the fields slowly turn yellow. Prayer sessions at local churches looked to God for rain. When this proved unavailing, some people became desperate and turned to any scheme that promised rain. Enter the Rainmaker.

One of the most notable rain wizards was an Australian named Frank Melbourne who claimed to have a machine that could produce rain. Melbourne was extremely secretive about this machine and his chemical formula for producing moisture; but for a fee, he would travel to any town and work his magic. Goodland, Kansas, hired Melbourne at a fee of $500 to produce rain. The townspeople felt this was a safe bet for if the wizard failed to create precipitation, they would not be required to pay. If, however, he did cause the heavens to open, they would reap harvests worth more than their initial investment.

Melbourne arrived on September 25, 1891, as a summer drought had continued into the early fall. The town constructed a two-story building near the fairgrounds for the wizard to set up his laboratory. The second floor contained the rain machine, placed precisely below a carefully crafted hole in the ceiling where the professors gasses could rise into the atmosphere and create the chemical change needed to produce rain. The first floor housed Melbourne and his brother, whose main duty was to keep people out of the lab. Although he was unsuccessful at Goodland, reports from Ohio and Wyoming claimed Melbourne had indeed brought rain to towns in those states.

Local entrepreneurs in Goodland were so impressed with Melbourne's method that they convinced the rain wizard to sell his concept. With their new patented rain making method, the investors formed the Inter-State Artificial Rain Company (ISARC).[14]

The company quickly sent agents to conduct tests in the Oklahoma Territory and in Texas. On October 27, 1891, a telegram from Oklahoma City claimed the ISARC method had produced the first rain to hit the area in six weeks. On November 1, the same type of report came from Temple, Texas. ISARC agents claimed the tests were so successful that members of the firm were able to sell their concept to a joint-stock company for $50,000.[15]

The ISARC's success drew imitation. By 1892, two more rain companies appeared: the Swisher Rain Company of Goodland and the Goodland Artificial Rain Company. C. B. Jewell, a chief dispatcher for the Rock Island Railroad Company, also latched on to the secret formula and method. By the Spring of 1893, the Rock Island began sponsoring Jewell's experiments and work. Professor Jewell was an expert electrician and his experiments included the use of electric batteries as well as balloons and explosives to test the concussion theory; but most of his funding went to procure chemicals. The Rock Island provided Jewell with all the needed supplies and a special rail car to house his lab. The company further allowed him to travel across their lines free of charge. In fact, Jewell was a rainmaking agent for the Rock Island, performing his tests free of charge to communities along the rail company's lines.

This *pro bono* work, of course, hurt the artificial rain companies, but kept Jewell's name in the local newspapers. On June 1 and 2, the professor was unable to induce a sufficient rain at Meade Center, Kansas, to claim a successful test; but he did predict that the high winds that ruined his efforts would blow his chemicals in a northeasterly direction and cause a sizeable rain to occur around Salina, Kansas. Heavy rains hit Salina the next day and although his test had been a failure, Jewell was legitimized in the

view of many people. On June 6, the professor was in Dodge City mixing chemicals, but he was unable to procure a shower due to high winds.[16] By the next month, Jewell was in the Oklahoma Territory providing free tests of his artificial rain method. The Beaver Advocate gave him some free publicity on July 27, 1893, when it claimed, "Rainmaker Jewell brought down the stuff at Duncan, I. T., Sunday. He sprinkled down a territory seventy-five by one-hundred miles in extent."[17] Jewell traveled to Hennessey, Oklahoma Territory, for the opening of the Cherokee Outlet, but was unsuccessful at inducing rainfall. In 1894, the Rock Island increased its funding for Jewell's experiments, but by July, interest in rainmaking had waned. The drought had defied the rain wizards and broke the will of popular belief in their abilities.[18] The last heard from the professor, he was in California at the behest of some desperate farmers; but after he was only able to raise a few clouds, Jewell refunded his fee and returned to Kansas.[19]

A new gospel had replaced the faith in artificial rain as irrigation became the object of many agriculturalists' hopes. The earliest attempts by non-Indians to irrigate more than an individual garden in the southern Plains occurred along the Arkansas River in Colorado when George Swink organized a collective effort to construct a ditch at Rocky Ford in 1873. By 1882, this organization was legally incorporated into the Rocky Ford Ditch Company.[20] Between 1883 and 1887, Otis Haskel set aside his Denver real estate interests and organized the Arkansas River, Land, Town and Canal Company. Haskel sold his brainchild in 1897 and it was renamed the La Junta and Lamar Canal Company.[21]

Modern irrigation in Kansas centered at Garden City along the Arkansas River as well. In 1880, L. H. Armentrout constructed a ditch four miles west of Garden City from

which he watered one-hundred acres.[22] Armentrout's success encouraged the establishment of three new irrigation companies by 1884: the Garden City Irrigation Company, the Kansas Irrigating and Water Power and Manufacturing Company, and the Minnehaha Irrigating Company of Topeka. From 1881 to 1889, different groups constructed 336 miles of canals to irrigate 70,000 acres, causing a population explosion along the Arkansas River. The Kansas portion of the Arkansas River valley held 10,000 residents in 1884, but by 1888 this figure had risen to 70,000.[23]

There were plenty of Kansans who did not have the foresight or wherewithal to obtain land next to the Arkansas River. During the drought of 1893-1896 these farmers were forced to find new methods for obtaining water or withdraw from the region. As noted, windmill and pump companies advertised heavily in the southern Plains newspapers. This was a wise strategy for sales increased as farmers turned to subterranean water supplies for moisture. By the end of 1895, the Kansas Board of Irrigation, Survey and Experiment reported that out of 1,335 farmers using irrigation, 998 utilized wells for their source and the far majority of these used the wind to power their pumps. From 1895 to 1896 the amount of irrigated farmland in Kansas rose from 11,823 acres to 22,000 acres.[24]

In Texas, irrigation was slower to develop. The XIT ranch did begin using windmills to pump up water from the Ogallala aquifer for their stock as early as 1887, but intensive crop irrigation was not possible on the Llano Estacado until new irrigation pumping plants made their appearance in the region during the early 1900's. Still, irrigators drilled only 300 wells meant to utilize this type of technology between 1910 and 1920. This relatively small amount of investment in large scale irrigation was due to the

World War I driven high demand for beef and wheat, both production activities that do not require irrigation.[25] The availability of long term credit, introduced during the New Deal, allowed irrigation to resurface during the 1930's. High cotton prices, drought and economic depression convinced many Staked Plains agriculturalists to turn to irrigation. By the 1950's, there were several million acres under cultivation on the Texas High Plains.[26]

The severity of the 1893-1896 drought led Frederick Newell, the reclamation prophet, to declare that the High Plains was a region susceptible to periodic intensive drought.[27] Other southern Plains irrigation advocates agreed with Newell's concept of government sponsored reclamation; but by the early 1900's, the return of healthy rains convinced most Plains residents to withdraw their support of such a policy.[28] Still the Newlands Reclamation Act passed Congress in 1902 with the support of the western mountain and intermontain states.

Newell's assessment of the High Plains could be used to describe the whole southern Plains in general as extended droughts stuck the region with a frequency of every alternate decade: 1909-1918, 1933-1938 and 1950-1956. When comparing the ecological effects of these droughts, the "Dust Bowl" of the 1930's ranks first in environmental destruction. World War One's devastation of European agriculture triggered rising wheat prices and encouraged the cultivation of marginal land on the Plains. Technological advances contributed to the destruction of grass cover in the region as tractors allowed a much more rapid plow up.[29] When successive dry years engulfed the southern Plains, the amount of wind erosion increased dramatically. In this case Human agricultural activities had not created the dust storms; but they had certainly

provided the circumstances to make the storms more severe. In 1933, Goodwell, Oklahoma, in the state's panhandle, experienced 70 days of severe blowing dirt. In May of 1934, dirt storms carried soil eastward to New York City, Boston, and as far as 300 miles out into the Atlantic Ocean.[30] The succeeding years continued to produce an incredible number of dirt storms as 22, 53, 73, and 134 storms hit Goodwell during each of the years beginning with 1934 and ending with 1937.[31]

Surprisingly, the less severe, ecologically speaking, drought of the 1890s was much more damaging socially. Richard Warrick and Martyn Bowden studied the "Changing Impacts of Droughts on the Great Plains" and found the population dislocation of the 1890s drought to far surpass that of the famous Okie migration of the "Dirty Thirties." During the mid 1890s, a majority of the southern Plains counties experienced over a fifty percent population loss, whereas only a relatively small area in southwest Kansas and the Oklahoma Panhandle had such high attrition rates during the 1930s.[32] The authors attribute this contradiction to the activities of the federal government. During the 1890s, and the drought of 1909-1918, governmental officials were reluctant to provide relief. Pressure came from the local level as boosters and ranchers lobbied on a national level to oppose governmental aid to drought victims.

In this light, the New Deal appears to be quite revolutionary for it represents a change in how the national government reacted to drought. State organized relief continued with the State Relief Boards and the national government implemented the Agricultural Adjustment Act to attempt to control agricultural production.. The New Deal also tried to retire marginal lands from cultivation and overgrazing, while also removing farmers from the region in various Resettlement programs. Finally, congress

passed the Taylor Grazing Act in 1934, which ended the seventy-two-year-old policy of making homesteads available from the public domain and, at least theoretically, limited the number of livestock on federal land.[33] The New Deal also introduced ecological changes through the planting of shelterbelts to a greater degree than had previously been attempted. The programs also encouragement the use of environmentally sound land management practices such as terracing, soil mulching, deep tilling, strip cropping, contour plowing, and summer fallow. Though most of these practices were aimed at retaining moisture, they obviously helped retard the effects of drought as well. During 1934, the national government provided $500,000,000 of drought relief to the Great Plains states and $14,000,000 more to the establishment of shelterbelts.[34] In the Texas Panhandle, agricultural production rose $37,737,000 from 1935 to 1942; but it cost American tax payers $43,327,000 in federal aid.[35] All of this governmental relief curbed the social effects of extended drought on the southern Plains.

The next significant drought trend to hit the southern Plains arrived during the 1950s. The severity of the 1950s drought was of a greater magnitude in much of the southern Plains than the 1930s episode, but this time federal policies were in place to deal with this type of catastrophe.[36] In 1952, eighty-mile-per-hour winds picked up enough dirt to build a dust front 12,000 feet tall across portions of the southern Plains. Once again a desert-like topography returned as dunes spread over sections of the southern Plains. Baca county, Colorado, experienced a seventy percent loss of its 500,000 acres in wheat. Hamilton county, Kansas, likewise lost ninety-five percent of its crop. By 1954, wind erosion had damaged 11,700,000 acres.[37] The Agricultural Experiment Station at Garden City, Kansas, reported 30 dust storms from February 19 to June 30.[38] This 1950s

drought, although quite severe, caused less population dislocation due to a greater willingness by the national government to provide relief. This was marked by the fact that even though a financially conservative Eisenhower administration held office, it quickly provided up to $750,000,000 worth of relief to the drought area.[39] Governmental relief was absolutely mandatory to maintain a high sedentary population on the Plains.

The trend has been a growing, stationary population on the southern Plains. Paleo Indians settled along the region's river valleys, up out of the flood plains, but near enough to benefit from the timbered river banks. They fished the rivers and creeks, hunted the wooded valleys, farmed along the rivers and streams, and ventured onto the uplands to hunt bison on occasion.

Horticultural people of the historic era also lived along the southern Plain's river valleys. They established a migratory existence based on the seasons. During the spring, the people would plant their crops and tend the fields. In early summer, they would venture out of the valleys to hunt bison, returning to their villages with robes and meat. They would harvest their crops during the late summer and fall, then make a final buffalo hunt while the bison coats were thickening in preparation for the coming winter. With the crops cached, the meat cured, and provisions ensured, the people remained in their villages throughout the cold winter months to begin the process again with the spring.

Spanish reintroduction of the horse to the Americas created the possibility of maintaining a livelihood while residing on the High Plains. As the horse herds thrived on the grasslands, other tribes ventured onto the Plains to take advantage of the growing bison hide trade also triggered by Europeans. These Plains people were nomads who often burned off their territorial grasslands during the late winter to attract the buffalo

herds with the new shoots of grasses emerging during the spring. If the winter and following spring proved to be dry, these fires could remove the vegetative cover and expose the topsoil to wind erosion. During the summer, the tribes came together in large groups to celebrate traditional festivals and for the big buffalo hunt. As fall approached, the hides were at their best and the hunting continued, but by late fall the tribes had split into small bands and moved to the river valleys to take shelter in the timbered areas and remain close to the Cottonwood trees from which they fed their horses the bark when no fodder could be obtained.

These nomads were part of an intricate trade network. Specializing in procuring hides from the bison herds, they relied on trade to obtain carbohydrates and manufactured goods. As neighboring tribes received guns from their European trading partners, Plains tribes scrambled to create trade partnerships that would provide them with such weapons. Thus the tribes' welfare was dependent on the buffalo. When periodic droughts hit the southern Plains and the bison herds migrated out of a region, these nomads could simply follow the herds and maintain their lifestyle. The United States altered this situation when it removed the eastern tribes to the eastern margins of the southern Plains. When inter-tribal warfare erupted during the late 1840s, 1850s, and early 1860s as drought scorched the region, the United States made a weak attempt to secure peace by obtaining treaties with the nomadic tribes of the Plains. In these treaties the United States promised to provide annuity goods to the migratory tribes in return for their promise to keep peaceful relations with their neighbors. The federal government promoted the protection of the eastern tribes by maintaining a military presence in the region. At times the Plains tribes went in search of the herds and risked warfare with their eastern neighbors and

possible retribution from the United States.

During times of drought, the nomadic tribes of the High Plains, the semi-sedentary horticultural tribes of the prairies, and the removed eastern tribes became more dependent on their annuities. The nomads were unable to follow the bison herds if they ventured out of the southern Plains, and the horticultural tribes could not rely on their withered crops. As the early days of the Civil War passed, the Lincoln administration refused to grant any but the most miserly relief to the removed Five Tribes and went so far as to cut off their annuities for fear the money would end up in pro-slavery, and therefore Confederate hands. Beset by successive years of intense drought and increasing attacks from their nomadic neighbors to the west, all Five Tribes made treaties with the Confederacy which promised to continue the annuities.

After the war, these treaties provided the excuse needed by the United States to justify taking more land from the removed tribes. The government used these excess lands to settle other removed tribes; but soon succumbed to popular demand to open up all the remaining public lands acquired after tribal allotment. Government actions had made it possible for a large non-Indian population to move to the southern Plains and take up intensive agriculture. During the 1870s and 1890s the population of the southern Plains grew dramatically from 23,624 to 515,671.[40] Most of these people came from the more humid east and their farm methods were not successful until modified. Drought during the mid 1880s and 1890s created famine and starvation in the southern Plains, which experienced massive outward migration, except for the Native Americans who did not have the choice of escaping the drought.

The differences in how the Indians and non-Indians interacted with the southern

Plains environment during times of drought are significant. The native tribes of the southern Plains did not practice intensive agriculture. Instead, they located their gardens in river valleys and mixed their gardens with the crop triad of beans, squash and corn whose three root systems reached to varying depths to tap the soil's moisture. During times of drought, these people migrated to areas of moisture, locating along the Caprock escarpment or other locations where springs bubbled up out of the rock, or even further east if needed. This migration was important for locating sufficient sources of moisture, but also for following the bison herds and other game that were also in search of water.

When wet weather returned to the southern Plains, the people and animals did likewise. This method worked best with low population densities in the region. As the population rose during the 1830s, with the arrival of the removed eastern tribes and especially later during the 1880s and 1890s as non-Indian settlers arrived by the thousands, the territorial claims of other settlers made migration unfeasible. Also, these non-Indian settlers arrived on the southern Plains with farming methods suited better to a more humid climate. They further attempted to cultivate the upland areas of the southern Plains and met with miserable failure.

The environment had limited the possibilities for subsisting on the southern Plains. The non-Indian settlers had to change their traditional methods of farming and their view of government involvement in agriculture in order to remain on the grasslands. Still, they did not react to drought as the Indians had. Non-Indians continued to maintain high population densities on the southern Plains, and many of them did migrate during times of drought; but the implementation of irrigation, dry land farming methods and soil conservation practices has allowed a much higher population to maintain a continual

residence on the southern Plains, but only with government assistance.

During the twentieth century, technological advances, governmental economic supports and changes in agricultural thinking allowed the growing population to remain on the southern Plains. There is a price to pay. Irrigation and flood control dams constructed along the Arkansas River and its tributaries have begun to silt up and impede the river's flow, while below the dams, the salinity of the river water has risen.[41] Higher populations consume a greater amount of water and irrigation has proven the only way to obtain sustainable agriculture on the High Plains. These factors have resulted in a dramatic lowering of the underground water reservoir. It is estimated that the Texas Panhandle's 3.5 million acres cultivated through irrigation in 1966 will wither to 125,000 acres by 2015 as a result of the lowering aquifer level.[42]

Could Katherine Bates, at her most creative, ever have imagined the Plains as it is today. Ms. Bates wrote her poem during the drought year of 1893, subscribing to the notions popular in that era that rainfall was increasing, producing amber fields of grain. Periodic drought has taught a few lessons. The Dust Bowl was not an aberration. The 1930s drought was not even the most severe to hit the southern Plains in the last two centuries. Individual farmers, government agents, and the American people need to be aware that they have not conquered the problem of providing a stable water supply to a semi-arid region.

ENDNOTES

CHAPTER 1

1. Robert L. Brooks and Robert Bell, "The Last Prehistoric Villagers," Chronicles of Oklahoma 67 (Fall 1989): 300-301.

2. Timothy C. Baugh, "Holocene Adaptation in the Southern Plains," edited by Karl Schleiser in Plains Indians, A.D. 500-1500: The Archaeological Past of Historic Groups (Norman: University of Oklahoma Press, 1994), 267.

3. The 1200 C. E. date is provided by Francis Haines, The Plains Indian (New York: Thomas Y. Crowell Co., 1976), 15; and the A.D. 1450 date is used in Brooks and Bell, "The Last Prehistoric Villagers," 316.

4. Walter Prescott Webb, The Great Plains (Dallas, TX: Ginn and Co., 1931), 153.

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

6. Richard Dillon, "Stephen Long's Great American Desert," Proceedings of the American Philosophical Society 3 (April 1967): 93; Francis Paul Prucha, "Indian Removal and the Great American Desert," Indiana Magazine of History 59 (December 1963): 302; Ralph C. Morris, "The Notion of a Great American Desert East of the Rockies," Mississippi Valley Historical Review 13, no.2 (1927): 193; Terry Alford, "The West as a Desert in American Thought Prior to Long's 1819-1820 Expedition," Journal of the West 8 (October 1969): 515.

7. Stephen Long, Early Western Travels, vol. 17, Part 4 of James' Account of S. H. Long's Expedition, 1819-1820, ed. by Reuben Gold Thwaite (Cleveland, OH: The Authur H. Clark Co., 1905), 147.

8. Webb, The Great Plains, 153.

9. Long, James' Account of the Long Expedition, 3: 174; Josiah Gregg, Commerce of the Prairies, ed. Max L. Moorehead (Norman: University of Oklahoma Press, 1954), 356, and 357.

10. Ibid., 362

11. Thomas Hart Benton, Discourse of Mr. Benton of Missouri before the Mercantile

Library Association . . . Delivered in Tremont Temple at Boston, December 20, 1854 (Washington: J. T. and L. Towers, 1854), 8.

12. William Gilpin, Mission of the North American People: Geographical, Social, and Political, 2d. Ed. (Philadelphia: J. B. And Lippencott and Co., 1874), 63.

13. David Emmons, Garden in the Grasslands: Boomer Literature of the Central Plains (Lincoln: University of Nebraska Press, 1971), 12-13.

14. Ibid., 134.

15. John Wesley Powell, Report on the Lands of the Arid Region of the United States ed. Wallace Stegner (Cambridge, MA: Harvard University Press, 1962), 13.

16. Webb, The Great Plains, 26.

17. James Malin, The Grasslands of North America: Prolegomena to Its History (Ann Arbor, MI: Edwards Brothers, Inc., 1948), 128.

18. Ibid., 143 and 147.

19. Donald Worster, Dust Bowl: The Southern Plains In the 1930s (New York: Oxford University Press, 1979), 13.

20. Ibid., 239.

21. Ibid., inevitability of drought, 12; wind erosion, 103.

22. Ibid., 12.

23. Connie Woodhouse and Jonathan Overpeck, "2000 Years of Drought Variability in the Central United States," Bulletin of the American Meteorological Society 79 (December 1998): 2697.

24. Geoffrey Martin and Preston James, eds., All Possible Worlds: A History of Geographical Ideas (New York: John Wiley and Sons, 1993), 192.

25. John Opie, Ogallala: Water for a Dry Land, 2nd ed. (Lincoln: University of Nebraska Press, 2000), 63.

26. Woodhouse and Overpeck, "2000 Years of Drought Variability," 2710.

27. Merlin Lawson and Charles Stockton, "Desert Myth and Climatic Reality," Annals of the Association of American Geographers 71 (December 1981): 535.

CHAPTER 2

1. 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.

2. Ray Allen Billington, Westward Expansion: A History of the American Frontier (New York: Macmillan Co., 1974), 452.

3. Alvin M. Josephy, Jr. The American Heritage Book of the Pioneer Spirit (New York: American Heritage, 1959), 157.

4. William Goetzman, Army Exploration and the American West (New Haven, CT: Yale University Press, 1959), 44.

5. Roger Nichols and Patrick L. Halley, Stephen Long and American Frontier Exploration (Norman: University of Oklahoma, 1995), 17.

6. Howard Ensign Evans, The Natural History of the Long Expedition to the Rocky Mountains, 1819-1820 (New York: Oxford University Press, 1997), viii.

7. William R. Brown, "Natural History of the Canadian River, 1820-1853," Panhandle Plains Historical Review 61 (1988): 4; and John Moring, Men With Sand: Great Explorers of the North American West (Helena, MT: Falcon Publishing, 1998), 106.

8. George J. Goodman and Cheryl A. Lawson, Retracing Major Stephen H. Long's 1820 Expedition (Norman: University of Oklahoma Press, 1995), xiii.

9. Meriwether Lewis and William Clark, The Original Journals of the Lewis and Clark Expedition, 1804-1806, ed. Reuben Gold Thwaites, 7 vols. (New York: Antiquarian Press, 1959), 7:310.

10. Morris, "A Great American Desert East of the Rockies," 191.

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

12. Alford, The West as a Desert, 524. See his endnote number 21.

13. 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, Breckenridge modified this version in 1817 by

replacing the description calling the region a desert, with the less offensive depiction of "desert-like." Breckenridge still maintained that the area could never be cultivated. Reuben Gold Thwaites, ed. Early Western Travels, vol. 6, Journal of a Voyage up the Missouri River in Eighteen Hundred and Eleven, by Henry M. Breckenridge (Cleveland, OH: Arthur H. Clark Co., 1904), 161.

14. Thomas Say, Account of an Expedition from Pittsburgh to the Rocky Mountains . . ., ed. Edwin James, 2 vols. (Philadelphia: Carey & Lea, 1823), 1:138.

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

16. Reuben Gold Thwaites, ed., Early Western Travels, vol. 15, Part 2 of James Account of S. H. Long's Expedition, 1819-1820, by Edwin James (Cleveland: The Authur H. Clark Co., 1905), 192.

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

18. Nichols and Halley, Stephen Long and American Frontier Exploration, 117.

19. Ibid., and 110-111.

20. Ibid., 112-113.

21. Ibid.

22. Bell, Journal of the Long Expedition, 99.

23. Nichols and Halley, Stephen Long and American Frontier Exploration, 118.

24. James, James Account of Long's Expedition, 2: 191-192. 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 vermillion, 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 vermillion used to dye garments red.

25. Nichols and Halley, Stephen Long and American Frontier Exploration, 119.

26. 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."

27. 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 six-hundred miles in almost three months, and Washington recalled Long, while simultaneously curtailing the expedition.

28. Moring, Men With Sand, 94.

29. Nichols and Halley, Stephen Long and American Frontier Exploration, 119.

30. Ibid., 123.

31. James, James' Account of the Long Expedition, pt. 2: 262.

32. Ibid., pt. 3: 82.

33. Ibid., pt. 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.

34. Ibid., 93.

35. Ibid., 111.

36. Ibid., 94, 99, 130, and 153.

37. Ibid., 148.

38. 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): 22, 21.

39. Ibid., 24, 26.

40. Ibid., 22.

41. Ibid., 26

42. James, James Account of Long's Expedition, pt. 3: 94.

43. Lawson, "The Climate of the Great American Desert," 95

44. H. Harper, "Drought in Central Oklahoma from Annual Rings of Post Oak Trees,"

Proceedings of the Oklahoma Academy of Sciences 41 (1961): 26-7.

45. Merlin P. Lawson and Charles W. Stockton, "Desert Myth and Climate Reality," Annals of the Association of American Geographers 71 (December 1981): 531 and 535.

46. Stephen Schneider, ed., Encyclopedia of Climate and Weather (New York: Oxford University Press, 1996), 580 ff.

46. Ibid., 530.

47. Ibid., 535.

48. 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.

49. 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 - A for Paleoclimatology Data Contribution Series no. 98-036. Boulder, CO: NOAA / NGDC Paleoclimatology Program, 1998.

50. 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.

51. Edward Cook, David Meko, David Stahle and Malcolm Cleaveland, "Drought Reconstruction for the Continental United States," American Meteorological Society 12 (April 1999): 1145.

52. James, James Account of the Long Expedition, pt. 2, 120.

53. 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.

54. James, James Account of the Long Expedition, pt. 2, 122-23.

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

56. Ibid., 9:576.

57. Ibid., 16:401-2.

58. Lawson, "The Climate of the Great American Desert," 95.

59. James, James Account of Long's Expedition, pt. 3: 75.

60. Ibid., 125.

61. Ibid., 135.

62. Ibid., 65, 71, and 126.

63. Ibid., 142-143.

64. Ibid.

65. Ibid., 174.

66. Lewis, The Journals of Lewis and Clark, 7: 311.

67. Dillon, "Long's Great American Desert," 97.

68. James, James Account of Long's Expedition, pt. 3: 174. For the location of this particular bed of rocks see: Goodman and Lawson, Retracing Major Stephen Long's 1820 Expedition, 111.

74. James, James Account of Long's Expedition, pt. 3: 152.

75. U. S. Senate, Journal of Lieutenant J. W. Abert, From Bent's Fort to St. Louis, in 1845, 29 Cong., 1 sess., Senate Document 438 (Washington, U. S. Government Printing Office, 1848): 104, 107. For 1845 moisture estimations see the web site at www.ngdc.noaa.gov/paleo/treering.html.

CHAPTER 3

1. Stephen Long, James Account of Long's Expedition, 4: 147.

2. Paul Prucha, "Indian Removal and the Great American Desert," Indiana Magazine of History 59 (December 1963): 299.

3. Roger L. Nichols and Patrick L. Halley, Stephen Long and American Frontier Exploration (Newark: University of Delaware Press, 1980; reprint, Norman: University of Oklahoma Press, 1995), 78 (page citations are to the reprint edition).

4. 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): 17.

5. Terry L. Alford, "The West as a Desert in American Thought Prior to Long's 1819-

1820 Expedition," Journal of the West 8 (October 1969): 516; Morris, "The Notion of a Great American Desert," 193.

6. Noah Webster, An American Dictionary of the English Language (New York: S. Converse, 1828. Reprinted: San Francisco, CA: Foundation for American Christian Education, 1996), no pagination.

7. James, James Account of the Long Expedition, 4: 132.

8. Ibid., 3:174.

9. Edward Everett, "Long's Expedition," North American Review 16 (April 1823): 242.

10. Jedidiah Morse, A New Universal Gazeteer, or Geographical Dictionary Accompanied with an Atlas (New Haven, CT: S. Converse, 1823), 603, 638 and 651.

11. "Major Long's Second Expedition," North American Review 21 (July-December 1825): 178-79.

12. Benjamin Silliman, "Expedition of Major Long and Party, to the Rocky Mountains," American Journal of Science and Arts 6 (1823): 374.

13. "American Desert," Niles Weekly Register 35 (September 27, 1828): 70.

14. For an excellent discussion of these maps see Paul Prucha, "Indian Removal and the Great American Desert," 299-322.

15. Bowden, "The Perception of the Western United States," 17.

16. D. W. Meinig, The Shaping of America: A Geographical Perspective on 500 Years of History, vol. 1, Atlantic America, 1492-1800 (New Haven, CT: Yale University Press, 1986), 29.

17. Annie Abel, "Proposals for an Indian State" Annual Report of the American Historical Society, vol. 1,(Washington, DC: GPO, 1908): 90.

18. Calloway, First Peoples: A Documentary Survey of American Indian History (New York: Bedford St. Martin Press, 1999), 221.

19. David La Vere, Contrary Neighbors: Southern Plains and Removed Indians in Indian Territory (Norman: University of Oklahoma Press, 2000), 43.

20. Ibid., 44.

21. James Taylor Carson, Searching for the Bright Path: The Mississippi Choctaws from Prehistory to Removal (Lincoln: University of Nebraska Press, 1999), 46.

22. Russell Thornton, The Cherokee: A Population History (Lincoln: University of Nebraska Press, 1990), 48-9.

23. La Vere, Contrary Neighbors, 54.

24. George A. Schultz, An Indian Canaan: Isaac McCoy and the Vision of an Indian State (Norman: University of Oklahoma Press, 1972), 103. Schultz cites Isaac McCoy, Journal, July 6, 1828.

25. Ibid., 116.

26. Isaac McCoy, History of Baptist Indian Missions Embracing Remarks on the Former and Present Condition of the Aboriginal Tribes: Their Settlement Within the Indian Territory, and Their Future Prospects (Washington, DC: William M. Morrison, 1840), 197-98.

27. Isaac McCoy, Remarks on the Practicability of Indian Reform, Embracing Their Colonization (New York, 1829), 32.

28. Jedidiah Morse, Report to the Secretary of War of the United States on Indian Affairs, Comprising a Narrative of a Tour Performed in the Summer of 1820, under a Commission from the President of the United States, for the Purpose of Ascertaining, for the Use of the Government, the Actual State of the Indian Tribes in Our Country (New Haven, 1822), 255.

29. Isaac McCoy, Remarks on the Practicability of Indian Reform, 33.

30. Ibid., 32.

31. Thomas Pownall, A Topographical Description of the Dominions of the United States of America: [Being a Revised and Enlarged Edition of] A Topographical Description of Such Parts of North America as are Contained in the (Annexed) Map of the Middle British Colonies, &c. In North America. Edited by Lois Mulkearn (Pittsburgh: University of Pittsburgh Press, 1949), 23.

32. McCoy, Remarks on the Practicability of Indian Reform, 33.

33. Ibid., 34.

34. Isaac McCoy, History of the Baptist Indian Missions, 350.

35. Jeremiah Evarts, "Memorial of the Citizens of Massachusetts," edited by Paul Prucha, Cherokee Removal: The William Penn Essays and Other Writings (Knoxville: The University of Tennessee Press, 1981), 231.

36. Ibid., "Memorial of the Prudential Committee of the American Board of

Commissioners for Foreign Missions," 297-298.

37. Ibid., 299.

38. Ibid., 300-301.

39. U. S. Congress, Senate, Views of the Cherokees in Relation to Further Cessions of Their Lands Senate Document 208, 18th Congress, 1st session, 1824 found in American State Papers II, Indian Affairs, 502.

40. U. S. Congress, A Plan for Removing the Several Indian Tribes West of the Mississippi River, 8th cong., 2nd sess., 1825, Senate document 218, in American State Papers, vol. 2 Indian Affairs, 543.

41. Annie H. Abel, The History of Events Resulting in Indian Consolidation West of the Mississippi (Washington, DC: 1906), 383.

42. U. S. Congress, A Plan for Removing the Several Indian Tribes West of the Mississippi River, 544.

43. U. S. Congress, Senate, Report of the Committee on Indian Affairs 24th Cong., 1st sess., 1836, Senate document 246, 4.

44. Ibid., 4 and 5.

45. U. S. Congress, "Exchange of Lands with the Indians," American State Papers, (Indian Affairs, Vol. 2, no. 145, January 9, 1817): 124.

46. U. S. Congress, Senate, Chickasaw and Choctaw Indians 19th Cong., 2nd sess., 1827, Senate document, found in Gales and Seaton's Register of Debates in Congress, 1824-1837, 13 vols. (Washington, DC: GPO, 1825-1839), 3:75.

47. McCoy, Remarks on the Practicability of Indian Reform, 32.

CHAPTER 4

1. Report of the Commissioner of Indian Affairs Accompanying the Annual Report of the Secretary of the Interior, For the Year 1853 (Washington: A. O. P. Nicholson, 1854), 16.

2. Ibid., 121 ff.

3. Ibid., 186.

4. Ibid., 161.

5. Whitefield to Alfred Cumming, 27 September, 1854, Report of the Commissioner of Indian Affairs, 90.

6. F. Todd Smith, The Caddos, the Wichitas, and the United States, 1846-1901 (College Station: Texas A & M University, 1996), 52, 54; Mildred P. Mayhall, The Kiowas (Norman: University of Oklahoma Press, 1987), 217.

7. Rupert Norval Richardson, The Comanche Barrier to the South Plains Settlement: A Century and a Half of Savage Resistance to the Advancing White Frontier (Glendale, CA: Arthur H. Clark Co., 1933), 177.

8. Grant Foreman, Advancing the Frontier, 1830-1860 (Norman: University of Oklahoma Press, 1933), 279.

9. Ernest Wallace and E. Adamson Hoebel, The Comanches: Lords of the South Plains (Norman: University of Oklahoma Press, 1952), 301.

10. T. Ferenbach, Comanches: The Destruction of a People (New York: Alfred A. Knopf, 1974), 388-391.

11. Thomas W. Kavanagh, The Comanches: A History, 1706-1875 (Lincoln: University of Nebraska Press, 1996), 387.

12. Dan Flores, "Bison Ecology and Bison Diplomacy: The Southern Plains from 1800-1850," Journal of American History 78 (September 1991): 479, 483.

13. Elliot West, The Way to the West: Essays on the Central Plains (Albuquerque: University of New Mexico Press, 1995), 62, 61, 65.

14. David LaVere, Contrary Neighbors: Southern Plains and Removed Indians in Indian Territory (Norman: University of Oklahoma Press, 2000), 6, 126.

15. T. J. Blasing, D. W. Stahle and D. N. Duvick, "Tree Ring-Based Reconstruction of annual Precipitation in the South-Central United States from 1750-1980," Water Resources Research 24 (January 1988): 168.

16. The NOAA and NGDC web site that includes climate reconstructions based on the Palmer Drought Severity Index can be accessed at www.ngdc.noaa.gov/paleo/pdsiyear.html .

17. Tom D. Dillehay, "Late Quaternary Bison Population Changes on the Southern Plains," Plains Anthropologist 19 (1974): 185.

18. Timothy Baugh, "Ecology and Exchange: The Dynamics of Plains-Pueblo Interaction," in Farmers, Hunters and Colonists, ed. Katherine Speilmann (Tucson: University of Arizona Press, 1991), 121.

19. Ibid., "Holocene Adaptations in the Southern High Plains," in Plains Indians, A. D. 500-1500: The Archaeological Past of Historic Groups, ed. Karl Schleiser (Norman: University of Oklahoma Press, 1994), 287.

20. John Speth, "Some Unexplored Mutual Aspects of Mutualistic Plains-Pueblo Food Exchange," in ibid., 27-28 for the discussion of Pueblo over hunting; and 29 for nutritional needs of a high protein diet.

21. Katherine Speilmann, "Coercion or Cooperation? Plains-Pueblo Interactions in the Protohistoric Period," in ibid., 40.

22. David Weber, The Spanish Frontier in North America (New Haven, CT: Yale University Press, 1992), 124.

23. Ibid., 134; and Richard White, It's Your Misfortune and None of My Own: A New History of the American West (Norman: University of Oklahoma Press, 1991), 10.

24. Ferenbach, Comanches, 85.

25. Ibid., 87.

26. For an excellent discussion of the impact of the horse on Comanche life see ibid., 97-104.

27. Ibid., 32.

28. Ferenbach contends that the Sioux were not a factor in the Comanche migration southward, but that horses were in ibid., 130; Stanley Noyes, Los Comanches: The Horse People, 1751-1845 (Albuquerque: University of New Mexico Press, 1993), xix; Kavanagh, The Comanches, 63, 68.

29. Ibid., 69.

30. Ibid., 70.

31. Ibid., 37.

32. Noyes, Los Comanches, xx.

33. James H. Shaw and Martin Lee, "Relative Abundance of Bison, Elk and Pronghorn on the Southern Plains, 1806-1857," Plains Anthropologist 42 (February 1997): 169.

34. West, The Way to the West, 73-75.

35. Message from the President of the United States Communicating the Discoveries made in Exploring the Missouri, Red River, and Washita by Captain Lewis and Clark,

Doctor Sibley, and Mr. Dunbar (Washington: A. & G. Way, 1806), 75.

36. Wallace and Hoebel, The Comanches, 74.

37. Francis Levine, "Economic Perspectives on Comanchero Trade," in Farmers, Hunters and Colonists ed. Katherine Speilmenn, 157.

38. Andrew McKee Jones, "Comanches and Texans in the Making of the Comanche Nation: The Historical Anthropology of Comanche-Texan Relations, 1803-1997," (Ph. D. Dissertation, University of Wisconsin-Madison, 1997): 122-23.

39. Ibid., 122.

40. Flores, "Bison Ecology and Bison Diplomacy," 476.

41. Ferenbach, Comanches, 388.

42. John C. Ewers, "The Influence of Epidemics on Indian Populations and Cultures of Texas," in Native American Demography in the Spanish Borderlands ed. Spencer Larson (New York: Garland Publishing Co., 1991), 170.

43. Congress, Senate, Report of Captain R. B. Marcy, 32nd Cong., 2nd sess., 1853, S. Doc. 54, 86-87. (Serial 666).

44. This discussion is contained in the first and second chapters of West, The Way to the West.

45. Noah Smithwick, The Evolution of a State: Or Recollections of Old Texas Days (Austin, TX: Gammel Book Co., 1900), 188.

46. Kavanagh, The Comanches, 345.

47. Richardson, The Comanche Barrier, 173-74.

48. Charles Latrobe, The Rambler in North America (New York: Johnson Reprint Corporation, 1970), 203.

49. Armstrong to Crawford, Report to the Commissioner of Indian Affairs .

50. George F. Ruxton, Adventures in Mexico and the Rocky Mountains (London: J. Murray, 1847), 266.

51. Ibid., 299.

52. Marcy, Report of Captain Marcy, 261.

53. The Standard (Clarksville), May 28, 1853 in Richardson, The Comanche Barrier, 175.

54. Ibid., 174.

55. Flores, "Bison Ecology and Bison Diplomacy," 479.

56. West, The Way to the West, 62; Dan Flores, Horizontal Yellow: Nature and History in the Near Southwest (Albuquerque: University of New Mexico Press, 1999), 267.

57. See the map in West, The Way to the West, 64.

58. Ibid., 39.

59. Wallace and Hoebel, The Comanches, 296.

60. Ruxton, Adventures in Mexico and the Rocky Mountains, 266.

61. www.ngdc.noaa.gov/paleo/pdsiyear.html .

62. Joseph R. Smith, "Diary of Joseph R. Smith," Western History Collection, Norman, Oklahoma, 10, 23.

63. Ibid., 21, 22.

64. Heth to Henry Stanton, August 4, 1851, "Consolidated Correspondence File," Quartermaster General's Office (Record Group 92), NA, in Leo E. Oliva, "Fort Atkinson on the Santa Fe Trail, 1850-1854," Kansas Historical Quarterly 40 (Summer 1974): 222.

65. Thomas Fitzpatrick to L. Lea, September 22, 1851, Report of the Commissioner of Indian Affairs, 71.

66. Ibid., 71.

67. Charles Halleck, "The Siege of Fort Atkinson," Harper's New Monthly Magazine 15 (October 1957): 638; quoted in ibid., 217.

68. Whitefield to Cumming, September 27, 1854, RCIA, 230.

69. Whitefield to Manypenny, September 4, 1855, ibid., 117.

70. Drew to Manypenny, March 24, 1855, in Foreman, Advancing the Frontier, 282.

71. W. H. Garrett to C. W. Dean, August 24, 1855, RCIA, 135.

72. Capron to Howard, Spetember 30, 1852, I. O., L. R., H 112, in Richardson,

Comanches, 212-13.

73. Whitefield to Cumming, September 27, 1854, RCIA, 91.

74. Mayhall, The Kiowas, 215.

75. Robert C. Mill to John Havery, October 114, 1857, RCIA, 143; J. L. Collins to C. E. Mix, September 27, 1858, ibid., 185-86.

76. LaVere, Contrary Neighbors, 156.

77. Wallace and Hoebel, The Comanches, 302; and T. Smith, Caddos, Wichitas and the United States, 52.

78. Robert Neighbors to George Manypenny, September 18, 1856, RCIA, 174.

79. Ross to Neighbors, October 7, 1855, TAL in Smith, Caddos, Wichitas and the United States, 51.

80. Robert Neighbors to Charles Mix, September 10, 1855, Report of the Commissioner of Indian Affairs, 177.

81. Robert Neighbors to George Manypenny, September 18, 1856, Ibid., 68.

82. John Baylor to Robert Neighbors, September 12, 1856, ibid., 177.

83. Ibid., 54.

84. Matthew Leeper to Robert Neighbors, August 20, 1858, ibid., 175.

85. LaVere, Contrary Neighbors, 155.

86. S. P. Ross to Robert Neighbors, September 6, 1858, RCIA, 181.

87. Robert Neighbors to George Manypenny, September 16, 1854, ibid., 158-59.

88. Matthew Leeper to Elias Rector, September 26, 1860, ibid., 156.

89. S. S. Scott to J. P. Benjamin, March 8, 1862, Report of the Confederate States of America War Department, Office of Indian Affairs, 8.

90. S. S. Scott to James Seddon, 1863, ibid., 6, 4.

91. Lydia C. Jones, "Reminiscences," Western Collection, University of Oklahoma.

92. John Chadburn Irwin, "Frontier Life of John Chadburn Irwin: From His Own Narrative as Given to Hazel Best Overton," p. 2, John Chadburn Irwin Papers, Southwest Collection, Texas Tech University, Lubbock, Texas.

93. Waco Register (Texas), April 21, 1866.

CHAPTER 5

1. Dolores Gunnerson, The Jicarilla Apaches: A Study in Survival (DeKalb: Northern Illinois University Press, 1974), 6.

2. Ibid., 6-7.

3. Ibid., 7 ff.

4. Veronica E. Velarde Tiller, The Jicarilla Apache Tribe: A History, 1846-1970 (Lincoln: University of Nebraska Press, 1983), 5.

5. Ibid., 38.

6. E. A. Graves to D. Meriwether, August 31, 1853, Report of the Commissioner of Indian Affairs Transmitted with the President at the Opening of the Second Session of the Thirty Third Congress, 1853 (RCIA) (Washington, DC: A. O. P. Nicholson, 1854), 194.

7. Ibid., 194-95.

8. D. Meriwether to G. W. Manypenny, September, 1855, ibid., 187.

9. Tiller, The Jicarilla Apache Tribe, 56.

10. Arrell Morgan Gibson, Oklahoma: A History of Five Centuries 2nd edition (Norman: University of Oklahoma Press, 1981), 101.

11. Ibid., 103; and Muriel H. Wright, "Early Navigation and Commerce Along the Arkansas and Red Rivers of Oklahoma," Chronicles of Oklahoma 8 (March 1930): 77.

12. Ibid., 81.

13. George Catlin, Letters and Notes on the Manners, Customs, and Condition of the North American Indians: Written During Eight Years' Travel Amongst the Wildest Tribes of Indians in North America (Philadelphia, PA: J. W. Bradley, 1860), 467; 237; Catlin, North American Indians, 140; in Norman Arthur Graebner, "Pioneer Indian Agriculture in Oklahoma," Chronicles of Oklahoma 23 (Summer & Autumn 1945): 234.

14. Thomas Jefferson Farnham, Travels in the Great Western Prairies, the Anahuac and Rocky Mountains, and in the Oregon Country, in Reuben Gold Thwaites, ed., Early Western Travels XXVIII (Cleveland, OH: Arthur H. Clark Co., 1906), 122.

15. Josiah Gregg, Commerce on the Prairie, of the Journal of a Santa Fe Trader in Reuben Gold Thwaites, ed., Early Western Travels XXVIII (Cleveland, OH: Arthur H. Clark Co., 1906), 107.

16. Graebner, "Pioneer Indian Agriculture in Oklahoma, 235-36.

17. Ibid., 234.

18. Ibid., 245, 244.

19. Choctaw Intelligencer (Doaksville, Choctaw Nation), October, 15, 1851; found in Muriel Wright, "Early Navigation and Commerce," 84.

20. Monthly Meteorological Report, Fort Washita Meteorological Register, United States Weather Bureau Climatological Records, National Archives.

21. Grant Foreman, The Five Civilized Tribes (Norman: University of Oklahoma Press, 1934), 81.

22. B. F. Robinson to A. Cuming, August 31, 1854, RCIA, 106.

23. Andrew J. Dorn to Thomas Drew, August 31, 1854, Ibid., 124.

24. George Butler to Thomas Drew, September 27, 1854, Ibid., 114.

25. Grant Foreman, Advancing the Frontier, 1830-1860 (Norman: University of Oklahoma Press, 1933), 265.

26. George Manypenny to R. McClelland, November 26, 1855, RCIA, 9.

27. J. W. Washburne to C. W. Dean, August 15, 1855, Ibid., 170

28. Douglas Cooper to Charles Dean, August 28, 1855, ibid., 151.

29. J. C. Robinson to A. J. Smith, July 20, 1855, ibid., 170.

30. J. C. Robinson to D. H. Cooper, 1856, ibid., 170.

31. George B. Hewitt, "Review of Factors Affecting Fecundity, Oviposition, and Egg Survival of Grasshoppers in North America," United States Department of Agriculture ARS 36 (July 1985):3-5.

32. Foreman, The Five Civilized Tribes, 82.

33. The Sequoyah Memorial (Talequah, Cherokee Nation), Thursday, August 2, 1855, vol. 1, no. 1, p. 2, c. 2.

34. Otis Wheeler to his Sister, May 25, 1855, Southwest Collection, Texas Tech University.

35. Ibid.

36. Kansas Free State [Lawrence], May 14, 1855; in James C. Malin, "Dust Storms" Kansas Historical Quarterly 14 (May 1946): 135.

37. C. W. Dean to George Manypenny, October 13, 1856, RCIA, 131-32.

38. Cyrus Byington to Douglas Cooper, August 3, 1857, Ibid., 235.

39. J. W. Denver to J. Thompson, 1857, ibid., 6; W. H. Garrett to Elias Rector, September 21, 1857, ibid., 225; Ebenezer Hotchkin to Douglas Cooper, August 10, 1857, ibid., 245; J. C. Robinson to Douglas Cooper, August 21, 1857, ibid., 254.

40. Monthly Meteorological Report, Fort Washita Meteorological Register, United States Weather Bureau Climatological Records, National Archives.

41. George Butler to Elias Rector, September 8, 1857, RCIA, 211.

42. Samuel Rutherford to Elias Rector, August 18, 1858, ibid., 153.

43. Andrew Dorn to Elias Rector, September 9, 1858, ibid., 136-37.

44. J. Schoemaker to A. J. Dorn, September 1, 1858, ibid., 138.

45. Ibid., 139.

46. Ibid., 137 ff.

47. Elias Rector to Charles Mix, October 26, 1858, ibid., 126.

48. Herald of Freedom [Lawrence, KS], April 25, 1857, in Malin, "Dust Storms" 137.

49. George Butler to Elias Rector, September 10, 1859, RCIA, 178; W. H. Garrett to Elias Rector, September 12, 1859, ibid., 178; W. R. Baker to D.ouglas Cooper, July 27, 1859, ibid., 202.

50. James Killebrew to Andrew Dorn, September 18, 1860, ibid., 123.

51. W. M. Loughridge to William Garrett, October 8, 1860, ibid., 126.

52. Samuel Rutherford to Elias Rector, August 15, 1860, ibid., 127.

53. George Ainslie to Douglas Cooper, July 26, 1860, ibid., 138.

54. Cyrus Kingsbury to Douglas Cooper, July 16, 1860, ibid., 137.

55. Elias Rector to A. B. Greenwood, September 24, 1860, ibid., 117.

56. William Dole to Caleb Smith, November 27, 1861, ibid., 14.

57. Angie Debo, The Rise and Fall of the Choctaw Republic (Norman: University of Oklahoma Press, 1961, second edition),74.

58. Graebner, "Pioneer Indian Agriculture in Oklahoma," 246.

59. Baldwin Mollhausen, Diary of a Journey from Mississippi to the Coasts of the Pacific, I., 67, on Graebner, "Pioneer Indian Agriculture in Oklahoma," 238.

60. Annie H. Able, The American Indian as Slaveholder and Secessionist (Lincoln: The University of Nebraska Press, 1992, first copyright in 1915), 146.

61. Arrell M. Gibson, The Chickasaws (Norman: University of Oklahoma Press, 1971), 228.

62. Able, Indians as Slaveholders, 58.

63. Larry C. Rampp and Donald L. Rampp, The Civil War in the Indian Territory (Austin, TX: Presidial Press, 1975), 3.

CHAPTER 6

1. Watonga Republican (Oklahoma), May 15, 1895.

2. James C. Malin, "Dust Storms: Part Two, 1861-1880," Kansas Historical Quarterly14 (August 1946): 265.

3. Jonathon Richards to Enoch Hoag, September 1, 1874, Report of the Commissioner of Indian Affairs (RCIA), 238; Jonathon Richards to Edward Smith, September 1, 1875, RCIA, 288.

4. John Shorb to Commissioner of Indian Affairs, September 4, 1880, RCIA, 90-1. See also Jno. Smith to Commissioner of Indian Affairs, October 25, 1879, RCIA, 71.

5. William Whiting to Commissioner of Indian Affairs, August 31, 1880, RCIA, 84.

6. Jonathon Richards to E. P. Smith, September 1, 1875, RCIA, 288; William Nicholson to Commissioner of Indian Affairs, September 22, 1876, RCIA, 71; A. C. Williams to Commissioner of Indian Affairs, August 20, 1877, RCIA, 112; and Ibid., August 31, 1878, 70.

7. Levi Woodward to Commissioner of Indian Affairs, August 27, 1877, RCIA, 105; and A. C. Williams to Commissioner of Indian Affairs, August 24, 1877, RCIA, 68.

8. David Emmons, Garden in the Grassland: Boomer Literature of the Central Great Plains (Lincoln: University of Nebraska Press, 1971), 13.

9. Ibid., 13-4.

10. Ibid., 15, and 17-8.

11. Ibid., 18.

12. Ibid., 25.

13. Ibid., 25-35.

14. Eleanor L. Turk, "Selling the Heartland: Agents, Agencies, Press, and Policies Promoting German Emigration to Kansas in the Nineteenth Century," Kansas History 12 (Autumn 1989): 158.

15. Ruper N. Richardson, The Greater Southwest: The Economic, Social, and Cultural Development of Kansas, Oklahoma, Texas, Utah, Colorado, Nevada, New Mexico, Arizona, and California from the Spanish Conquest to the Twentieth Century (Glendale, CA: Arthur H. Clark, 1934), 360.

16. Henry Nash Smith, "Rain Follows the Plow: The Notion of Increased Rainfall for the Great Plains, 1844-1880," Huntington Library Quarterly 10 (no. 2 1946-1947): 180; and Emmons, Garden in the Grassland, 143, 145-6.

17. Ibid., 51.

18. Ibid., 60, 62.

19. Samuel Aughey, "The Geology of Nebraska: A Lecture Delivered in the Representative Hall at Lincoln . . ., January 20, 1873" (Lincoln, NE: 1873): 14; in Emmons, Garden in the Grassland, 135.

20. Ibid., 148.

21. Jan Blodgett, Land of Bright Promise: Advertising the Texas Panhandle and South Plains (Austin: University of Texas Press, 1988), 27.

22. Ibid., 26.

23. Frederick W. Rathjen, The Texas Panhandle Frontier (Austin: University of Texas Press, 1973), 245.

24. Blodgett, Land of Bright Promise, 28-9.

25. Frontier Echo (Texas), March 2, 1877; in Ruper N. Richardson, The Greater Southwest, 349-50.

26. Carl Coke Rister, "Free Land Hunters of the Southern Plains" Chronicles of Oklahoma 22 (Winter 1944-1945): 399.

27. Carl Coke Rister, "'Oklahoma,' the Land of Promise" Chronicles of Oklahoma 23 (Spring 1945): 4.

28. Ibid.

29. H. Craig Miner, "Cherokee Sovereignty in the Gilded Age: The Outlet Question" Chronicles of Oklahoma 71 (Summer 1993): 128.

30. Rister, "'Oklahoma,' Land of Promise," 5.

31. Ibid., 6.

32. Stan Hoig, Fort Reno and the Indian Territory Frontier (Fayetteville: University of Arkansas Press, 2000), 85.

33. Rister, "'Oklahoma,' Land of Promise", 13.

34. James C. Malin, "Dust Storms, Part III, 1880-1900" Kansas Historical Quarterly 14 (November 1946): 398.

35. J. W. Williams, "A Statistical Study of the Drouth of 1886" West Texas Historical Association Year Book 21 (October 1945): 92.

36. Ibid., 97.

37. W. C. Holden, "West Texas Drouths" The Southwestern Historical Quarterly 32 (October 1928): 105.

38. Ibid., 106.

39. Ibid., 107.

40. Haskell Free Press (Te Holden, "West xas), July 17, 1886; in Holden, "West Texas Drouths," 106.

41. Arrell Morgan Gibson, "Ranching on the Southern Great Plains," Journal of the West 6 (January 1967): 149.

42. Ibid., 150.

43. Andy Addington, Indian Pioneer History Conservation Commission (IPHCC), Grant Foreman Papers, vol. I, Oklahoma Historical Society, 61. Mr. Addington uses the years 1884 and 1885 for his account, but was obviously confusing these years with the well documented drought and winter of 1886-1887.

44. Williams, "A Statistical Study of the Drouth of 1886," 93.

45. Holden, "West Texas Drouths," 111-112.

46. Ibid., 110-111.

47. Ibid., 111.

48. Williams, "A Statistical Study of the Drought of 1886," 100.

49. Ibid., 102; and Holden,"West Texas Drouths," 119.

50. Ibid., 112.

51. Ibid., 112-113.

52. Ibid., 120-1; and Williams, "A Statistical Study of the Drouth of 1886," 103-4.

53. Malin, "Dust Storms," 400.

54. Ibid., 401.

55. Elizabeth Brooks and Jacque Emel, "The Llano Estacado of the American Southern High Plains," in Regions At Risk: Comparisons of Threatened Environments, eds. Jeanne Kasperson, Roger Kasperson, and B. L. Turner (New York: United Nations University Press, 1995), 264.56. Gilbert Fite, The Farmer's Frontier, 1865-1900 (Norman: University of Oklahoma Press, 1987), 200.

56. Gilbert Fite, The Farmer's Frontier, 1865-1900 (Norman: University of Oklahoma Press, 1987), 200.

57. Albany News (Texas), October 21, 1886; in Williams, "A Statistical Study of the Drought of 1886," 105.

58. Jesse Ausubel and Asit K. Biswas, Climatic Constraints and Human Activities (New York: Pergamon Press, 1980), 109.

59. Ibid., 105.

60. Holden, "West Texas Drouths," 122.

61. Santa Fe Railroad, How and Where to Get a Living. A Sketch of 'the Garden of the West.' Presenting Facts Worth Knowing Concerning Lands of the Atcheson, Topeka and Santa Fe Railroad Co., in Southwestern Kansas (Boston, Santa Fe Railroad, 1876), 36.

62. Union Pacific, The Resources and Attraction of Nebraska (Omaha: Union Pacific Railroad, 1893), 8; in Emmons, Garden in the Grassland, 149.

63. Ibid., 153.

64. Meade County Globe (Kansas), April 13, 1893; in Malin, "Dust Storms," 403.

65. Robert S. Winslow Diaries, Southwest Collection, Texas Tech University, see entries for July 11, September 11, and September 30, 1893.

66. The Albany News (Texas), April 1, 1932.

67. Alvin O. Turner, "Order and Disorder: The Opening of the Cherokee Outlet," Chronicles of Oklahoma 71 (Summer 1993): 160.

68. Webb and Hill to Henry C. Payne, August 3, 1893, Webb and Hill Letter Press Book, Louis Hamilton Hill Papers, Southwest Collection, Texas Tech University, 377.

69. Webb and Hill to L. S. Kohrnhorst, August 4, 1893, 387.

70. Webb and Hill to James Thompson, September 20, 1893, 126.

71. Webb and Hill to A. J. Vick, September 20, 1893, 124.

72. Ibid., and Webb and Hill to Col. Alvin Rockwell, September 21, 1893, 138.

73. Webb and Hill to Evans, Snider, Buel Company National Stockyards, Chicago, IL, October 3, 1893, 295-6.

74. The Albany News, April 1, 1932.

75. Charles Alling Interview, IPHCC, v. 12, 296-7.

76. Howard L. Johnson and Claude E. Duchon, Atlas of Oklahoma Climate (Norman: University of Oklahoma Press, 1995), fig., 3.1.

77. Irene Richy Interview, IPHCC, v. 15, 41.

78. Frank T. Perry Interview, IPHCC, v. 53, 299.

79. USDA, Weather Bureau data for Guthrie, Meeker, Mangum, and Jefferson in 1894.

80. Malin, "Dust Storms," 404.

81. Topeka Daily Capitol (Kansas), March 21, 1895; in Malin, "Dust Storms," 405.

82. Johnson City Journal, April 13, 1895; in Malin, "Dust Storms," 409.

83. Ibid., 409.

84. Kingfisher Free Press (Oklahoma Territory), October 31, 1895; in Fite, The Farmer's Frontier, 212.

85. Watonga Republican (Oklahoma Territory), May 1, 1895; in Bonnie Lynn-Sherow, "Ordering the Elements: An Environmental History of West Central Oklahoma," (Ph. D. dissertation, Northwestern University, Evanston, IL, 1998): 115.

86. Richard S. Cutter Diary, Richard S. Cutter Papers, Southwest Collection, Texas Tech University, March 17, 1894.

87. Ibid., July 13, 1894, ff.

88. R. Warrick and M. Bowden, "The Changing Impacts of Drought in the Great Plains," in The Great Plains: Perspectives and Prospects, eds. M. Lawson and M. Baker (Lincoln: University of Nebraska Press, 1980), 126.

89. Hennessey Clipper (Oklahoma Territory), March 19, 1896.

90. Hardesty Herald (Oklahoma Territory), June 15, 1896.

91. A. E. Woodson to the Commissioner of Indian Affairs, September 17, 1894, Report of the Commissioner of Indian Affairs (RCIA), 236.

92. H. B. Freeman to the Commissioner of Indian Affairs, August 18, 1894, RCIA, 242; and J. P. Woolsey to the Commisioner of Indian Affairs, August 15, 1894, RCIA, 253.

93. Ibid., 247.

94. John L. Bullis to the Commissioner of Indian Affairs, August 23, 1894, RCIA, 210.

95. A. H. Viets to the Superintendent of Indian Schools, July 1, 1895, RCIA, 247.

96. W. J. A. Montgomery to the Superintendent of Indian Schools, July 1, 1895, RCIA, 248.

97. Cora M. Dunn to the Commissioner of Indian Affairs, August 25, 1895, RCIA, 253.

98. J. P. Brown to the Superintendent of Indian Schools, June 30, 1895, RCIA, 263.

99. A. H. Viets to the Commissioner of Indian Affairs, June 30, 1896, RCIA, 252.

100. Ibid.

101. A. E. Woodson to the Commissioner of Indians Affairs, August 28, 1896, RCIA, 249.

102. A. H. Viets to the Commissioner of Indian Affairs, June 30, 1896, RCIA, 252; and Franklin Baldwin to The Commissioner of Indian Affairs, August 28, 1896, RCIA, 253.

103. Sherow, "Ordering the Elements," 118.

104. Oklahoma Agricultural Experiment Station, "Irrigation for Oklahoma" Bulletin No. 18 (April 1896): 3-11.

105. Department of the Interior, "Report on the Population of the United States at the Twelfth Census: 1900," (Washington, DC: GPO, 1905).

CHAPTER 7

1. Muchmore, "I Saw the Run" in The Last Run, Kay County, Oklahoma, 1893 (Ponca City, O Clyde K: Courier Printing, 1934), 120.

2. Alvin O. Turner, "Order and Disorder: The Opening of the Cherokee Outlet," Chronicles of Oklahoma 71 9Summer 1993): 160.

3. L. G. Moses, The Indian Man: A Biography of James Mooney (Urbana: University of Illinois Press, 1984), 74-76.

4. William Cronin, Nature's Metropolis: Chicago and the Great West (New York: W. W. Norton and Co., 1991), 342.

5. Report of June 13, 1892, H. Reports, 52nd Cong., 1st sess., v(3046), no. 1631, p. 2 in Berlin Chapman, "Opening of the Cherokee Outlet: An Archival Study" Chronicles of Oklahoma 40 (Summer 1962): 159.

6. Joe B. Milam, "The Opening of the Cherokee Strip," Chronicles of Oklahoma 9 (September and December,1931): 269-286, and 454-475.

7. Berlin B. Chapman, "The Opening of the Cherokee Outlet: An Archival Study," Chronicles fo Oklahoma 40 (Summer and Autumn 1962): 158-181, and 253-285.

8. Alvin O. Turner, "Order and Disorder: The Opening of the Cherokee Outlet," Chronicles of Oklahoma 71 (Summer 1993): 154-173.

9. D. Earl Newsom, The Cherokee Strip: Its History and Grand Opening (Stillwater, OK: New Forms Press, 1992), 1-172.

10. Norman Transcript, March 24, 1893, p.3, c.6.

11. Newsom, The Cherokee Strip, 18.

12. Craig Miner, "Cherokee Sovereignty in the Gilded Age: The Outlet Question," Chronicles of Oklahoma 71 (Summer 1993): 128.

13. The Daily Oklahoma State Capital (Guthrie), September 11, 1893, p. 1, c. 3.

14. Chapman, "The Opening of the Cherokee Outlet," 168.

15. Turner, "Order and Disorder," 166.

16. Chapman, "The Opening of the Cherokee Outlet," 173; Mary Holton Boerner, ed., Run of '93 (Ponca City, OK: The '93er Association,), 156.

17. Turner, "Order and Disorder," 163.

18. Guthrie Daily Leader, September 12, 1893, p. 1, c. 1.

19 Guthrie Daily Leader, September 12, 1893, p. 1, c. 1; The Daily Oklahoma State Capital (Guthrie), September 15, 1893, p. 1, c. 3.

20. Chapman, "The Opening of the Cherokee Outlet," 257.

21. Boerner, Run of '93, 165.

22. Ibid., September 14, 1893, p. 2, c. 2.

23. Ibid., 132.

24. Guthrie Daily Leader, September 16, 1893, p. 1, c. 2.

25. These sites included Kirk, Kildare, Cross and Wharton (Perry). Ibid., September 14,

1893, p. 1, c. 2.

26. The Beaver Advocate, September 14, 1893, p. 2, c. 2.

27. Daily Oklahoma State Capitol, September 14, 1893, p. 1, c. 5.

28. Guthrie Daily Leader, September 14, 1893, p. 1, c. 2.

29. Ibid., p. 1, c. 2.

30. Daily Oklahoma State Capitol, September 15, 1893, p. 1, c. 3.

31. Ibid.

32. Joe B. Milam, "The Opening of the Cherokee Outlet," 469.

33. Lucille Gilstrap, "Homesteading the Strip," Chronicles of Oklahoma 51 (Fall 1973): 288.

34. Boerner, Run of '93, 194.

35. Mary Bobbit Brown Hatfield, "Edna Green Parker Collection," Box H-45 F6 (Western History Collection, University of Oklahoma, 1955): 1.

36. Interview with Etta Stocking, Indian-Pioneer History (IPH), 103: 227, Archive Manuscript Division (AMD), Oklahoma Historical Society (OHS).

37. Boerner, Run of '93, 268.

38. J. S. Wade, "Uncle Sam's Horse Race," Chronicles of Oklahoma 35 (Summer 1957): 149; Interview with Andrew T. Anthony, IPH, 12: 383, AMD OHS.

39. Chapman, "Opening of the Cherokee Outlet," 259; Turner, "Order and Disorder," 164.

40. Guthrie Daily Leader, September 21, 1893, p. 1, c. 1.

41. Daily Oklahoma State Capitol, September 15, 1893, p. 1, c. 4.

42. Guthrie Daily Leader, September 24, 1893, p. 1, c. 1.

43. The Beaver Advocate, September 28, 1893, p.2, c. 1.

44. Ibid., September 22, 1893, p. 1, c. 1.

45. Boerner, Run of '93, 10.

46. El Reno News, July 24, 1896, p. 6, c. 5-6; Beaver Advocate, August 23, 1894, p. 1, c. 7; The Mulhall Chief (Oklahoma Territory), September 21, 1894, p. 2, c. 7; Ibid., August 3, 1894, p. 2, c. 7; Beaver Advocate, August 16, 1894, p. 4, c. 1; and Mulhall Chief, ibid.

47. Guthrie Daily Leader, September 20, 1893, p. 1, c. 2.

48. Boerner, Run of '93, 232.

49. Guthrie Daily Leader, September 21, 1893, p. 1, c. 1.

50. Turner, "Order and Disorder," 170.

51. Kenny L. Brown, "Building a Life: Culture, Society, and Leisure in the Cherokee Outlet," Chronicles of Oklahoma 71 (Summer 1993): 180.

52. Mulhall Chief, August 3, 1894, p. 3, c. 3.

53. Eagle Gazette (Stillwater, Oklahoma Territory), September 6, 1894, p. 3, c. 4.

54. Hennessey Clipper, April 23, 1896, p. 1, c. 3.

55. Ibid., November 26, 1896, p. 1, c. 6.

56. Boerner, Run of '93, 134.

57. Ibid., 143-147.

58. Ibid., 141.

59. "Governor's Message to the Third Legislative Assembly of the Territory of Oklahoma," January 8, 1895, Oklahoma Territory Governor's Messages and Reports, Oklahoma Department of Libraries, Archives Department, 9.

60. Interview with Frank T. Perry, IPH, 53: 299, AMD OHS.

61. Interview with Mrs. R. D. Neal, IPH, 7: 433, AMD OHS.

62. Edmond Sun Democrat, June 7, 1895, p. 4, c. 5.

63. Interview with Andrew Anthony, IPH, 12: 385-86, AMD OHS.

64. Brown, "Building a Life," 192.

65. Boerner, Run of '93, 223, 229.

66. Atchison, Topeka and Santa Fe Railroad Companies, Cherokee Strip and Oklahoma:

Opening of Cherokee Strip, Kickapoo, Pawnee and Tonkawa Reservations (Chicago: Poole Bros., 1893), 2-3.

67. Margaret A. Nelson, Home On the Range (Boston: Chapman & Grimes, 1947), 162-167.

CHAPTER 8

1. W. H. Droze, "Changing the Plains Environment: The Afforestation of the Trans-Mississippi West," Agricultural History 51 (January 1977): 9.

2. Ibid., 11.

3. Thomas R. Wessel, "Prologue to the Shelterbelt, 1870 to 1934," Journal of the West 6 (January 1967): 126; and Droze, "Changing the Plains Environment," 11.

4. Ibid.

5. Wessel, "Prologue to the Shelterbelt," 125.

6. United States Statutes at Large, 18:54; in Wessel, "Prologue to the Shelterbelt, 125.

7. Nathanial H. Egelston, "Report of the Chief of Forestry," United States Department of Agriculture Report, 1883, 453; in Wessel, "Prologue to the Shelterbelt," 124.

8. Droze, "Changing the Plains Environment," 16.

9. Wessel, "Prologue to the Shelterbelt," 126.

10. Ibid., 128.

11. Walter Prescott Webb, The Great Plains (Lincoln: University of Nebraska Press, 1981; 1931), 380 see note 2.

12. Ibid., 380-1.

13. Walter P. Webb, "Some Vagaries of the Search for Water in the Great Plains," Panhandle-Plains Historical Review 3 (1930): 35.

14. Martha B. Caldwell, "Some Kansas Rainmakers," Kansas Historical Quarterly 7 (August 1938): 309-11.

15. Ibid., 312.

16. Ibid., 319.

17. Beaver Advocate (Oklahoma Territory), July 27, 1893.

18. A. Bower Sageser, "Editor Bristow and the Great Plains Irrigation Revival of the 1890's," Journal of the West 3 (January 1964): 83.

19. Webb, The Great Plains, 382.

20. James Earl Sherow, Watering the Valley: Development Along the High Plains Arkansas River, 1870-1950, (Lawrence: University Press of Kansas, 1990), 13.

21. Ibid., 17.

22. Sageser, "Editor Bristow and the Great Plains Irrigation Revival," 78.

23. John Opie, Ogallala: Water for a Dry Land, (Lincoln: University of Nebraska Press, 2000), 69.

24. Sageser, "Editor Bristow and the Great Plains Irrigation Revival," 85.

25. Donald Green, Land of the Underground Rain: Irrigation on the Texas High Plains, 1910-1970 (Austin: University of Texas Press, 1973), 233.

26. Ibid., 234.

27. Opie, Ogallala, 63.

28. Green, Land of the Underground Rain, 232.

29. Donald Worster, Dust Bowl: The Southern Plains in the 1930s (New York: Oxford University Press, 1979), 89-94.

30. Ibid., 13-14.

31. Opie, Ogallala, 93.

32. Richard A. Warrick and Martyn J. Bowden, "The Changing Impacts of Dorughts in the Great Plains," in The Great Plains: Perspectives and Prospects, eds. M. Lawson and M. Baker (Lincoln: University of Nebraska Press, 1980), 127.

33. Opie, Ogallala, 353.

34. Worster, Dust Bowl, 222.

35. Ibid., 223.

36. Howard L. Johnson and Claude E. Duchan, Atlas of Oklahoma Climate (Norman:

University of Oklahoma Press, 1995), 13; and Arthur H. Doerr, "Dry Conditions in Oklahoma in the 1930's and 1950's as Delimited by the Original Thornwaite Climatic Classification," Great Plains Journal 2 (Spring 1963): 75.

37. Opie, Ogallala, 107.

38. Ibid., 108.

39. Ibid., 126-28, 131.

40. Department of the Interior, Report on the Population of the United States at the Eleventh Census: 1890 (Washington, DC: GPO, 1895), 12, 19-20,31, 35, and 40-42.

41. Sherow, Watering the Valley, 167.

42. Martyn J. Bowden, "Desertification of the Great Plains: Will It Happen," Economic Geography 53 (1977): 401.

APPENDIX

Census Figures for Southern Plains Counties, 1870-1890

Kansas Counties	1870	1880	1890	1900
Barber		2,661	7,973	**6,594**
Clark		163	2,357	**1,701**
Comanche		372	2,549	**1,619**
Edwards		2,409	3,600	3,682
Finney			3,350	3,469
Ford	427	3,122	5,308	5,497
Grant		9	1,308	**422**
Gray			2,415	**1,264**
Hamilton		168	2,027	**1,426**
Harper		4,133	13,266	**10,310**
Harvey		11,451	17,601	**17,591**
Haskell			1,077	**457**
Hodgeman		1,704	2,395	**2,032**
Kearny		159	1,571	**1,107**
Kingman		3,713	11,823	**10,663**
Kiowa			2,873	**2,365**
Meade		296	2,542	**1,581**
Morton		9	724	**304**
Pawnee	179	5,396	5,204	**5,084**
Pratt		1,890	8,118	**7,085**
Reno		12,826	27,079	29,027
Sedgwick	1,095	18,753	43,626	44,037
Seward		5	1,503	**822**
Stafford		4,755	8,520	9,829
Stanton		5	1,031	**327**
Stevens		12	1,418	**620**
Sumner	22	20,812	30,271	**25,631**

Texas Counties	1870	1880	1890	1900
Andrews			24	87
Archer		596	2,101	2,508
Armstrong		31	944	1,205
Bailey				4
Baylor		715	2,595	3,052
Borden		35	222	776
Briscoe		12	no returns	1,253
Brown	544	8,414	11,421	16,019
Callahan		3,453	5,457	8,768
Carson			356	469
Castro			9	400
Childress		25	1,175	2,138
Clay	no returns	5,045	7,503	9,231
Cochran				25
Coke			2,059	3,430
Coleman	347	3,603	6,112	10,077
Collingsworth		6	357	1,233
Comanche	1,001	8,608	15,608	23,009
Cottle		24	240	1,002
Crosby		82	346	788
Dallam			112	146
Dawson		24	29	37
Deaf Smith		38	179	843
Dickens		28	295	1,151
Donley		160	1,056	2,756
Eastland	88	4,855	10,373	17,971
Ector			224	381
Erath	1,801	11,796	21,594	29,966
Fisher		136	2,996	3,708
Floyd		3	529	2,020

Foard				1,568
Gaines		8	68	55
Garza		36	14	185
Glasscock			208	286
Gray		56	203	480
Hale			721	1,680
Hall		36	703	1,670
Hansford		18	133	167
Hardeman		50	3,904	3,634
Hartley		100	252	377
Haskell		48	1,665	2,637
Hemphill		149	519	815
Hockley				44
Howard		50	1,210	2,528
Hutchinson		50	58	303
Jack	694	6,626	9,740	10,224
Jones		546	3,797	7,053
Kent		92	324	899
King		40	173	490
Knox		77	1,134	2,322
Lamb			4	31
Lipscomb		69	632	790
Lubbock		25	33	293
Lynn		9	24	17
Martin		12	264	33
Midland			1,033	1,741
Mitchell		117	2,059	2,855
Montague	890	11,257	18,863	24,800
Moore			15	209
Motley		24	139	1,257
Nolan		640	1,573	2,611

Ochiltree			198	267
Oldham		287	270	349
Palo Pinto	no returns	5,885	8,320	12,291
Parmer			7	34
Potter		28	849	1,820
Randall		3	187	963
Roberts		32	326	620
Runnels		980	3,193	5,379
Scurry		102	1,415	4,158
Shackelford	455	2,037	2,012	2,461
Sherman			34	104
Stephens	330	4,725	4,926	6,466
Sterling				1,127
Stonewall		104	1,024	2,183
Swisher		4	100	1,227
Taylor		1,736	6,957	10,499
Terry			21	48
Throckmorton		711	902	1,750
Wheeler		512	778	**636**
Wichita		433	4,831	5,806
Wilbarger		126	7,092	**5,759**
Wise	1,450	16,601	24,134	27,116
Yoakum			4	26
Young	135	4,726	5,049	**6,540**

Colorado Counties	1870	1880	1890	1900
Baca			1,479	**759**
Bent			1,313	3,049
Kiowa			1,243	**701**
Otero			4,192	11,522
Prowers			1,969	3,766

New Mexico Counties	1870	1880	1890	1900
Chaves				4,773
Eddy				3,229
Guadelupe				5,429
San Miguel	16,058	20,638	24,204	**22,053**
Union				4,528

	1870	1880	1890	1900
Colorado	-------	-------	10,196	19,797
Kansas	1,723	94,823	211,529	**194,546**
New Mexico	16,058	20,638	24,204	35,484
Texas	5,843	106,856	207,908	314,435
Indian Territory	--------	--------	61,834	384,458

	1870	1880	1890	1900
Southern Plains	23,624	402,317	515,671	648,720

Department of the Interior, "Report on the Population of the United States at the Twelfth Census: 1900," (Washington, DC: GPO, 1905).

BIBLIOGRAPHY

Primary Sources:

"American Desert." Niles Weekly Register 35 (September 27, 1828): 70.

Atchison, Topeka and Santa Fe Railroad Company, Cherokee Strip and Oklahoma: Opening of the Cherokee Strip, Kickapoo, Pawnee and Tonkawa Reservations. Chicago: Poole Brothers, 1893.

Barnes, Lela, ed. "Journal of Isaac McCoy for the Exploring Expedition of 1828." Kansas Historical Quarterly 5 (August 1936): 227-77.

_____. "Journal of Isaac McCoy for the Exploring Expedition of 1830." Kansas Historical Quarterly 5 (November 1936): 339-77.

Benton, Thomas Hart. Discourse of Mr. Benton of Missouri before the Mercantile Library Association . . . Delivered in Tremont Temple at Boston, December 20, 1854. Washington: J. T. and L. Towers, 1854.

Boerner, Mary Holton, ed. Run of '93. Ponca City, OK: The 93'er Association, 1991.

Brackenridge, Henry M. Views of Louisiana; Together with a Journal of a Voyage Up the Missouri River in 1811. Pittsburgh, PA, 1814.

Bullard, Clara W. "Pioneer Days in the Cherokee Strip." Chronicles of Oklahoma 36 (Fall 1958): 258-269.

Carroll, Lew F. "An Eighty-Niner Who Pioneered the Cherokee Strip." Chronicles of Oklahoma 24 (Spring 1946): 87-101.

Catlin, George. Letters and Notes on the Manners, Customs, and Conditions of the North American Indians: Written During Eight Years' Travel Amongst the Wildest Tribes of Indians in North America. Philadelphia, PA: J. W. Bradley, 1860.

Davis, Athie. "Reminiscences of Pioneer Days in Garfield County." Chronicles of Oklahoma 35 (Summer 1957): 163-168.

Everett, Edward. "Long's Expedition." North American Review 16 (April 1823): 242-69.

Farnham, Thomas Jefferson. Travels in the Great Western Prairies, the Anahuac and Rocky Mountains, and in the Oregon Country. In Reuben Gold Thwaites, ed. Early Western Travels vol. XXVIII. Cleveland, OH: Arthur H. Clark Company, 1906.

Fuller, Harlin M. and LeRoy R. Hafen, eds. The Far West and the Rockies Historical Series,1820-1875. Vol. 16, The Journal of Captain John R. Bell, by John R. Bell. Glendale, CA: The Authur H. Clark Company, 1957.

Gilpin, William. Mission of the North American People: Geographical, Social, and Political, 2d. ed. Philadelphia: J. B. And Lippencott and Co., 1874.

Gilstrap, Lucille. "Homesteading the Strip." Chronicles of Oklahoma 51 (Fall 1973): 285-304.

Gregg, Josiah. Commerce on the Prairie, of the Journal of a Santa Fe Trader. In Reuben Gold Thwaites, ed. Early Western Travels vol. XXVIII. Cleveland ,OH: Arthur H. Clark Company, 1906.

Hatfield, Mary Bobbit Brown. "Edna Green Parker Collection." Box H-45 F6. Western History Collection, University of Oklahoma, 1955.

James, Edwin. From Pittsburgh to the Rocky Mountains: Major Stephen Long's Expedition,1819-1820. Edited by Maxine Benson. Golden, CO: Fulcrum, 1988.

Kennan, Clara B. "Neighbors in the Cherokee Strip." Chronicles of Oklahoma 27 (spring 1949): 76-88.

Latrobe, Charles. The Rambler in North America. New York: Johnson Reprint Corporation, 1970.

"Major Long's Second Expedition." North American Review 21 (July- December, 1825): 178-89.

McCoy, Isaac. History of Baptist Indian Missions Embracing Remarks on the Former and Present Condition of the Aboriginal Tribes: Their Former Settlement Within the Indians Territory, and Their Future Prospects. Washington, DC: William M. Morrison, 1840.

_____. "Report on the Country for Indians West of the Mississippi River." Edited by David A. White News of the Plains and the Rockies, 1803-1865. Vol. 3, Spokane, WA: Authur H. Clark CO., 1997.

_____. Remarks on the Practicability of Indian Reform, Embracing Their Colonization. New York, 1829.

Morse, Jedidiah. A New Universal Gazeteer, or Geographical Dictionary Accompanied with an Atlas. New Haven, CT: S. Converse, 1823.

_____. Report to the Secretary of War of the United States on Indian Affairs, Comprising a Narrative of a Tour Performed in the Summer of 1820, under a Commission from the President of the United States, for the Purpose of Ascertaining, for the Use of the Government, the Actual State of the Indian Tribes in Our Country. New Haven, 1822.

Lewis, Meriwether and William Clark. The Original Journals of the Lewis and Clark Expedition, 1804-1806. 8 vols. Edited by Reuben Gold Thwaites. New York: Antiquarian Press, 1959.

Oklahoma Agricultural Experiment Station, "Irrigation for Oklahoma" Bulletin No. 18 (April 1896): 3-11.

Peale, Titian R. "Journal of Titian Ramsay Peale, Pioneer Naturalist." Edited by A. O. Weese. Missouri Historical Review 41 (January 1947): 147-63.

Pike, Zebulon Montgomery. The Journals of Zebulon Montgomery Pike. Edited by Donald Jackson. Vol. 2, Pike's Dissertation of Louisiana. Norman: University of Oklahoma Press, 1966.

Powell, John Wesley. Report on the Lands of the Arid Region of the United States. Edited by Wallace Stegner. Cambridge, MA: Harvard University Press, 1962.

Pownall, Thomas. A Topographical Description of the Dominions of the United States of America: [Being a Revised and Enlarged Edition of] A Topographical Description of Such Parts of North America as are Contained in the (Annexed) Map of the Middle British Colonies, &c. In North America. Pittsburgh, PA: University of Pittsburgh Press, 1949.

"Removal of the Indians." North American Review 30 (vol. 21, 1830): 62-121.

Ruxton, George F. Adventures in Mexico and the Rocky Mountains. London: J. Murray, 1847.

Santa Fe Railroad. How and Where to Get a Living. A Sketch of 'the Garden of the West.' Presenting Facts Worth Knowing Concerning Lands of the Atcheson, Topeka and Santa Fe Railroad Co., in Southwestern Kansas. Boston, Santa Fe Railroad, 1876.

Say, Thomas. Account of an Expedition from Pittsburgh to the Rocky Mountains. Edited by Edwin James. Philadelphia, PA: Carey and Lea, 1823.

Silliman, Benjamin. "Expedition of Major Long and Party, to the Rocky Mountains."

American Journal of Science and Arts 6 (1823): 178-89.

Smithwick, Noah. The Evolution of a State: Or Recollections of Old Texas Days. Austin, TX: Gammel Book Co., 1900.

Thwaites, Reuben Gold, ed. Early Western Travels, 1748-1846. Vol. 6, Journal of a Voyage up the Missouri River in Eighteen Hundred and Eleven, by Henry M. Brackenridge. Cleveland, OH: Arthur H. Clark Co., 1904.

_____. Early Western travels, 1748-1846. Vols. 14-17, Parts 1-4 of James Account of S. H. Long's Expedition, 1819-1820, edited by Dr. Edwin James. Cleveland, OH: The Authur H. Clark Company, 1905.

Webster, Noah. An American Dictionary of the English Language. New York: S. Converse, 1828; reprint, San Francisco, CA: Foundation for American Christian Education, 1996.

Government Documents:

Department of the Interior. Report on the Population of the United States at the Twelfth Census: 1900. Washington, DC: GPO, 1905.

Message from the President of the United States Communicating the Discoveries made in Exploring the Missouri, Red River, and Washita by Captain Lewis and Clark, Doctor Sibley, and Mr. Dunbar. Washington: A. & G. Way, 1806.

Report of the Commissioner of Indian Affairs Accompanying the Annual Report of the Secretary of the Interior, For the Year 1853. Washington: A. O. P. Nicholson, 1854.

U. S. Congress. Senate. Exchange of Lands with the Indians. S. Doc. 145, 14th Cong., 2nd sess., 1817.

_____. Views of the Cherokees in Relation to Further Cessions of their Lands. S. Doc. 208, 18th Cong., 1st sess., 1824.

_____. A Plan for Removing the Several Indian Tribes West of the Mississippi River. S. Doc. 218, 18th Cong., 2nd sess., 1825.

_____. Memorial of the Prudential Committee for the American Board of Commissioners for Foreign Missions. S. Doc. 50, 21st Cong., 2nd sess., 1831.

_____. Report of the Committee on Indian Affairs. S. Doc. 246, 24th Cong., 1st sess., 1836.

_____. Journal of Lieutenant J. W. Abert, From Bent's Fort to St. Louis, in 1845. 29 Cong., 1 sess. Senate Document 438. Washington, DC, United States Government Printing Office, 1846.

_____. Report of Captain R. B. Marcy, 32nd Cong., 2nd sess., 1853, S. Doc. 54, 86-87. Washington, DC, United States Government Printing Office, 1854.

U. S. Congress. House of Representatives. Preservation and Civilization of the Indians. H. Doc. 231, 19th Cong., 1st sess., 1826.

_____. Removal Indians Westward. H. Doc. 87, 20th Cong., 2nd sess., 1828.

_____. Country for the Indians West of the Mississippi. H. Doc. 172, 22nd Cong., 1st sess., 1832.

Newspapers:

The Albany News (Texas).

Beaver Advocate (Oklahoma Territory).

Choctaw Intelligencer (Doaksville, Choctaw Nation).

Daily Oklahoma State Capitol (Guthrie, Oklahoma Territory).

Eagle Gazette, (Stillwater, Oklahoma Territory).

Edmond Sun Democrat (Oklahoma Territory).

El Reno News (Oklahoma Territory).

Guthrie Daily Leader (Oklahoma Territory).

Hardesty Herald (Oklahoma Territory).

Hennessey Clipper (Oklahoma Territory).

Mulhall Chief (Oklahoma Territory).

Norman Transcript (Oklahoma Territory).

The Sequoyah Memorial (Talequah, Cherokee Nation).

Watonga Republican (Oklahoma Territory).

CHAPTER 8

1. W. H. Droze, "Changing the Plains Environment: The Afforestation of the Trans-Mississippi West," Agricultural History 51 (January 1977): 9.

2. Ibid., 11.

3. Thomas R. Wessel, "Prologue to the Shelterbelt, 1870 to 1934," Journal of the West 6 (January 1967): 126; and Droze, "Changing the Plains Environment," 11.

4. Ibid.

5. Wessel, "Prologue to the Shelterbelt," 125.

6. United States Statutes at Large, 18:54; in Wessel, "Prologue to the Shelterbelt, 125.

7. Nathanial H. Egelston, "Report of the Chief of Forestry," United States Department of Agriculture Report, 1883, 453; in Wessel, "Prologue to the Shelterbelt," 124.

8. Droze, "Changing the Plains Environment," 16.

9. Wessel, "Prologue to the Shelterbelt," 126.

10. Ibid., 128.

11. Walter Prescott Webb, The Great Plains (Lincoln: University of Nebraska Press, 1981; 1931), 380 see note 2.

12. Ibid., 380-1.

13. Walter P. Webb, "Some Vagaries of the Search for Water in the Great Plains," Panhandle-Plains Historical Review 3 (1930): 35.

14. Martha B. Caldwell, "Some Kansas Rainmakers," Kansas Historical Quarterly 7 (August 1938): 309-11.

15. Ibid., 312.

16. Ibid., 319.

17. Beaver Advocate (Oklahoma Territory), July 27, 1893.

Unpublished Primary Sources:

Cook, E. R., D. M. Meko and C. W. Stockton, eds. U. S. Drought Area Index Reconstruction. International Tree-ring Data Bank. IGBP Pages/ World Data Center-A for Paleoclimatology Data Contribution Series no. 98-036, Boulder, CO: NOAA/ NGDC Paleoclimatology Program, 1998. www.ngdc.noaa.gov/paleo/pdsiyear.html .

Cutter, Richard S. " Diary." Richard S. Cutter Papers. Southwest Collection. Texas Tech University.

Indian Pioneer History Conservation Commission, Grant Foreman Papers, Archive and Manuscript Department, Oklahoma Historical Society.

Joseph R. Smith. "Diary of Joseph R. Smith." Western History Collection. Norman, Oklahoma.

"Governor's Message to the Third Legislative Assembly of the Territory of Oklahoma." January 8, 1895. Oklahoma Territory Governor's Messages and Reports. Oklahoma Department of Libraries, Archives Department.

United States Weather Bureau Climatological Records. Monthly Meteorological Reports. Oklahoma Climatological Survey, Norman, Oklahoma.

Whaley, John R. "Letters of John R. Whaley." Archives and Manuscripts Division. Oklahoma Historical Society.

Webb and Hill Letter Press Book. Louis Hamilton Hill Papers. Southwest Collection. Texas Tech University.

Wheeler, Otis. "Letter to his Sister, 25 May 1855." Southwest Collection. Texas Tech University, Lubbock.

Winslow, Robert S. "Diaries," Southwest Collection, Texas Tech University.

Secondary Sources: Books:

Abel, Annie H. The History of Events Resulting in Indian Consolidation West of the Mississippi. Washington, DC, 1906.

Able, Annie. The American Indian as Slaveholder and Secessionist. Lincoln; University of Nebraska Press, 1992.

Ausubel, Jesse and Asit K. Biswas. Climatic Constraints and Human Activities. New York: Pergamon Press, 1980.

Billington, Ray Allen. Westward Expansion: A History of the American Frontier. New York: McMillan Co., 1949. Reprint, 1954.

Blodgett, Jan. Land of Bright Promise: Advertising the Texas Panhandle and South Plains. Austin: University of Texas Press, 1988.

Cronon, William. Nature's Metropolis: Chicago and the Great West. New York: W. W. Norton and Company, 1991.

Debo, Angie. The Rise and Fall of the Choctaw Republic 2nd ed. Norman: University of Oklahoma Press, 1961.

Emmons, David. Garden in the Grasslands: Boomer Literature of the Central Plains. Lincoln: University of Nebraska Press, 1971.

Evans, Howard Ensign. The Natural History of the Long Expedition to the Rocky Mountains, 1819-1820. New York: Oxford University Press, 1997.

Ewen, David, ed. American Popular Songs: From the Revolutionary War to the Present. New York: Random House, 1966.

Ferenbach, T. Comanches: The Destruction of a People. New York: Alfred A. Knopf, 1974.

Fite, Gilbert. The Farmer's Frontier, 1865-1900. Norman: University of Oklahoma Press, 1987.

Flores, Dan. Horizontal Yellow: Nature and History in the Near Southwest. Albuquerque: University of New Mexico Press, 1999.

Foreman, Grant. Advancing the Frontier, 1830-1860. Norman: University of Oklahoma Press, 1933.

_____. The Five Civilized Tribes. Norman: University of Oklahoma Press, 1934.

Gibson, Arrell Morgan. The Chickasaws. Norman: University of Oklahoma Press, 1971.

_____. Oklahoma: A History of Five Centuries, 2nd ed. Norman: University of Oklahoma Press, 1981.

Goetzman, William H. Army Exploration in the American West, 1803-1863. New Haven, CT: Yale University Press, 1959.

Goodman, George and Cheryl Lawson. Retracing Major Stephen H. Long's 1820 Expedition: The Itinerary and Botany. Norman: University of Oklahoma Press, 1995.

Green, Donald. Land of the Underground Rain: Irrigation on the Texas High Plains, 1910-1970. Austin: University of Texas Press, 1973.

Gunnerson, Dolores. The Jicarilla Apaches: A Study in Survival. DeKalb: Northern Illinois University Press, 1974.

Haines, Francis. The Plains Indian. New York: Thomas Y. Crowell Co., 1976.

Hoig, Stan. Fort Reno and the Indian Territory Frontier. Fayetteville: University of Arkansas Press, 2000.

Hollon, W. Eugene. The Great American Desert, Then and Now. New York: Oxford University Press, 1966.

Johnson, Howard L. and Claude E. Duchon. Atlas of Oklahoma Climate. Norman: University of Oklahoma Press, 1995.

Josephy, Alvin M. Jr. The American Heritage Book of the Pioneer Spirit. New York: American Heritage, 1959.

Kasperson, Jeanne, Roger Kasperson and B. L. Turner, eds. Regions At Risk: Comparisons of Threatened Environments. New York: United Nations University Press, 1995.

Kavanagh, Thomas W. The Comanches: A History, 1706-1875. Lincoln: University of Nebraska Press, 1996.

Larson, Spencer, ed. Native American Demography in the Spanish Borderlands. New York: Garland Publishing Co., 1991.

LaVere, David. Contrary Neighbors: Southern Plains and Removed Indians in Indian Territory. Norman: University of Oklahoma Press, 2000.

Lawson, Merlin P. The Climate of the Great American Desert: Reconstruction of the Climate of Western Interior United States, 1800-1850. University of Nebraska Studies, no. 46. Lincoln: University of Nebraska Press, 1974.

_____, and M. Baker, eds. The Great Plains: Perspectives and Prospects. Lincoln: University of Nebraska Press, 1980.

Malin, James. The Grasslands of North America: Prolegomena to its History. Gloucester, MA: P. Smith, 1967.

_____. Indian Policy and Westward Expansion. Lawrence: University of Kansas Press, 1921.

Malone, Dumas, ed. Dictionary of American Biography. New York: Scribner's Sons, 1946.

Martin, Geoffrey and Preston James, eds., All Possible Worlds: A History of Geographical Ideas. New York: John Wiley and Sons, 1993.

Mayhall, Mildred P. The Kiowas. Norman: University of Oklahoma Press, 1987.

Moring, John. Men With Sand: Great Explorers of the North American West. Helena, MT: Falcon Publishing, 1998.

Moses, L. G. The Indian Man: A Biography of James Mooney. Urbana: University of Illinois Press, 1984.

Nelson, Margaret A. Home on the Range. Boston: Chapman and Grimes, 1947.

Newsom, D. Earl. The Cherokee Strip: Its History and Grand Opening. Stillwater, OK: New Forms Press, 1992.

Nichols, Roger L. and Patrick L. Halley. Stephen Long and American Frontier Exploration. Norman: University of Oklahoma Press, 1995.

Noyes, Stanley. Los Comanches: The Horse People, 1751-1845. Albuquerque: University of New Mexico Press, 1993.

Opie, John. Ogallala: Water for a Dry Land. 2nd ed. Lincoln: University of Nebraska Press, 2000.

Prucha, Francis Paul, ed. Cherokee Removal: The "William Penn" Essays and Other Writings. Knoxville: University of Tennessee Press, 1981.

Rampp, Larry C. and Donald L. Rampp. The Civil War in the Indian Territory. Austin, TX: Presidential Press, 1975.

Rathjen, Frederick W. The Texas Panhandle Frontier. Austin: University of Texas Press, 1973.

Richardson, Rupert Norval. The Comanche Barrier to the South Plains Settlement: A Century and a Half of Savage Resistance to the Advancing White Frontier. Glendale, CA: Arthur H. Clark Co., 1933.

_____. The Greater Southwest: The Economic, Social, and Cultural Development of Kansas, Oklahoma, Texas, Utah, Colorado, Nevada, New Mexico, Arizona, and California from the Spanish Conquest to the Twentieth Century. Glendale, CA: Arthur H. Clark, 1934.

Schleiser, Karl, ed. Plains Indians, A. D. 500-1500: The Archaeological Past of Historic Groups. Norman: University of Oklahoma Press, 1994.

Schultz, George A. An Indian Canaan: Isaac McCoy and the Vision of an Indian State. Norman: University of Oklahoma Press, 1972.

Sherow, James Earl. Watering the Valley: Development Along the High Plains Arkansas River, 1870-1950. Lawrence: University Press of Kansas, 1990.

Smith, F. Todd. The Caddos, the Wichitas, and the United States, 1846-1901. College Station: Texas A & M University, 1996.

Speilmann, Katherine. Farmers, Hunters, and Colonists: Interaction Between the Southwest and the Southern Plains. Tucson: University of Arizona Press, 1991.

Thornton, Russell. The Cherokee: A Population History. Lincoln: University of Nebraska Press, 1990.

Tiller, Veronica E. Velarde. The Jicarilla Apache Tribe: A History, 1846-1970. Lincoln: University of Nebraska Press, 1983.

Wallace, Ernest and E. Adamson Hoebel. The Comanches: Lords of the South Plains. Norman: University of Oklahoma Press, 1952.

Webb, Walter Prescott. The Great Plains. Dallas, TX: Ginn and Co., 1931.

Weber, David. The Spanish Frontier in North America. New Haven, CT: Yale University Press, 1992.

West, Elliot. The Way to the West: Essays on the Central Plains. Albuquerque: University of New Mexico Press, 1995.

White, Richard. It's Your Misfortune and None of My Own: A New History of the American West. Norman: University of Oklahoma Press, 1991.

Wood, Richard George. Stephen Harriman Long, 1784-1864: Army Engineer, Explorer, Inventor. Glendale, CA: A. H. Clark Company, 1966.

Worster, Donald. Dust Bowl: The Southern Plains In the 1930s. New York: Oxford University Press, 1979.

Secondary Sources: Articles:

Abel, Annie H. "Proposal for an Indian State." Annual Report of the American Historical Association 1 (Washington, DC: GPO, 1908): 89-104.

Alford, Terry L. "The West as a Desert in American Thought Prior to Long's 1819-1820 Expedition." Journal of the West 8 (October 1969): 515-25.

Blasing, T. J., D. W. Stahle and D. N. Duvick. "Tree Ring-Based Reconstruction of Annual Precipitation in the South-Central United States From 1750-1980." Water Resources Research 24 (January 1988): 163-171.

Bowden, Martyn J. "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): 16-21.

_____."Desertification of the Great Plains: Will It Happen." Economic Geography 53 (1977): 397-406.

Brooks, Robert L. and Robert Bell, "The Last Prehistoric Villagers." Chronicles of Oklahoma 67 (Fall 1989): 296-318.

Brown, William R. "Natural History of the Canadian River, 1820-1853." Panhandle Plains Historical Review 61 (1988): 1-15.

Brown, Kenny L. "Building a Life: Culture, Society, and Leisure in the Cherokee Outlet." Chronicles of Oklahoma 71 (Summer 1993): 174-201.

Caldwell, Martha B. "Some Kansas Rainmakers." Kansas Historical Quarterly 7 (August 1938): 306-324.

Chapman, Berlin B. "Opening of the Cherokee Outlet: An Archival Study." Chronicles of Oklahoma 40 (Summer, Fall 1962): 158-181, 253-285.

_____. "The Final Report of the Cherokee Commission." Chronicles of Oklahoma 19 (December 1941): 356-367.

Cook, Edward, David Meko, David Stahle and Malcolm Cleaveland. "Drought Reconstructions for the Continental United States." American Meteorological Society 12 (April 1999): 1145-1162.

Corbett, William. "Peerless Princess of the Best Country: The Early Years of Tonkowa.." Chronicles of Oklahoma 62 (Winter 1984-85): 388-407.

Dillehay, Tom D. "Late Quaternary Bison Population Changes on the Southern Plains." Plains Anthropologist 19 (1974): 180-196.

Dillon, Richard. "Stephen Long's Great American Desert." Proceedings of the American Philosophical Society 111 (April 1967): 93-108.

Droze, W. H. "Changing the Plains Environment: The Afforestation of the Trans-

Mississippi West." Agricultural History 51 (January 1977): 6-22.

Flores, Dan. "Bison Ecology and Bison Diplomacy: The Southern Plains from 1800-1850." Journal of American History 78 (September 1991): 465-485.

Gage, Duane. "Oklahoma: A Resettlement Area for Indians." Chronicles of Oklahoma 47 (Autumn 1969): 282-297.

Gibson, Arrell Morgan. "Ranching on the Southern Great Plains." Journal of the West 6 (January 1967): 135-153.

Graebner, Norman Arthur. "Pioneer Indian Agriculture in Oklahoma." Chronicles of Oklahoma 23 (Summer and Autumn 1945): 232-248.

Hewitt, George B. "Review of Factors Affecting Fecundity, Oviposition, and Egg Survival of Grasshoppers in North America." United States Department of Agriculture AARS 36 (July 1985): 1-35.

Harper, H. "Drought in Central Oklahoma from 1710-1959 Calculated from Annual Rings of Post Oak Trees." Proceedings of the Oklahoma Academy of Science 41 (1961): 23-29.

Holden, W. C. "West Texas Drouths." The Southwestern Historical Quarterly 32 (October 1928): 103-123.

Lawson, Merlin P, and Charles W. Stockton. "Desert Myth and Climate Reality." Annals of the Association of American Geographers 71 (December 1981): 527-535.

Malin, James C. "Dust Storms, Part One, 1850-1860; Part Two, 1861-1880; Part Three, 1881-1900." Kansas Historical Quarterly 14 (May 1946): 129-144, 265-296, 391-413.

McDermott, John Francis. "Isaac McCoy's Second Exploring Trip in 1828." Kansas Historical Quarterly 13 (February 1945): 400-62.

Milam, Joe B. "The Opening of the Cherokee Outlet." Chronicles of Oklahoma 9 (September, December 1931): 269-286, 454-475.

Miner, Craig. "Cherokee Sovereignty in the Gilded Age: The Outlet Question." Chronicles of Oklahoma 71 (Summer 1993): 118-187.

Morris, Ralph C. "The Notion of a Great American Desert East of the Rockies." Mississippi Valley Historical Review 13, no. 2 (1927): 190-200.

Muchmore, Clyde. "I Saw the Run." in The Last Run, Kay County, Oklahoma, 1893.

Ponca City, OK: Courier Printing, 1934.

Muhs, Daniel and Vance Holliday. "Evidence of Active Dune Sand on the Great Plains in the 19th Century from Accounts of Early Explorers." Quarternary Research 43 (1995): 198-208.

Oliva, Leo E. "Fort Atkinson on the Santa Fe Trail, 1850-1854." Kansas Historical Quarterly 40 (Summer 1974): 212-233.

Prucha, Francis. "Indian Removal and the Great American Desert." Indiana Magazine of History 59 (December 1963): 299-322.

Rister, Carl Coke. "Free Land Hunters of the Southern Plains." Chronicles of Oklahoma 22 (Winter 1944-1945): 392-401.

_____. "'Oklahoma,' the Land of Promise." Chronicles of Oklahoma 23 (spring 1945): 2-15.

Sageser, A. Bower. "Editor Bristow and the Great Plains Irrigation Revival of the 1890's." Journal of the West 3 (January 1964): 75-89.

Schwartz, Lillian Carlile. "Life in the Cherokee Strip." Chronicles of Oklahoma 42 (Summer 1964): 62-74.

Shaw, James H. and Martin Lee. "Relative Abundance of Bison, Elk and Pronghorn on the Southern Plains, 1806-1857." Plains Anthropologist 42 (February 1997): 163-172.

Smith, Henry Nash. "Rain Follows the Plow: The Notion of Increased Rainfall for the Great Plains, 1844-1880." Huntington Library Quarterly 10 (no. 2 1946-1947): 169-193.

Smith, Robert E. "The Wyandot Exploring Expedition of 1839." Chronicles of Oklahoma 55 (Fall 1977): 282-92.

Stockton, Charles and David Meko. "Drought Recurrence in the Great Plains as Reconstructed from Long-Term Tree-Ring Records." American Meteorological Society 23 (January 1983): 17-29.

Tucker, John M. "Major Long's Route from the Arkansas to the Canadian River, 1820." New Mexico Historical Review 38 (July 1963): 184-219.

Turk, Eleanor L. "Selling the Heartland: Agents, Agencies, Press, and Policies Promoting German Emigration to Kansas in the Nineteenth Century." Kansas History 12 (Autumn 1989): 150-159.

Webb, Walter P. "Some Vagaries of the Search for Water in the Great Plains." Panhandle-Plains Historical Review 3 (1930): 28-37.

Wessel, Thomas R. "Prologue to the Shelterbelt, 1870 to 1934." Journal of the West 6 (January 1967): 119-134.

Turner, Alvin O. "Order and Disorder: The Opening of the Cherokee Outlet." Chronicles of Oklahoma 71 (Summer 1993): 154-173.

Wade, J. S. "Uncle Sam's Horse Race." Chronicles of Oklahoma 35 (Summer 1957): 147-153.

Williams, J. W. "A Statistical Study of the Drouth of 1886." West Texas Historical Association Year Book 21 (October 1945): 85-109.

Wood, Richard G. "Dr. Edwin James, a Disappointed Explorer." Minnesota History 34 (Autumn 1955): 284-86.

Woodhouse, Connie and Jonathan Overpeck. "2000 Years of Drought Variability in the Central United States." Bulletin of the American Meteorological Society 79 (December 1998): 2693-2714.

Dissertation and Theses:

Jones, Andrew McKee. "Comanches and Texans in the Making of the Comanche Nation: The Historical Anthropology of Comanche-Texan Relations, 1803-1997." Ph. D. Dissertation, University of Wisconsin-Madison, 1997.

Lynn-Sherow, Bonnie. "Ordering the Elements: An Environmental History of West Central Oklahoma." Ph. D. Dissertation, Northwestern University, Evanston, IL, 1998.

VITA

Kevin Z. Sweeney

Candidate for the Degree of

Doctor of Philosophy

Thesis: WITHER THE FRUITED PLAIN: NINETEENTH CENTURY DROUGHTS IN THE SOUTHERN PLAINS

Major Field of Study: History

Biographical:

Personal: Born in Dennison, Texas, July 25, 1959, the son of Cecil Talmadge Sweeney and Wanda Lefay (Seay) Sweeney.

Education: Graduated from Paoli High School, Paoli, Oklahoma, in 1977; received Bachelor of Arts degree in history from the University of Oklahoma in Norman, Oklahoma, in 1985. Received a Masters of Education degree with a major in administration from Northwestern Oklahoma State University in Alva, Oklahoma, in 1995. Completed the requirements for the Doctor of Philosophy degree with a major in the history of the United States West at Oklahoma State University in Stillwater, Oklahoma, in June 2001.

Experience: Worked a total of eleven years as a secondary teacher in the Oklahoma public school system at Wynnewood, Ralston, Woodland, and Hennessey public schools. Joined the faculty at Wayland Baptist University in Plainview, Texas, in 2001.