THE DESSICATED PLAIN: COMANCHE AND NON-INDIAN SETTLER RESPONSES TO DROUGHT IN THE SOUTHERN PLAINS, 1854-1897

by
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The "fruited plain" of Katherine Bates poem "America the Beautiful" has often been more burnt and dusty than amber with waves of grain. The Dust Bowl of the 1930s was only the most notorious of southern Plains droughts, but it was by no means unique. Droughts of equal or greater severity have visited the region in a cyclical progression from time immemorial forcing human cultures inhabiting the area to apply varying responses to these instances of aridity. An examination of the cultural responses to drought on the southern Plains by the Comanches during the 1850s -1860s and by the non-Indian settlers of the same time illustrates how environmental factors can bring similar responses to drought regardless of the broad differences in culture.

North America's Southern Great Plains exist in delicate balance[1] In some years, sufficient precipitation to support extensive agriculture in the region occurs; in other years rainfall totals better describe desert conditions. These facts dictate the level and quality of life in the area for plants, animals and human society. While there is no universally accepted statistical description of drought, climatologists have suggested that a fifteen percent or grater reduction in precipitation, of the historical average for a given region suffices as a definition of drought.[2] In some years the region may receive its annual 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.

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During periods of excessive aridity, visual clues surround those dwelling in 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 persist long enough, the short grasses thin 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 have thinned out as a result of the drought. Wildlife follow their shifting biomes to greener pastures in search of the grasses that are most beneficial to them or the prey they are most fitted to hunt. When the rains return, the grasses resume 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 Comanche people, who arrived in the southern Plains in the early 1700s, filled a niche as trade partners to the Pueblos of eastern New Mexico and the woodland cultures to their east. This trade was based on procuring bison hides, horses, and captives and exchanging them for maize, and other carbohydrates, as well as blankets, Osage Orange wood for bows, firearms, gun powder, or various desirable items.[3] Periodic droughts greatly affected the Comanches' ability to obtain buffalo hides, and extended drought could further reduce them to eating their most prized possessions, horses.[4] From 1855 to 1865 a prolonged drought burned up the southern Plains and the bison either migrated to water or died. As the Comanches followed the buffalo, they found themselves bumping into the recently removed eastern tribes who now resided on the prairies. The result was an increase in warfare with their neighbors. The Eastern tribes of Indian Territory; non-Indian settlers in Texas, New Mexico and Mexico; and the Utes, Apaches and Pueblos of New Mexico all suffered more frequent raids by the Comanches who had begun to rely increasingly on trade in horses, cattle, and captives to obtain their much needed barter items.[5]

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 reported intent of wiping out "all

frontier Indians they could find on the plains."[6] The drought conditions put the Comanches in a unique quandary. Following the bison put them in conflict with the prairie tribes, which, in turn, induced some warriors to turn more frequently to raiding as a means of compensating for the loss in buffalo robes. In this manner, they could acquire horses, mules, and captives with which to resume their trade for much needed supplies. United States agents had become important trading partners with Comanches. Traders like William Bent dispensed annuities from his post on the Arkansas River. Of course, raiding was discouraged by U.S. authorities, so some Comanches looked toward Mexico, a traditional raiding objective, to supply their trade items.

During the negotiations to obtain the Treaty of Fort Atkinson in 1853, one of the major obstacles was procuring an agreement to halt raids across the Rio Grande. One year after the treaty, some Comanches denied ever having agreed to cease raiding south of the river.[7] Then in 1855, the Northern Comanches declared war on all residents south of the Red River, Indian and non-Indian.[8]

A few bands chose to accept reservation life and looked to the United States government for relief. One Comanche leader, Tibbalo, asked his Muskogee neighbors to intercede on behalf of his people with the U.S. government. In his request, he pointed out that "there were 5,000 of his tribe in destitute condition" camped along the Arkansas River just west of the land granted to the removed eastern tribes. He claimed that his people needed some of the land back between the Arkansas and Red Rivers, which they had previously signed away.[9] Thus the Comanches found themselves in a new dilemma: 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. The lure of U.S. annuities was strong and many were willing to take up agriculture and live on a reservation just west of the Muskogee tribe if a treaty could be worked out.[10] By 1855 conditions had deteriorated to the point that these bands of Penatka Comanches were more than eager enough to accept life on a 20,000 acre known as the Clear Fork Reserve near Fort Belknap.

Those Plains Indians who refused to live on reservations fought

tenaciously to hold their hunting areas, but several factors finally convinced them to accept reservation life. The combined efforts of the Texas Rangers and the U.S. Army began to discourage raids by the native peoples to obtain trade items. These actions became more crippling as the bison population dwindled from the onslaught of hunters' rifles. Shortly after the Comanches evacuated their lands for much smaller reserves in Indian Territory, non-Indian settlers began to move in to the remaining areas of the southern Plains.

As non-Indian settlers occupied the region, in general, their perceptions of the environment differed greatly from that of the native peoples. Whereas the Comanches saw opportunity for trade in the horses that roamed the plains, the buffalo that grazed the grasslands, and the bean pods that hung off of the mesquite trees, the European-Americans saw possibilities in cattle ranching and agriculture. Yet, Anglo farmers were familiar with farming in a much more humid climate. Spring wheat and corn could thrive during a wet year on the southern Plains, but the drier years saw crop yields plummet. Although there is no doubt that many farmers sought divine intervention during dry years, many clung to a faith in technology to solve the problem of watering the southern Plains. Although often misleading, the promotion of theories such as "Rain Follows the Plow," rainfall through afforestation, concussion theory, and chemical rain-making helped a growing population on the Plains cope with the absence of a reliable water supply.

Samuel Aughey, a University of Nebraska biology professor, provided a tantalizing explanation for how the Plains would be conquered. On January 20, 1873 Aughey addressed the Nebraska state legislature and state, "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."[11] By 1880 Aughey had developed his "Rain Follows the Plow" theory. He 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 onto this theory and maintained it into the 1890s, long after they should have realized that

rainfall was not increasing.[12]

The "gospel of tree planting" was another of the first theories concerned 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. They were quick to realize that 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 tress. This afforestation was accomplished through state funded rewards of cash payments for those who maintained a copse or line of trees for three years or more.[13]

Railroads also encouraged the afforestation of the southern Plains. In 1870 the Kansas and Pacific sponsored the planting of seedlings in three towns along the line between the ninety-eighth and one-hundred-second meridians.[14] 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 one-hundred and twenty acres each west of the ninety-eighth meridian.[15] The Kansas City, Fort Scott, and Memphis line joined the ranks of afforestation experimentation by initiating a six-hundred-forty acre catalpa tree farm at Farlington, Kansas in 1879.[16] The main interest of these companies lay in attracting settlers to the southern Plains.[17]

Other efforts to coax moisture from the atmosphere were even more tenuous. The belief that precipitation followed Fourth of July celebrations and Civil War battles led to several experiments at producing rainfall by exploding gunpowder in 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 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.[18] About $14,000 of this money supported the research of Major R. G. Dyrenforth.

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, Dyrenforth 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 public who jokingly referred to him as Major "Dryhenceforth" after his second testing in December 1892 proved a failure.[19]

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. For the farmer who had put the sweat of his brow into working and then planting the crops, 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 precipitation. Enter the rainmaker.

One of the most notable rain wizards was an Australian named Frank Melbourne, who claimed to have a formula that could produce rain. Melbourne was extremely secretive about this chemical; but for a fee, he would travel to any town and work his magic. Goodland, Kansas hired Melbourne in 1891 at a cost 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 continued into the early fall. The town constructed a two-story building near the fairgrounds for the wizard to set up his rainmaking facilities. The second floor contained the laboratory, placed precisely below a carefully crafted hole in the ceiling where the professor's 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.[20]

Local entrepreneurs in Goodland were so impressed with the possibilities of 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).[21] 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 join-stock company for $50,000.[22]

The ISARC's apparent success drew imitation. By 1892 two more 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 onto 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 also provided Jewell with a special rail car to house his lab, and further, allowed him to travel across its lines free of charge. For all purposed, 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, 1893 the professor was unable to induce a sufficient rain at Meade Center, Kansas; 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.[23] 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, (Indian Territory), Sunday. He sprinkled down a territory seventy-five by one-hundred miles in extent."[24] Jewell traveled to Hennessey, Oklahoma Territory, for the opening of the Cherokee Outlet, but was unsuccessful at producing 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 had broken the will of popular belief in their abilities, although periodic interest in rainmaking techniques would resurface during later drought trends.[25]

When severe droughts hit, farmers and ranchers alike migrated out of the area. During the dry trend from the summer of 1885 through the spring of 1886 wagons moved east instead of west. 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.[26] 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.[27]

Dr. Kindall, 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.[28] It is estimated that nearly fifty percent of the west Texas population moved east altogether

between 1886 and 1887.[29] During the 1880s and 1890s government officials were reluctant to provide relief. Pressure from local boosters, ranchers, and railroads opposed governmental aid to neighboring drought victims.[30]

Native people of the southern Plains reacted to drought as their custom and way of life dictated. They followed the herds and moved to locate water for themselves and their horse herds. Originally, their range was large enough and populations on the southern Plains were slight enough, that this was possible without major repercussions. During the 1850s population densities had grown and the presence of powerful neighbors had closed off this option. The Comanches were forced to choose between accepting reservations or turning increasingly to raiding.

The non-Indian occupants of the southern Plains reacted to drought differently. In their extreme optimism and faith in technology, they sought to influence nature by creating rainfall. Various theories were paraded out to accomplish this goal: "Rain Follows the Plow," afforestation, concussion theory, and chemical formulas, but they all fell short of producing adequate moisture. These having failed, most finally did what the native population had done for centuries. They packed up and moved out.

While non-Indian settlers were moving out of the area, the Comanches were forced to remain. Their corps withered, the creeks and springs went dry, and game, already scarce on the reserve, became nearly impossible to locate. These Natives of the southern Plains could not rely on their traditional answer to drought–migration. Instead they were only able to remain on the desiccated plain by subsisting on government subsidies, while non-Indian settlers would have to wait until the 1930s for a similar level of aid.

NOTES

1. Marked by the dominance of grassland, the southern Plains are bounded by the front range of the Rocky Mountains on the west and the Texas Hill Country and the Cross Timbers on the east. For the purposed of this study, the northern limits of the southern Plains are delineated by the Arkansas River in the north and Sonoran Desert near the northern rim of the Rio Grande valley in the south.

2. Donald Worster, *Dust Bowl: The Southern Plains in the 1930s* (New York: Oxford University Press, 1979), 11.
3. *Message from the President of the United States Communicating the Discoveries made in Exploring the Missouri, Red River, and Washita by Captains Lewis and Clark, Doctor Sibley, and Mr. Dunbar* (Washington, DC: A. & G. Way, 1806), 75; Wallace and Hoebel, *The Comanches: Lords of the Plains*, 74; and Francis Levine, "Economic Perspectives on Comanchero Trade," in *Farmers, Hunters and Colonists* ed. Katherine Speilmann, 157.
4. John Whitefield to Manypenny, September 4, 1855, *Report of the Commissioner of Indian Affairs (RCIA).*
5. For further documentation see Kevin Sweeney, "Wither the Fruited Plain: Nineteenth Century Droughts in the Southern Plains" (Ph.D. diss., Oklahoma State University, 2001), 87-92.
6. John Whitefield to Alfred Cumming, 27 September 1854, ibid., 90.
7. Ibid., 91.
8. F. Todd Smith, *The Caddos, Wichitas and the United States, 1846-1901* (College Station: Texas A & M University Press, 1996), 51.
9. Grant Foreman, *Advancing the Frontier, 1830-1860* (Norman: University of Oklahoma Press, 1933), 282.
10. W.H. Garrett to C. W. Dean, August 24, 1855, RCIA, 135.
11. 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.
12. Ibid., 148.
13. W. H. Droze, "Changing the Plains Environment: The Afforestation of the Trans-Mississippi West," *Agricultural History* 51 (January 1977): 9.
14. Ibid., 11.
15. Thomas R. Wessell, "Prologue to the Shelterbelt, 1870 to 1934," *Journal of the West* 6 (January 1967): 126; and Droze, "Changing the Plains Environment," 11.
16. Ibid.
17. 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. Wessel, "Prologue to the Shelterbelt," 125. 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." *United States Statutes at Large*, 18:54; in Wessel, "Prologue to the Shelterbelt," 125. 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." 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. With the drought of 1893 to 1896 the idea that planting trees could increase rainfall had waned, not to be re-initiated until 1917. Droze, "Changing the Plains Environment," 16.

18. Walter Prescott Webb, *The Great Plains* (Lincoln: University of Nebraska Press, 1981: 1931), 380, see note 2.

19. Ibid., 380-1. 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 an 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. Walter P. Webb, "Some Vagaries of the Search for Water in the Great Plains," *Panhandle-Plains Historical Review* 3 (1930): 35.

20. Martha B. Caldwell, "Some Kansas Rainmakers," *Kansas Historical Quarterly* 7 (August 1938): 308.

21. Ibid., 309-11.

22. Ibid., 312.

23. Ibid., 319.

24. *Beaver Advocate* (Oklahoma Territory), July 27, 1893.

25. 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. A. Bower Sageser, "Editor Bristow and the Great Plains Irrigation Revival of the 1890's," *Journal of the West* 3 (January 1964): 83.

26. 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.

27. Gilbert Fite, *The Farmer's Frontier, 1865-1900* (Norman: University of Oklahoma Press, 1987), 200.

28. *Albany News* (Texas), October 21, 1887; in J.W. Williams, "A Statistical Study of the Drought of 1886," *West Texas Historical Association Year Book* 21 (October 1941): 105.

29. Jesse Ausubel and Asit K. Biswas, *Climatic Constraints and Human Activities* (New York: Pergamon Press, 1980), 109.

30. These groups opposed relief for various reasons. Ranchers hoped to drive out "nesters" who they felt did not belong in an arid region capable of only ranching activities, while town booster and railroads feared the negative publicity involved with seeking aid from a drought would drive away potential settlers. Williams, "A Statistical

Study of the Drought of 1886," 100; W. C. Holden, "West Texas Drouths," *The Southwestern Historical Quarterly* 32 (October 1928): 113-117.

Richard Warrick and Martyn Bowden studied the "Changing Impacts of Droughts on the Great Plains" and found the population dislocation of the 1890s drought far surpassed 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. The authors attribute this disparity to the actions of the Franklin Roosevelt administration. Richard A. Warrick and Martyn J. Bowden, "The Changing Impacts of Droughts in the Great Plains," in *The Great Plains: Perspectives and Prospects* eds. M. Lawson and M. Baker (Lincoln: University of Nebraska Press, 1980), 127.

It should be noted that New Deal policies although beneficial to human inhabitants of the southern Plains, are not beneficial ecologically. People are able to remain in a region that without intervention could only support a small nomadic population, and efforts to procure water are reducing the aquifer level while crop subsidies encourage farmers to till the soil allowing precious topsoil to blow away.