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A MIGHTY BULWARK: THREE VISIONS OF THE LAKE TEXOMA AND DENISON DAM PROJECT

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by

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A MIGHTY BULWARK: THREE VISIONS OF THE LAKE TEXOMA AND DENISON DAM PROJECT

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I'd like to dedicate this work to Mom and Dad.
You've earned it.

Acknowledgements

For those people who are not mentioned this is perhaps the most boring section of any publication. I shall be brief. A large debt of gratitude is owed to Bob Rundstrom who not only directed this project above and beyond the call of duty, but was also the reason I became aware of and interested in an aspect of geography I didn't know existed. Even though I often felt as though I were stumbling trying to catch up to his thoughts, he always slowed down and let me walk along. Along the same vein I must also extend my thanks to Bret Wallach for prodding me to push my own personal envelope of perception and creativity. Thanks also for stressing the process of writing, and forever asking that sometimes maddening question "so what?" I'd like to also express my appreciation to Dick Nostrand who was able to tolerate all my split infinitives and bad punctuation enough to give me some great editorial input.

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Table of Contents

List of Illustrations

Chapter 1: Introduction 1

The Three Metaphors 9

Disciplinary Setting 11

Chapter 2: Savior 15

...and Deliver us from Floods 23

Testing the bulwark: "The Southwests' Greatest Niagara" 25

...and Deliver us from Thirst 29

Mosquitoes and Malaria 32

Stemming Human Erosion 33

Lake Texoma Buys the Farm 35

Chapter 3: Battlefield 39

New Woodville 41

Aylesworth 43

"Red" Phillips vs. the Denison Dam 48

The Army Corps of Engineers and the Department of Agriculture 55

Watershed Flood Prevention 63

Lake Texoma vs. the Washita Basin 67

Chapter 4: Promised Land 69

Preston 71

Red River City 72

Steamboats on the Upper Red 75

The Rise of the Dam and the Death of Navigation 89

The Myth of Hydroelectric Power 93

The Dawn of the Recreation Age 100

Conclusion 117

Appendix I: The Nature of Metaphor 121

Notes 125

List of Illustrations

Figure 1: Wall mural in Madill, Oklahoma. 3

Figure 2: U-Haul symbols. 3

Figure 3: Corps of Engineers map of the Texoma reservoir area. 5

Figure 4: Oklahoma hydrography map. 6

Figure 5: Drinking establishment- Cartwright, Oklahoma. 14

Figure 6: Open outlets of Denison Dam. 14

Figure 7: 1923 Flood on the North Canadian River at the Lake Overholser. 18

Figure 8: 1923 Flood on the North Canadian River. 19

Figure 9: Parade- Denison, Texas. 24

Figure 10: 1990 Flood on Lake Texoma. 28

Figure 11: Lake Texoma spillway. 28

Figure 12: Present location of Old Woodville. 44

Figure 13: Woodville Cemetery. 44

Figure 14: Moving a house in the reservoir area. 47

Figure 15: Leon "Red" Phillips. 49

Figure 16: Oklahoma Plan of Flood Control. 57

Figure 17: Sandstone Creek marker. 66

Figure 18: Black Kettle National Grasslands marker. 66

Figure 19: Map of early trails in Oklahoma. 74

Figure 20: Lake Texoma debris. 76

Figure 21: Washita River drifts. 76

Figure 22: 1929 Red River Dam Proposal. 88

Figure 23: Parade- Denison, Texas. 95

Figure 24: Denison Dam and Outlet Works. 101

Figure 25: Grandpappy Point- Texas. 101

Figure 26: Early tourism literature, Lake Texoma. 107

Figure 27: 1949 Lake Texoma Sportsman Club literature. 107

Figure 28: Lake Texoma State Park tourism literature. 109

Figure 29: 1960's fishing brochure- Lake Texoma. 109

Figure 30: Fun Country map. 110

Figure 31: 1970's tourism brochure- Fun Country. 110

Figure 32: Lake Texoma Association literature. 112

Figure 33: 1994 Lake Texoma tourism brochure. 112

Figure 34: Sassy Striper- Kingston, Oklahoma. 113

Figure 35: King Sandie- Madill, Oklahoma. 113

Chapter 1

Introduction

Nothing here, except perhaps the moon above, is as it was fifty years ago. The shore of Lake Texoma, on the Oklahoma-Texas border, in late fall under a bright moon: I can just barely distinguish the far shore as a darker shade of black silhouetted against the sky. The water itself seems to perform an intricate dance as it reflects the moonlight. Gentle waves lap at the whitish rocks on the shore, and the water is clear and unmuddied, unlike so many other lakes in Oklahoma. In fact, it is so clear that even in the moonlight the waves can be seen slowly shaping the sand and mud a few feet below the surface. Now and then, the steady gurgle of the lapping water is interrupted by the splash of a fish jumping. And at this time of year, there is always the rain-like sound of cottonwood leaves shaking in the breeze.

These images, all seemingly "natural," are in fact artificial. Just a few hundred yards east of where I sit, buoys delimit a designated swimming area for the people staying at the camp sites and in their RV's along the shore. Farther east, headlights every now and then move slowly north over the dam responsible

for all the water I see. Although I know the speed limit is 50 miles per hour, the cars seem to creep along, totally silent from this distance. To the right, I can see a row of trees that have marched into the lake one by one, the leaders dying along the way as they succumbed to strangulation by water. Far above me I can hear the faint drone of an airplane leaving Dallas, a one-hour drive to the southwest. Denison Dam itself is remarkably unobtrusive. Its massive earthen slopes don't dominate the landscape: they only echo the patterns already present.

Why is the dam here? Eastern Oklahoma, after all, has a relatively humid climate.[1] Yet in the century since its settlement, it has gone from an area devoid of standing water to a virtual maze of reservoirs. The state has over 4,300 lakes covering nearly a quarter of a million acres.[2] This amounts to one acre of water for every forty-four acres of land.[3] The rivers and creeks etched into the countryside, at times bone-dry and at times violently flooding the surrounding land, have now been cowed by a vast system of reservoirs. Lakes have become an important symbol for the people of Oklahoma. Oklahoma calls itself in tourist literature the "Frontier Lake State" and boasts of having 2,000 miles more shoreline than the Atlantic and Gulf Coasts combined,[4] and more reservoirs than any other state (See Figures 1 and 2).[5] The ten south central counties are known as "Lake Country."

Although these reservoirs are an important part of the physical landscape, there has been little attempt to study them as a component of the economic and cultural landscape of Oklahoma and the southern Great Plains. That is my



Figure 1: Looking south, downtown Madill: Lake Texoma is the centerpiece of the ten county region called "Lake Country." The map of the lake is oriented so that south is at the top.
Photo by author.

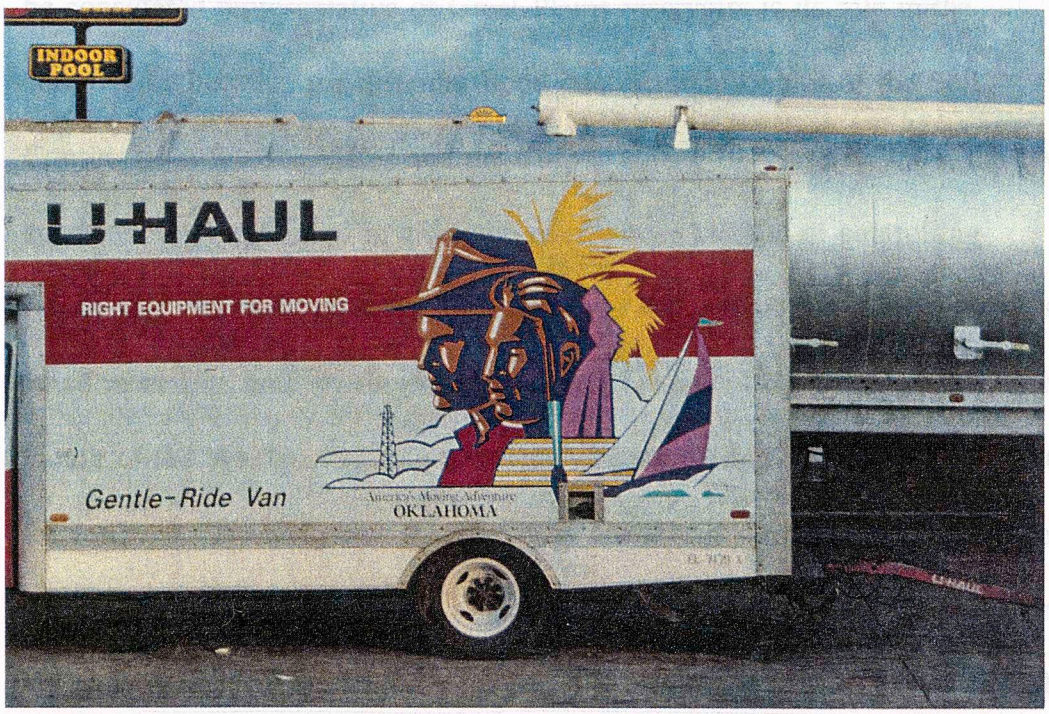


Figure 2: Along with the cowboy, Native American and oil derrick, sailing on one of the many lakes in the state has become a symbol of Oklahoma. Tourist brochures proudly claim to have more shoreline than the Atlantic and Gulf coasts combined.
Photo by author.

purpose here. I have focussed on Lake Texoma, which straddles the Oklahoma-Texas border, because in many ways it is representative of southern Great Plains reservoirs in general (Figure 3). Also, it is one of the oldest and largest reservoirs in Oklahoma and is the centerpiece of "Lake Country" (Figure 4). Depending upon the definition of size that is used, Lake Texoma is either the largest or second largest reservoir in the state. Whereas Lake Eufaula, which impounds the Canadian River further north, has a larger surface area, Texoma impounds more water.[6]

Completed in 1944 by the U.S. Army Corps of Engineers (hereafter, "Corps"), Lake Texoma was one of the first in the country built for the dual purposes of flood control and hydroelectric power. Another reason the lake may be considered representative of Great Plains reservoirs is its role in the controversy between the different flood control philosophies of the Soil Conservation Service (SCS) and the Corps. In the 1940's and 1950's, the two agencies were embroiled in a dispute over whose method of controlling floodwater was more effective. The Washita River basin, boasting numerous small reservoirs built by the SCS, and Lake Texoma, built by the Corps at the mouth of the Washita, became a national crucible for this controversy. Most of the reservoirs in Oklahoma not created by the Corps were constructed by the SCS. The year 1994 marks the fiftieth anniversary of the completion of Denison Dam, so it seems only fitting to study Texoma as a way of exploring the cultural and economic importance of Oklahoma lakes (Figure 5).

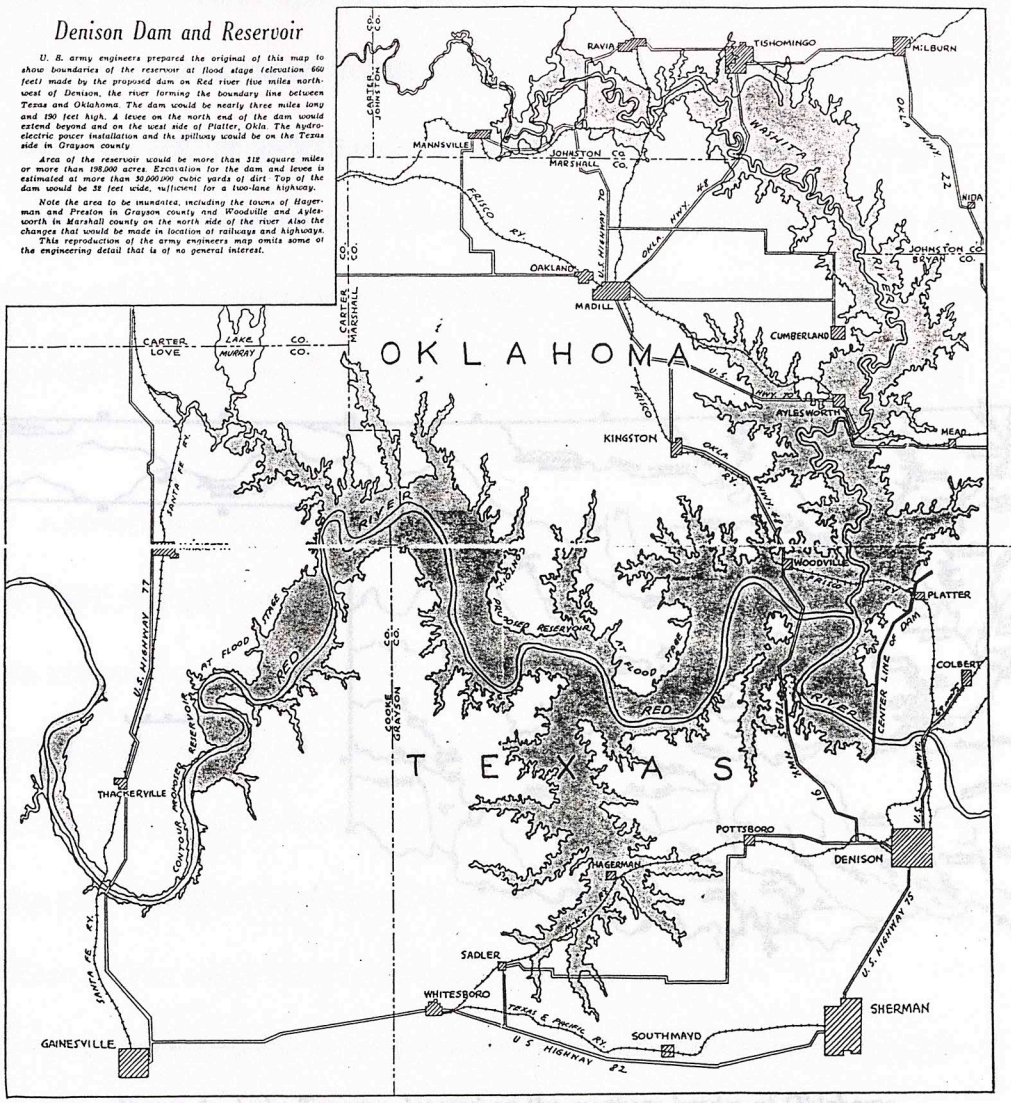


Figure 3: This 1938 Corps map shows the locations of the surrounding communities before the reservoir area was inundated. Note the towns of Hagerman, Woodville, and Aylesworth are included in the reservoir area. Source: U.S. Army Corps of Engineers

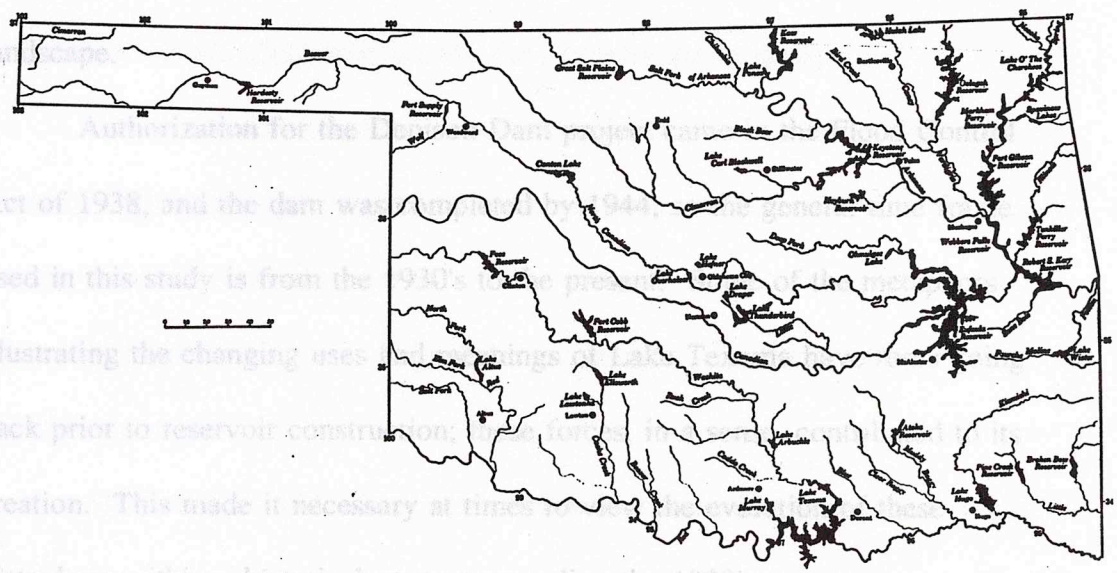


Figure 4: Lake Texoma, located on the southern border of Oklahoma, stands out as one of the most prominent reservoirs in the state.
Source: Historical Atlas of Oklahoma

How do people and institutions react to these reservoirs that have been constructed on the landscape, and what meanings do they have for these groups? How are these lakes seen by people who live near them and use them? Metaphors can help us understand these perceptions by illustrating how the reservoirs came to represent different meanings for people in the region. In Oklahoma, lakes are important to the identity of the state. A few have existed long enough for some people to consider them a "natural" element of the landscape.

Authorization for the Denison Dam project came in the Flood Control Act of 1938, and the dam was completed by 1944, so the general time frame used in this study is from the 1930's to the present. Some of the metaphors illustrating the changing uses and meanings of Lake Texoma have roots going back prior to reservoir construction; these forces, in a sense, contributed to its creation. This made it necessary at times to view the evolution of these metaphors within a historical context preceding the 1930's.

What interested me about the development of water resources in the southern Great Plains, Oklahoma in particular, is how important water is to the people here and how that has transferred itself to the way in which people have viewed and used this resource. Lake Texoma and the battle to build Denison Dam embody many of the different ways water is perceived in this area. Even so, it is important to keep in mind that there is no one absolute meaning that can be ascribed to a place. How people view and relate to a landscape feature such

as Lake Texoma will depend upon their individual experiences and cultural backgrounds. Complicating the issue is the concept of time. Perceptions and attitudes about a place accumulate, altering how a landscape feature is used and considered by area residents.

Defining a place such as Lake Texoma has to address two distinct aspects of the local landscape: the economic support it provides people and the way in which it is used (the means), and the abstract psychological rewards it offers (the meanings).[7] Both affect how people identify with the landscape.

One of the advantages of using metaphor to describe the evolution of the "means" and "meanings" of the lake is that it forces us to view the Denison Dam project from different perspectives. This variety of viewpoints added together allows us a deeper understanding of the way people have interacted with the lake.[8]

Another reason for using metaphor is that it implies not just the idea of linking two distinctly separate items together but also has the power to evoke an image or a feeling as well.[9] In a sense, it adds a third dimension to the material presented, like adding color to a picture. Metaphors transcend the written word; they are a common tool in structuring human thought and are therefore easy for readers to relate to.

The Three Metaphors

Three metaphors were chosen that relate some of the ways different people and their institutions have interacted with the reservoir and how that relationship evolved over time: Savior, Battlefield and Promised Land. (For a brief discussion of the nature and the use of metaphor in geography see Appendix I.) Lake Texoma as *Savior* describes the role the lake took on after construction of the Denison Dam: delivering people from dire physical and social characteristics. The reservoir rescued people downstream of the dam from the omnipresent threat of flooding and relieved many of the problems frequent flooding had caused, such as eliminating areas of stagnant water where malaria-carrying mosquitoes flourished. Beginning in the drought years of the 1950's, Lake Texoma also delivered people in the surrounding metropolitan areas from the uncertainty of available municipal water by providing a vast source of water to augment their supplies. Construction of the reservoir and the displacement of the people from the lowlands adjacent to the Red and Washita rivers provided an impetus for changing the social and economic structure of the area. The lake fostered higher rates of farm ownership, low tenancy rates, and moved people from the countryside to area towns.

Lake Texoma also became the sphere of contention or *Battlefield* between a number of opposing forces during construction and immediately afterwards. It was the place where the forces of nature were attacked and made to submit in the war between human occupation of the southern Great Plains and the natural

forces that produced the severe flooding characteristic of the area. The dam project also became the focus of a war between two government factions trying to control flooding. Here, the SCS and its Small Watershed Program upstream on the Washita River were pitted against the Corps and its system of giant reservoirs and levees downstream in the Red River Valley. During construction, the project also became a pawn in the debate between state and federal officials over authority in the region. Governor Leon "Red" Phillips of Oklahoma saw the dam as an infringement by the federal government on the integrity of the state and tried everything within his power to stop it from being built. Finally, oil interests and the Corps fought a minor battle concerning the reservoir site. Because of the threatened inundation of an oil field in the area, the Corps had to re-route the Washita River and build extensive levees to prevent the field from being flooded. Every battle site has refugees and Texoma was no exception. Thousands of people, whole towns, cemeteries, and historic sites were casualties of the battles fought here around fifty years ago.

Finally, I have looked at both the Red River and Lake Texoma as a *Promised Land,* a place of economic salvation and security. White settlement began in the mid-1800's and the area soon had a booming economy based on the confluence of the transportation routes near the present site of Denison, Texas. Through the 1930's, the hope of the people in the area was that the establishment of commercial navigation on the Red River up to Denison would transform the town into the "Gateway to the Southwest." Navigation, however, was unable to

deliver the Promised Land locals were seeking, and these hopes were soon transferred to the idea of a hydroelectric dam and the attraction cheap electricity would have for industry. Limitless power would create an industrial mecca for the region. After the reservoir project was completed, it became apparent that hydroelectric power would not be the region's ticket to the Promised Land. Some began to see the potential in an untapped benefit of the reservoir by the 1950's: recreation and tourism. The rise of the recreation industry on Lake Texoma, albeit slower than originally anticipated fifty years ago, has perhaps finally delivered area residents to the Promised Land of economic success and security they have been seeking for nearly a hundred years.

Disciplinary Setting

From the beginning, one of the goals of this project was to transcend existing boundaries between cultural and physical geography. Most investigations in cultural geography fall outside the realm of physical environmental systems. These aspects of the landscape have tended to be overlooked or downplayed in the cultural perspective. Physical geography, on the other hand, tends to ignore human perspectives and ideas about places and physical systems. This is true even when perceptions and attitudes about the physical environment result in its modification or alteration. One could argue that the subfield of cultural ecology overrides these limitations, but cultural ecologists typically aren't interested in ideas and perception of places. This

study, therefore, is a humanistic approach to place using the concept of metaphor to blend perceptions and attitudes about fluvial systems with the resulting effects of those metaphors on the physical landscape.

Recent literature in cultural geography on the topic of "place", especially that taking the so-called postmodernist approach, however, usually divorces the physical environment from the cultural landscape. Another problem is that human geographers rarely study water. There are a few notable exceptions to this, including work by Peter Goin,"[10] J.R. Short, et al,[11] Anne Buttimer,[12] Nancy Lee Wilkinson,[13] and all of Patrick McGreevey's work on Niagara Falls.[14]

McGreevey is notable not only because he blends place with hydrologic aspects of the physical landscape but also because he uses metaphors to describe them. This combination sets McGreevey apart from other writers. Each metaphor, Death, Jerusalem, and the Future, looks at the Falls from different perspectives, sparking the imagination, and drawing us into the web of description he weaves. McGreevey also uses the postmodernist concept of landscape as text to describe place as the result of past representations and interpretations. In essence, he views reality as a construct, rather than as an empirical absolute.

This study of Lake Texoma is similar in many ways to McGreevey's Niagara works. I am using the concept of metaphor to describe perceptions and attitudes about the reservoir and how these have influenced its use and existence. Both concern hydrologic landscape features, but with one distinct difference.

Lake Texoma is an anthropogenic landform built by the Corps in 1944. This is an important distinction for two reasons: the feature is relatively recent, and the perceptions and attitudes of the people concerning the physical landscape before 1938, especially regarding the Red and Washita rivers, helped to bring about Lake Texoma.

Another important influence on this study is Ben Marsh's article, "Continuity and Decline in the Anthracite Towns of Pennsylvania."[15] In it, Marsh outlines the idea of "means" and "meanings," and how they relate to each other and evolve over time. The "means" of a landscape refers to the physical support it provides the people living there, while "meanings" refers to the intangible rewards the landscape offers people. The difference between this view and that of McGreevey is that the economic factor of the landscape is introduced as an influence on human reaction. I am trying to bridge not only the gap between physical features and cultural perceptions of place, but also to join the concepts of metaphor, landscape as text, and place as a function of the "means" and "meanings" communities assign to the landscape in a description of how people have interacted with anthropogenic reservoirs in the southern Great Plains.



Figure 5: A bar near the southern end of Denison Dam in Cartwright, Oklahoma celebrates the fiftieth anniversary of the Denison Dam project. Photo by author.

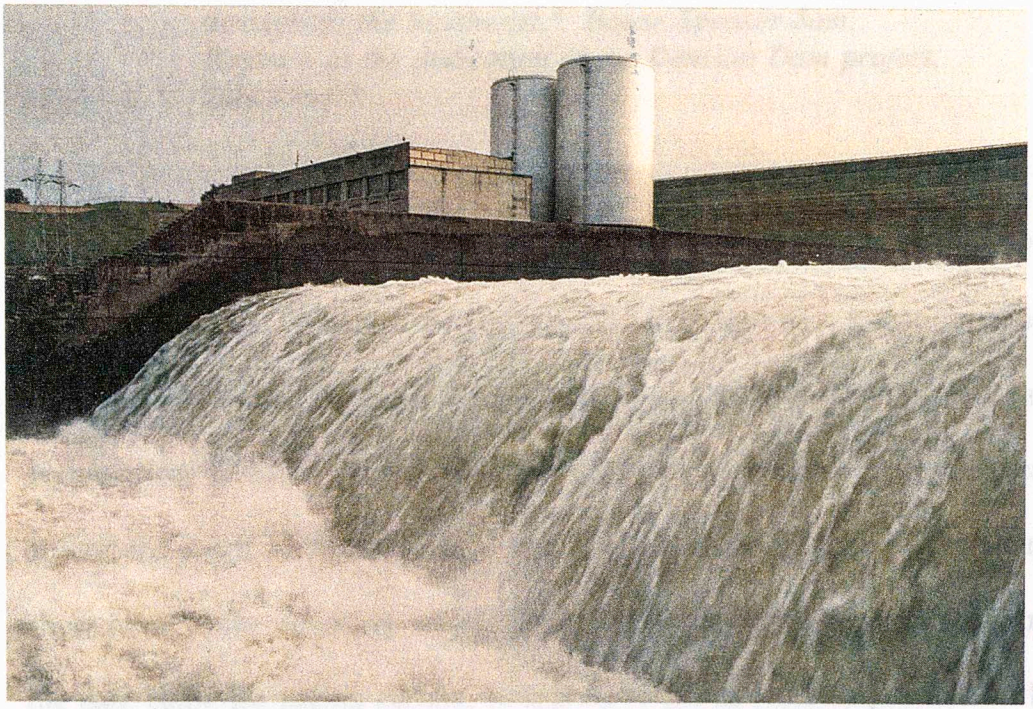


Figure 6: The open outlets of the dam reveal some of the awe-inspiring force that can be exhibited by flowing water. Photo by author.

Chapter 2

Savior

> *"It [Lake Texoma] is an example of our concern for human life and property. It will stop the destruction of our property by floods. It will improve the health of our section by the elimination of malaria. It will make life happier by providing the power to light our homes cheaper and by providing electricity to feed the great industrial plants which are to come into being throughout the Southwest." House Speaker Sam Rayburn at the dedication of the Denison Dam project, July 1944.*[16]

When the outlets are open, water comes rushing through the dam with frightening power. The turbulence created as the water tries to get out of its own way whips the liquid into a blue-white froth that occasionally splashes as high as forty feet into the air (Figure 6). While children and adults alike crowd around the fence overlooking the outlet, they stand mesmerized by the sound and sheer force of the pounding water. Powerboats filled with people fishing below the dam battle the raging current, struggling to get as close as possible to the outlet where they believe the big stripers lie waiting. Yet if people still stand in

awe of the water as it finds its way out of Lake Texoma and back into the Red River, they no longer have a reason to fear the river. Lake Texoma has largely tamed it.

Flooding in regional streams was a common occurrence at one time. Some considered it part of the personality of the river, accepted along with the river's benefits.[17] Following settlement, however, flooding on the rivers of Oklahoma and north Texas became more destructive. More people crowded onto the floodplain, increasing damages and deaths. Poor farming practices increased the amount of surface runoff. This made floods more swift and severe. Destruction of the natural sod cover and its replacement with row crops increased the velocity of the runoff, stripping off layers of topsoil from one area and depositing it in another. After floodwater had receded, any crops or buildings in the lowlands adjacent to the streams were buried under the soil that had been removed from higher ground.

Flood damages increased both on the main stem of rivers and their upstream tributaries. Floods on the tributaries of the Washita River in western Oklahoma occurred an average of nine times per year in the 1920's. In 1934, a storm that dropped an estimated eleven inches of rain over a section of the upper Washita resulted in the river jumping its banks during the night and sweeping away seventeen people while they slept in the town of Hammon, Oklahoma.[18] The valleys of both the Washita and Red rivers and their tributaries were experiencing calamitous floods on a periodic basis.

The tragedy that sparked action in Oklahoma, though, occurred eleven years earlier than the Hammon flood. A series of floods during spring of 1923 hit nearly every part of the state. Nearly every railroad and wagon bridge in Oklahoma was washed away, preventing traffic from crossing the state.[19] Lake Overholser, which dammed the North Canadian River for the purpose of supplying water to Oklahoma City, jeopardized the city when high water breached the dam (Figures 7 and 8). This flood dealt a severe enough blow to the economy of the region for the state leadership to take notice. The result of the 1923 flood was the creation of a Flood Control Committee in the Oklahoma City Chamber of Commerce comprising some of the most powerful men in the state. Their task was to look into ways of stopping the threat of floods both around the state capital and the rest of the state. Thus, Oklahoma had embarked on its own search for protection four years before flood control would become an issue at the federal level.

Lake Texoma, a federal project, was indirectly affected by the flood control plan Oklahoma created following the disastrous 1923 flood. A combination of the "Oklahoma plan", as it became known, and the way the Corps saw flood control resulted in the federal policy of building large reservoirs on the main stems of rivers.

The Great Mississippi River flood of 1927 that threatened New Orleans helped prod Congress to become actively involved in flood control.[20] In the aftermath, there was a very vocal group of people living in the Midwest and

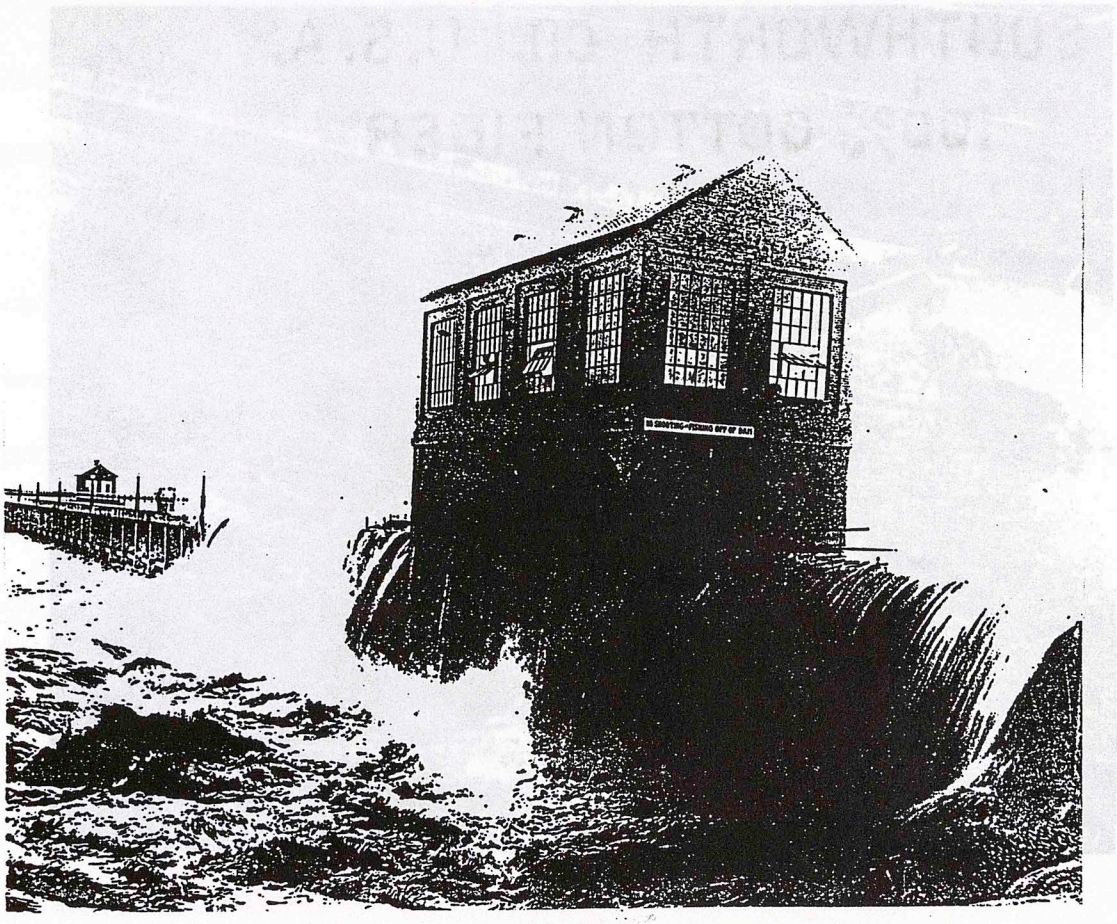


Figure 7: Water breaching the dam impounding Lake Overholser in Oklahoma City on January 15, 1923.
Source: Oklahoma City Chamber of Commerce

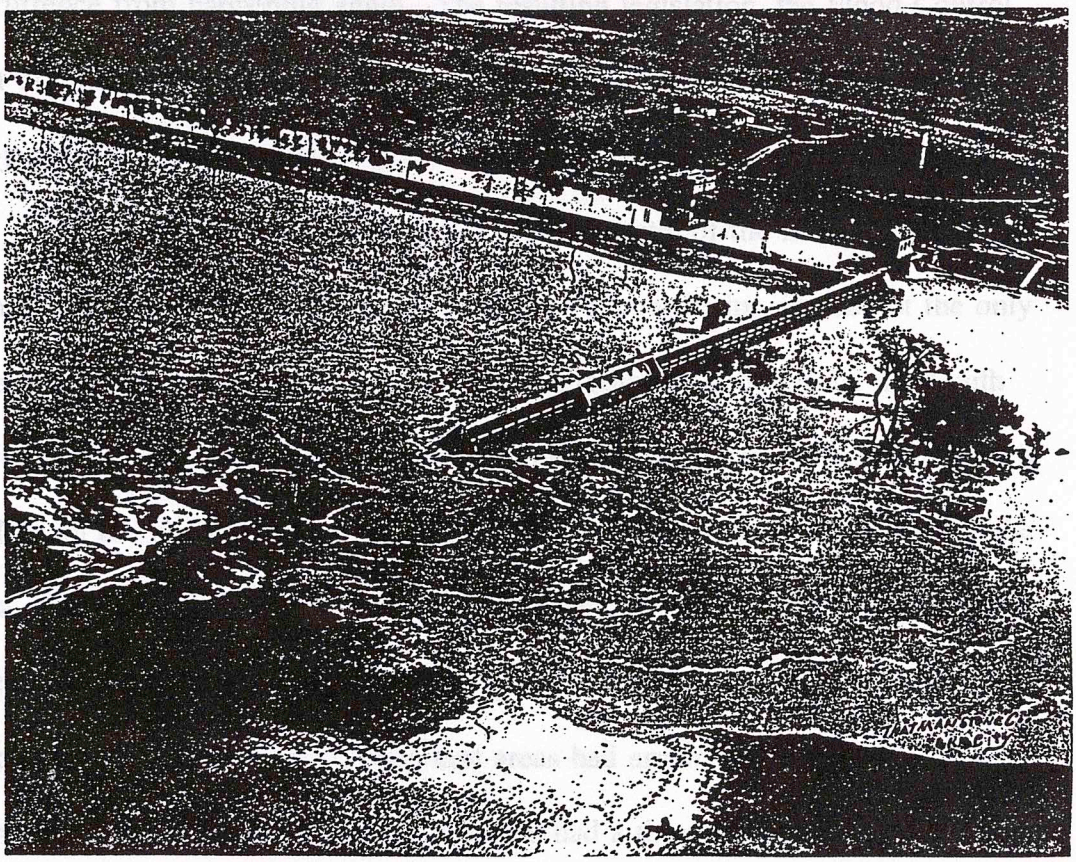


Figure 8: Aerial view of the North Canadian River breaking through the municipal dam in Oklahoma City in 1923. This event prompted the Oklahoma leadership to look into possible solutions to periodic flooding four years before the Great Flood on the Mississippi.
Source: Oklahoma City Chamber of Commerce

South that wanted something more to be done. The House of Representatives quickly created a Flood Control Committee and before the year was out, began holding hearings to try to determine what could be done to prevent this type of occurrence from happening again. The resulting legislation, the Flood Control Act of 1936, authorized the Corps to begin work on a number of flood control projects around the country.

While flooding was perhaps the most dramatic of the natural forces conspiring against the residents of the southern Great Plains, it was not the only one. Ironically, drought was another severe problem that had to be dealt with periodically. Moderation is a scarce commodity in this area. Periods of drought follow on the heels of flood years. Though the Corps in its initial survey of the area concluded that using the reservoir for municipal water supply would not be necessary, local hopes were that Lake Texoma would provide an alternate source in dry years.[21] While most of the rural areas had ample water available from pumping shallow wells, increasingly, towns had a thirst that could not be totally quenched by wells.

One of the benefits cited in the initial surveys for Lake Texoma was malaria control.[22] The lowlands adjacent to the Red and Washita rivers near Denison lay on the northwestern edge of the "malaria belt."[23] Stagnant or slow-moving water was a breeding ground for mosquitoes, some of whom could prove deadly if they were carrying the disease. Lake Texoma was designed to

rescue people from this; to moderate the natural conditions in the area by preventing those low lying areas from periodic inundation by high water.[24]

Lake Texoma promised to rescue people not only from dire physical circumstances but also from the dire social and economic conditions they had been living under in the first few decades of the century.

> *"Adding to its traditional unsettlement, Oklahoma shares with neighboring states the effects of protracted agricultural depression, drought, depletion of mineral resources, destruction of soils, displacement of farm workers by mechanization, and accumulation in its poorest rural sections of population rebuffed by industrial centers of the North which previously had furnished outlet." An American Exodus, 1939.*[25]

The population of the Texoma area, a part of Indian Territory communally owned by the Chickasaw tribe until 1895, grew quickly after whites were allowed to settle in it. Oklahoma was considered a land of opportunity for landless farmers back east. But in less than forty years the high hopes and dreams of making a living on a farm had diminished in the desperation of getting enough money to feed families. In 1933, more than ten thousand local residents of four Oklahoma counties near the Red River participated in the construction of Lake Murray, a "make-work" project sponsored by the federal government during the Depression.[26] These workers, mostly men, who were "unemployed and in dire straits," were paid $1.80 each for five days work.[27]

Settlement in Texas south of the Red River occurred differently. Since Anglo settlement began in the early 1800's, growth had been slow and steady.[28]

Land was fenced and plowed with the advent of the railroad and ready transportation to markets back east. Cotton soon became the important cash crop of the Texoma area.[29]

During the first few decades of this century, tenancy rates in the lower Washita stayed between 60-80 percent.[30] These tenant farmers were also very mobile. Up to half of all renters moved to a new farm every year.[31] This instability continued into the 1920's when the boll weevil decimated cotton production in the area.[32] People who could afford to leave and go elsewhere did so. Those who couldn't afford it stayed and survived by hunting, trapping, and fishing in the fertile bottomlands of both the Washita and Red.[33]

> *"The marginal and submarginal workers are more likely to remain in an area where fishing is good, when times get bad, than move in search of employment in other places, because they prefer fishing to work in the first place. As long as they can find a cheap place in which to live, with plenty of free water, wood and wild onions, enough public relief to purchase simple necessities, and can spend their leisure hours (the hours when they are not asleep) fishing, what reason would they have for migrating to a place where working for a living is a condition precedent to existence?" Oklahoma Institute of Community Development, 1950.* [34]

In the lower Washita basin of Oklahoma, the average size of the farms in 1943 was only 152 acres.[35] This relatively small farm size meant the land had to be more intensively developed to afford the greatest return. Farmers were forced to plow marginal land and keep it in production year after year without rest. This not only reduced the fertility of the land but also increased soil erosion.[36] People

farming the land often had little stake in its long-term health since tenancy and migration were so high in the region.

Many people who owned their land went into debt and were eventually forced off their land by creditors. Taxes on a large portion of the land inundated by the nearby Lake Murray project in 1933 had not been paid since Oklahoma statehood in 1907.[37] The average tax delinquency in the 10,000-acre area was sixteen years.[38] By the end of the 1930's, it was reported that at least 75 percent of the land in Marshall County that would be bought by the federal government for the Denison Dam project was owned by banks, mortgage companies and insurance companies.[39]

...and Deliver us from Floods

The Flood Control Act of 1938, an amendment to the 1936 Act, authorized the Corps to begin a number of new projects. One was the Denison Dam project, the keystone in the Corps' defensive plan for flood control in the Red River Valley. Funds were appropriated a year later and work began on the project immediately (Figure 9). Some of the benefits of the project listed in a Corps report were *"decreased loss due to flood evacuations, lessened disease rate, less interference with communication and transportation facilities and consequent interruption of orderly business..."*[40] The Corps designed the Denison Dam project to save the lower Red River Valley from these hazards.



Figure 9: The Denison Dam project was authorized in the Flood Control Act of 1928. When the news reached Denison, Texas, the celebration turned into an impromptu parade.
Source: Denison Daily Herald

Originally, the Corps predicted the annual flood control benefit of the lake would be $1.6 million.[41] By 1979, the total estimated savings in damages topped $40.5 million.[42] Along with the benefit of preventing floodwater damage, the project was also lauded for reclaiming over 1,000,000 acres of "useless" wetlands along the Red River downstream of Denison.[43] Before Denison Dam, over half of this acreage was in crops, the rest was still wooded.[44] At the project dedication in 1944, General Reybold hailed the Dam as, *"a mighty bulwark against destructive water for ages to come."*[45] But the ability of Texoma to deliver people from the combined destructive power of the Red and Washita rivers was untested.

Testing the bulwark: "The Southwest's Greatest Niagara"

> *"It was a battle of Man vs. the Elements, and Man won." Fort Worth Star Telegram, June 1943.*[46]

People around Lake Texoma were not pleased in the spring of 1957. The water level had dipped to a record low of seventeen feet below the normal pool elevation.[47] Resort owners and others who made a living off the growing business of recreation and tourism were losing money because of the lack of water behind Denison Dam.[48] Before the reservoir had filled in 1944, all the trees below the 620 -foot elevation mark were cut down. The receding water exposed vast stretches of these stump fields, glossed over with mud and silt from the lake. People were shuttling from the resorts to the water's edge, sometimes a

mile away.[49] There was mumbling: the lake was a failure; it should never have been built.[50] Was the project saving people from misfortune or creating more of it? People debated the possibility of raising the height of the power pool to keep the lake at higher levels so this wouldn't happen again. Congress intervened and told the Corps to shut down the generators in the dam to keep from pulling the water level down to the bottom of the power pool, at 590 feet elevation.[51] Then the rain began to fall.

By the end of April the lake was making a comeback, rising at a rate of up to 30 inches per day. In five weeks Texoma had risen seventeen feet and reached its normal pool level again.[52] But while the flood gates were opened, it kept raining upstream and the lake continued to rise. By May 8 the lake had stabilized and even started to go down a few inches. The level had by now reached 626 feet, nine feet above normal and 2.5 feet shy of its all time high. But influence exerted by those downstream of the dam who felt the Red River was still too high convinced the Corps to shut the flood gates to improve conditions downstream. The Corps was concentrating its attention on the people downstream and not on the resort owners ringing Lake Texoma. The flood gates stayed closed and the reservoir started slowly rising once more.

Five days later, two months to the day that the lake had reached its record low, a new record high was set, and the Army Engineers reluctantly opened the flood gates once more. Rumors began to fly that Denison Dam had cracked and people trying to guess when the water would start flowing over the

spillway organized betting pools.[53] The lucky winner would have chosen 4:15 a.m. on Tuesday, May 28. At that time, hundreds of people gathered to see Lake Texoma hit the 640-foot elevation mark and begin to trickle over the spillway. As one local newspaper put it, *"That gurgle (of water going over the spillway) caps days of waiting in one of the most nerve wracking events in Denison's history."*[54]

In the following days, thousands of people came to see the water cascade over the half mile long spillway then being called the "Southwest's Greatest Niagara."[55] The Corps proclaimed this flood to be greater in magnitude than the flood it designed the dam to hold.[56] Denison Dam had finally gotten a chance to prove itself against severe flooding on the Red and Washita rivers and had succeeded. Though it was unable to hold back all the water flowing into it during the spring of 1957, it stored enough that the estimated damages downstream were still reduced by about $10 million in that one flood alone.

Since that time, the reservoir behind Denison Dam has topped the spillway one other time, in 1990. The hundred-year flood the Corps had calculated when building the dam thus has occurred three times in the past 86 years (Figures 10 and 11). Numerous smaller floods have also occurred since 1944 but Denison Dam has all but eliminated major damage downstream since it was completed. The dam has successfully contained two floods exceeding the maximum flood it was originally designed to hold and estimates of total reduced flood damage run as high as ninety million dollars since 1944.[57]

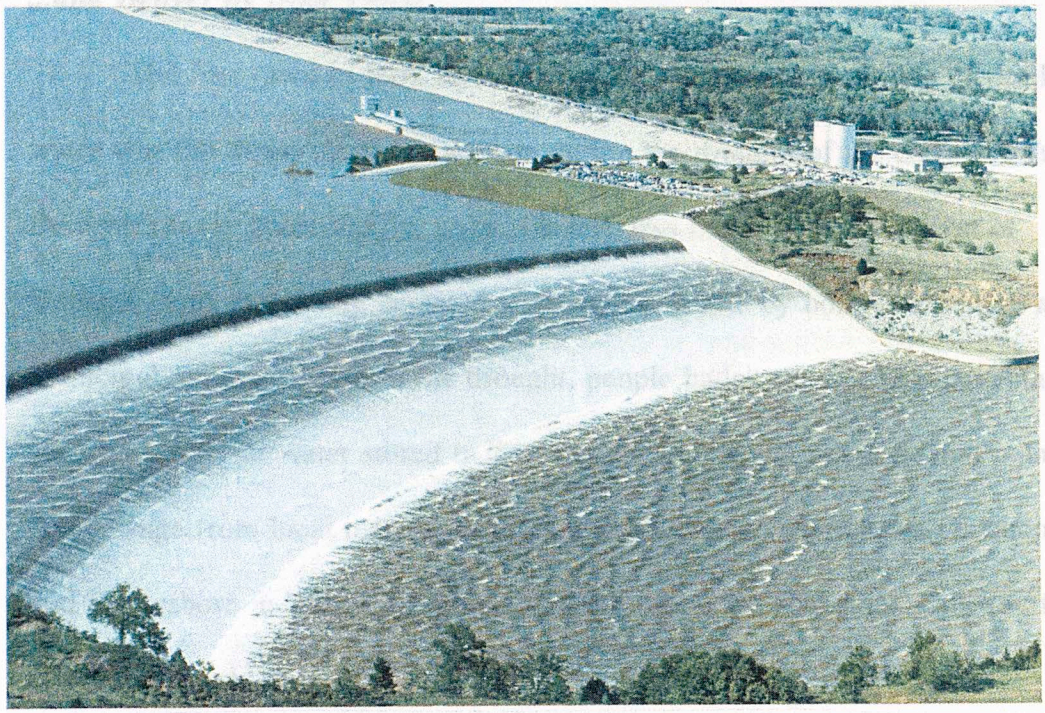


Figure 10: Water cascading over the spillway in 1990. This was the second time since the Denison Dam was built the flood control reservoir was high enough to breech the spillway.
Photo courtesy of the Denison Daily Herald.

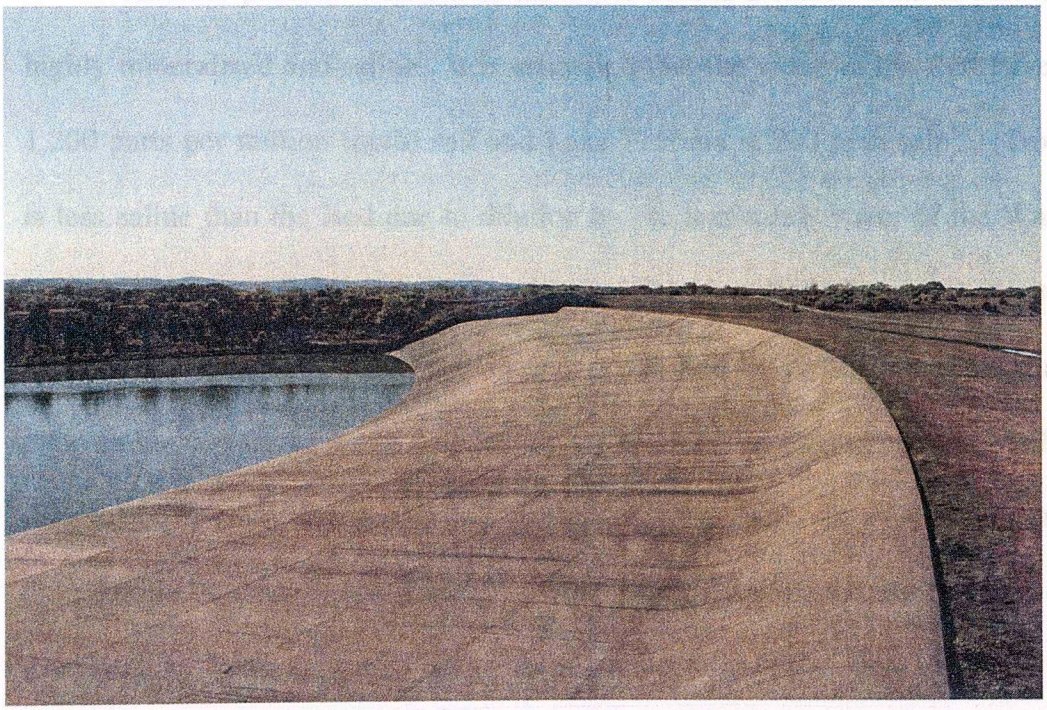


Figure 11: A view of the massive spillway of Lake Texoma during normal lake levels. The lake lies to the right.
Photo by author.

...and Deliver us from Thirst

The first town to look seriously at Lake Texoma as a source of drinking water was the Texas town of Denison during the drought of the early 1950's. Denison's main water supply, Lake Randell, less than a mile southwest of Denison Dam, was being depleted at an alarming rate by both evaporation and municipal pumping. Before the drought, people hadn't tried to take advantage of the vast supply of water stored in Texoma because it wasn't considered potable: raw sewage from local resorts, Tishomingo, Madill and Marietta in Oklahoma, and Whitesboro in Texas, all drained directly into Lake Texoma. Unsure of the effect this would have on public health if the water was used for human consumption, the Corps was not quick to grant licenses for that purpose.[58]

Another problem inherent in the water behind Denison Dam is that it is highly mineralized and saline. It is estimated that the water in the Red River is 1,200 parts per million (ppm) salt and Lake Texoma is 700 ppm salt.[59] (Texoma is less saline than the Red due to dilution by the less saline water of the Washita River.) The U.S. Public Health Service in 1964 identified ten primary natural brine emission areas in the upper reaches of the Red River Basin.[60] This study cited saline springs as being responsible for the high mineral content as well as residual brine from now prohibited oil field disposal methods, evaporation and the addition of other waste waters.[61] However, this was no excuse for those who saw Texoma being neglected while cities were scrambling to find sources of water.

"In this day of magic chemical progress, the mere fact of mineral content should not be allowed to stand in the way of use of this vast reservoir of water in the heart of a great populous territory that is zealously looking for a water supply." Dallas Morning News, April 1955. [62]

While some people looked for technical fixes to the saline problem, others simply tried to dilute the water in Texoma with a freshwater source. Early in 1952, Denison applied for a license to pump water out of Texoma into Lake Randell after the Texas State Health Department approved its use for human consumption if purer water filtered it or diluted it.[63] The lowest cost solution was simply to pump Texoma water into Lake Randell which would make the mineral content low enough to be used. Lake Texoma was able to quench the thirst of the people in Denison after all.

Later that same year, Dallas was experiencing enough pressure from the drought to start looking for alternative water sources for itself. After the publication of a Corps report citing a mere four-month supply left in Lake Dallas, one of the main water supplies for the city, a plan was created to construct a five-foot water main from Texoma south to the Trinity River. Water released into the Trinity would flow downstream into Lake Dallas where it would mix with the remaining water in the city reservoir.[64] Just as Lake Randell had been used by the city of Denison to dilute the saline water of Lake Texoma, Dallas would use the Trinity River in the same way. Concern over the possible lowering of Lake Texoma led some in Texas to support an alternative plan that would instead pump water from the Red River just below Denison Dam to

Jordan Creek near Whitesboro that then flows into the Trinity River.[65] This plan wouldn't affect the level of Texoma and would provide a permanent supply due to the constant discharge necessary to turn the generator.[66]

The bureaucratic red-tape and cost of getting permission from two states and the federal government, as well as the cost for easements and the pipeline itself apparently was insuperable. As the drought continued, people in Denison speculated on the advantages of having municipal water rights to Lake Texoma. While R.A. McDerby of the Denison Chamber of Commerce in 1956 said that all the water available for consumption would eventually be used by local communities, he hinted that the sale of Texoma water or the rights to this water might even be more lucrative than using it for the generation of electricity.[67]

It took nearly fifty years to resolve the issue of municipal water use. In 1987, representatives of the Corps, the cities of Sherman and Denison, the Lake Texoma Association,[68] the Greater Texoma Utility Authority and the North Texas Municipal Water District agreed to divert 87,000 acre-feet of water per year from Lake Texoma to Lake Lavon, a Dallas reservoir.[69] People, especially in Oklahoma, who were concerned about the effects of the diversion on the recreational facilities around the lake opposed the $34 million project. An indignant fisherman, Hal Curtis, reacted to these developments by saying, *"I know that people need water to drink and it takes water to operate a big city, but this lake was built for flood control and for power, and now they want to drink it."*[70]

Mosquitoes and Malaria

While the Texoma area itself was considered to lie on the western edge of the "malaria belt," the Red River downstream of Denison was considered a high-potential risk area.[71] It was common for there to be a few malaria cases reported in the lowlands near Denison during the summers.[72] After construction, resort owners and others around the lake began to worry about the reservoir itself becoming a breeding ground for malaria-carrying mosquitoes. Much of the shoreline after all, especially on the Oklahoma side, was relatively shallow and slow-moving. In 1947, the Army Engineers and the U.S. Public Health Service made a survey of malaria and concluded that while areas around the lake do not show a higher incidence of malaria than elsewhere, *"a high potential malaria hazard does exist in the region."*[73]

Lake Texoma was credited for reducing malaria downstream on the Red River, but local people were convinced it was exacerbating the spread of the disease around the reservoir itself.

> *"The lake has caused nothing but trouble for _____ in the form of mosquitoes and gawking tourists. Some half-wit from the University made a survey and stated the mosquitoes were not malaria-carrying. We know they are." Oklahoma Institute of Community Development, 1950.*[74]

To counter some of these fears, other methods of treatment were used as well. Oil and a chemical called "Paris green" were dumped in pools of stagnant water so they would coat the surface and kill off the mosquito larvae. One of the

more frightening methods used was the residual spraying of rural homes with a solution of the pesticide DDT.[75] The degree to which the construction of Denison Dam ultimately influenced the incidence of malaria either downstream or around the lake is unknown.

Stemming Human Erosion[76]

The creation of Denison Dam also served to help bring about social change. A large number of people did leave the area during dam construction but for those who stayed, living conditions improved.[77] After the creation of the dam, people were less likely to be migrants, farm size increased, and more farms were owner occupied.[78] Apparently, some of the marginal farmers found either the means to start again or quit farming and moved to one of the local towns.

The area around the newly formed Lake Texoma in the late 1940's was far different than it had been a decade before Denison Dam.[79] The number of people and farms had decreased.[80] The farms that did remain were larger. Some of the smaller cotton farms were being consolidated into ranches used for grazing cattle.[81]

Increasingly, more of the farmers and ranchers in the area owned the property they worked. The high degree of land owned by banks and mortgage companies had decreased considerably, especially next to the Denison Dam project. Between 1939 and 1949, farm ownership in the four Oklahoma counties that bordered on Lake Texoma--Marshall, Bryan, Love and Johnston--increased

88 percent.[82] This compared to only a forty-nine percent increase in the non-lake counties of Choctaw and Jefferson.[83] The difference between counties adjacent to the lake and non-lake counties was just as evident in Texas. In the lake counties of Cooke and Grayson, there was a forty-nine percent increase in farm ownership. The Texas non-lake counties of Fannin, Lamar, and Montague only had an increase in farm ownership of nine percent.[84] For one reason or another, the lake definitely seems to have had an influence on how quickly farmers and ranchers regained ownership from banks and mortgage companies. Farm tenancy decreased similarly.[85]

The infusion of money into the local economy from buyouts and rising land values also rearranged the social conditions of the area. With the physical environment literally eroding from under them before construction of the dam, most farmers were getting diminishing returns from each successive crop. Exacerbating this was cotton sapping the nutrients out of the soil and the boll weevil that was destroying the cotton. The federal buyout provided the chance for those who owned land in the reservoir area to try again somewhere else or forget farming and move to town. Some towns such as Kingston, Oklahoma saw this as a chance to increase their populations; some even sent out brass bands and speakers to lure people to their town.[86] Kingston was able to double its size in only a couple of years. By 1943, it boasted a population of approximately 1,000.[87]

For those who were working the land without ownership before the coming of the federal appraisers, the buyout forced them to break the cycle and move on. The combination of the dramatic drop in tenancy rates surrounding Lake Texoma, the reduction in overall county populations, and the growth of towns would suggest that many of those people who were small-scale farmers without land of their own either left the region entirely, got out of farming and moved to town, or were able to buy some land of their own and start again. One study suggests that most people, when forced to leave, moved within fifty miles of their old homesite.[88] The farms and ranches that did manage to remain were larger and began to raise grain or cattle. The poor migrant farmer just scraping by was no longer the norm in the bottomlands of the Texoma area.

Lake Texoma Buys the Farm

> *"There was a lot of complaint about good farm land being covered with water when the dam was completed. Many think that if some of this land spoken of was covered up a long time ago many of us would be better off." Denison Daily Herald, October 1939.*[89]

Buyouts of land inundated by Lake Texoma made some people who did own farms glad to take the money.[90] In the shadow of the Great Depression and the midst of World War II most of the land in the area was worth very little on the market.[91] During the buyouts in 1939, one farmer near Woodville said, *"This is the first opportunity we have had to sell our land for what it is worth."*[92]

Much of the land was severely eroded and had lost much of its fertility and value because of both flood damage and the constant production of cotton. In some cases, the landowners weren't even making enough money to pay off their taxes each year. It is estimated that at least 75 percent of the land to be bought by the government for the project was owned by banks, mortgage companies, and insurance companies that acquired the land when people defaulted on loans they had taken out.[93] Much of the rest of the land that hadn't already succumbed was on the brink of foreclosure.[94] To these people, the chance to get out and start again with a government check was like a blessing from heaven. Advocates of the Denison Dam project stated, *"...residents would jump at the chance to get cash for their 'dilapidated buildings' and start anew somewhere else."*[95] To those people in such desperate straits, the project offered an opportunity to extricate themselves from the situation before it became worse.

Others saw opportunity in the financial desperation of the marginal farmers. A few land speculators came in ahead of the federal buyers and tried to get landowners to sell off their land cheap.[96] Once they acquired the land they would make a profit by selling it to the government for a higher price. There was also money to be made by smart landowners. Some of the wealthier farmers who knew their land fell in the reservoir area cleared their land of timber and sold it off.[97] Truckloads of valuable hardwoods were removed before the Corps came in and bought the land. Since the government only paid for the condemned land itself and not the physical attributes of the land, this did nothing

to the price paid to the landowner.[98] This was something that did not necessarily go over well with farmers who had producing pecan or peach orchards.[99] Farmers often harvested their land even after selling it to the Corps up to the time the water in the lake began to lap at the top of the farm land. Sometimes the harvests they reaped off the land were even worth more than what they had received in compensation for the land itself causing some grumbling about the government not paying a fair price to landowners.[100]

The people who did clear their land and sell the timber were actually doing the Corps a favor. The Corps was clearing trees and brush below the 620'-elevation mark anyway, using local labor as well as German POW's from Rommel's Afrika Korps to do the work.[101] The more land cleared by the landowner, the less work the Corps had to do.[102] Those who could cut trees, transport them to a market, and arrange for a buyer had the advantage. Most, however, either didn't have the know-how to arrange transport and set up buyers for the timber or weren't aware that this could be done.

As people left the countryside, some of them decided to move to nearby towns such as Ada, Ardmore, Durant and Madill.[103] Following the exodus, merchants in these communities began to notice that they were doing more business since the construction of the dam began. Marietta, the Love county seat did not see the same type of increase even though it was as close to the lake as the others. Bad roads and poor access were blamed for this.[104] Many of the local people who used to go to the north Texas towns of Gainesville, Sherman

and Denison now found themselves cut off from those markets.[105] To get there they would have to follow a circuitous route around the lake; it was easier to go to the Oklahoma towns. On the Texas side, the town of Whitesboro, halfway between Gainesville and Denison has taken up much of the slack south of the Red River.[106] Another advantage Whitesboro had was that there were fewer towns on the Texas side of the Red. Many tourists from Texas that began to trickle in to the reservoir area upon its completion went to Whitesboro to get outfitted for camping and fishing.[107]

Lake Texoma has taken on the metaphorical role of savior. It has delivered people from dire physical and social circumstances. This is part of what it has meant to people since its creation fifty years ago. Not only does it hold back and control the combined force of the Washita and Red Rivers, it has also helped to create a stable economy. It supplies water for domestic use to local cites as well as Dallas, Texas. While malaria has since ceased to be a problem in the Red River Valley and Lake Texoma didn't end up modifying the local climate as severely as expected, these too are part of what "Lake Texoma as Savior" has meant to people. Children and adults alike standing at the outlet of Denison Dam watching the frothing water in awe have forgotten how menacing unleashed water can be.

Chapter 3

Battlefield

Smoke billowing up from the fires must have been visible for miles. Roads leading out of the area were filled with people moving everything they had, taking their houses, even the boards the houses were built of. These were refugees, leaving a land they had known in some cases for generations, fleeing before the onslaught of a force to great to resist. Farmers who had crops in the ground or orchards on their land tried to harvest all they could before they left, knowing it would probably be the last.

This was the summer of 1943, but it wasn't a scene out of Europe. It was a battlefield of another sort, on the land where Lake Texoma would be formed. In the decades of the 1930's and 1940's this area was the site of battles between the federal government and local citizens, between Oklahoma and the federal government, and between different bureaucracies. As flood control became a national priority, some of the most heated battles in the nation took place in the Red and Washita basins.

Out of this struggle had risen Denison Dam on the banks of the Red River.[108] In turn, Denison Dam lit fires of its own. The Governor of the State of Oklahoma tried every legal means at his disposal to stop its construction. At issue was states' rights versus federal authority. At stake was the legality and fate of the federal flood control policy that later transformed Oklahoma into the self-proclaimed "Frontier Lake State."[109] To the refugees caught in these struggles, the reservoir changed their lives forever.

In the late 1920's and early 1930's, young surveyors started to appear in the lowlands of both the Washita and Red Rivers.[110] They waded into the middle of fields with their long sighting poles and transits and stripped off the tops of the corn so they could see out.[111] People started calling these college boys the "dam men"[112] because of all the talk locally about the government damming up the Red and creating a huge reservoir that would flood thousands of acres. As one local resident put it, not many people took these rumors seriously.[113] After all, creating an "inland sea" that big was unthinkable. For most of the rural farmers and small communities in the area, this was their first exposure to the idea of a huge dam holding back the combined waters of the Red and Washita. The local boosters actively involved in advocating the project were mostly from the bigger towns in the region: Denison and Sherman in Texas, and Durant in Oklahoma.[114] The unthinkable became closer to reality on June 28, 1938 when the Flood Control Bill of 1938 became law.[115] It authorized the Corps to construct a multi-purpose dam on the Red River near Denison.

Initially, the dam was to be 190 feet high but due to opposition the Corps apparently decided to lower the dam to 165 feet above the riverbed.[116] Lowering the height by 25 feet shaved around three million dollars off of the project and shrank the final reservoir by 32,600 acres.[117] Even at 165 feet, the dam would stand as high as a fourteen-story building[118] and hold back enough water to bury nine towns: Hagerman and Preston in Texas; and Woodville, Aylesworth, Powell, Willis, Isom Springs, Enis, and Mead in Oklahoma.[119]

New Woodville

The town of Woodville, lying in the far southeastern corner of Marshall County, had already been moved once by the time the Denison Dam project was approved.[120] Decades earlier, when the Frisco Rail line came through, the town of Harney moved one mile north and a half mile west to meet it and was renamed Woodville.[121] When the government told the residents they had to make way for the reservoir, the community was strong enough to be able to move the town for the second time: New Woodville, or Newtown as it was known locally, was created. In their quest for survival, the people of Woodville have been slowly inching their way northward on the map of Oklahoma.

Some of the families that lived in and around Woodville had been there for generations.[122] They were rooted to the land and were accustomed to all its quirks. Most grew crops, but many still spent time in the lowlands hunting, trapping and fishing.[123] The thick riparian hardwoods were full of game: turkey,

red and gray fox, squirrel, bobcat and red wolf.[124] Those who farmed land adjacent to either the Red or Washita expected it to flood nearly every year. Most of the time though, people were still able to dry out and get a crop planted in time for a harvest. It was part of living next to the river.

Woodworking and timbering were also ways of supplementing income. Just north of town there was a sawmill in operation on Alberta Creek, a tributary of the Washita.[125] Most of the prime hunting and woodworking disappeared with the hardwood lowlands that were submerged along with the concrete foundations of Old Woodville.

A strong sense of community helped bind Woodville together, especially around its schools.[126] People from Preston were bused up Oklahoma SH 48 to go to the Woodville school.[127] One of their main rivals was the Dark Corner school.[128] The only thing that remains to remind people of the community that once was Dark Corner is a convenience store just east of New Woodville called the "Dark Corner General Store." The last graduating class from the Old Woodville High School was in 1943. The thirteen seniors who graduated that year decided to do whatever it took to graduate from Woodville High instead of Kingston High School, where the rest of the underclassmen were sent. Because the Corps had said that the school needed to be vacated by March of 1943, the students voluntarily began the school year in July 1942. Attending classes Monday through Saturday, they were able to finish the school year and graduate in February of 1943, just shy of the March deadline.[129]

While people in Woodville at first refused to believe that the government would force them all to move, it soon became apparent that there was no option.[130] Reluctantly, some residents sold off their land and homes and resigned themselves to making the best out of a bad situation.[131] Others saw this as an opportunity to sell off their land for a good price in a sagging market and make a fresh start somewhere else (Figure 12).[132]

Aylesworth

Another town whose residents were forced to flee before Lake Texoma was Aylesworth, Oklahoma.[133] Like Woodville, Aylesworth eventually retreated to higher ground, but not before witnessing a battle from a different war; oil interests versus the Denison Dam project. During the planning stages of the dam in 1939, it was thought that only three things could stop the project: 1) a war monopolizing national energies, 2) an oil discovery in the basin, which would increase land values and make the project too expensive, and 3) a Republican resurgence in 1940 and the cancellation of New Deal handouts.[134] Two of these three scenarios actually occurred. The Japanese attack on Pearl Harbor on December 7, 1941 signaled the beginning of armed conflict for the U.S. in World War II, and oil was discovered in the reservoir site at a couple of different locations. Nonetheless, construction continued and Denison Reservoir was completed ahead of schedule.

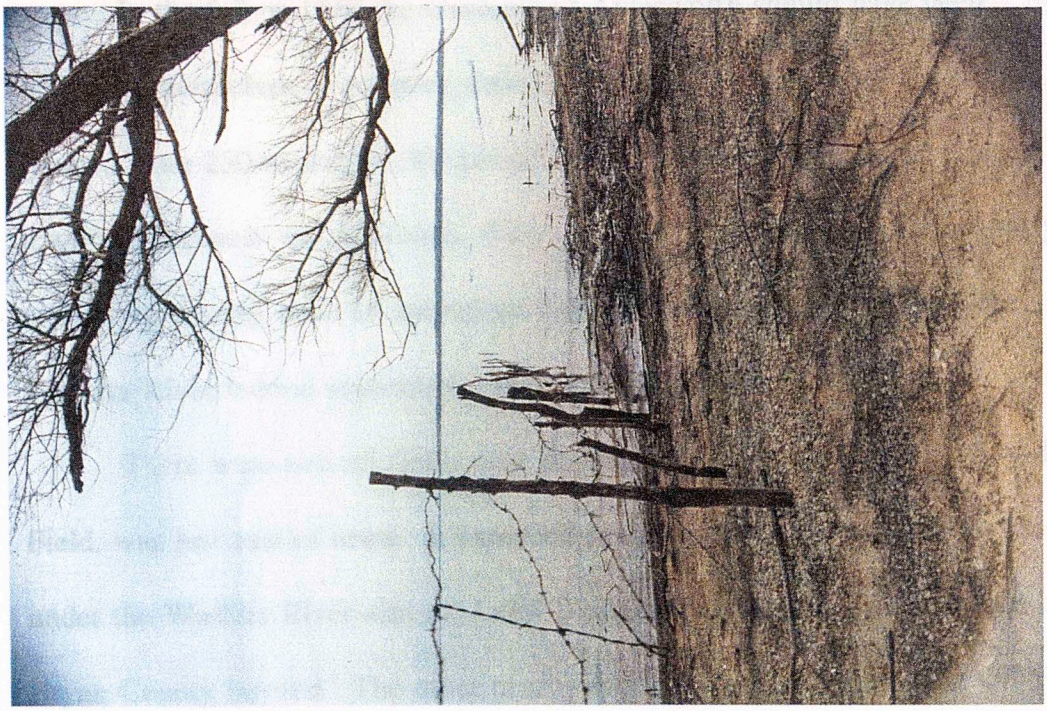


Figure 12: Beyond the end of the submerged fence line is approximately where the old foundations of the town of Woodville, Oklahoma now lie.
Photo by author.

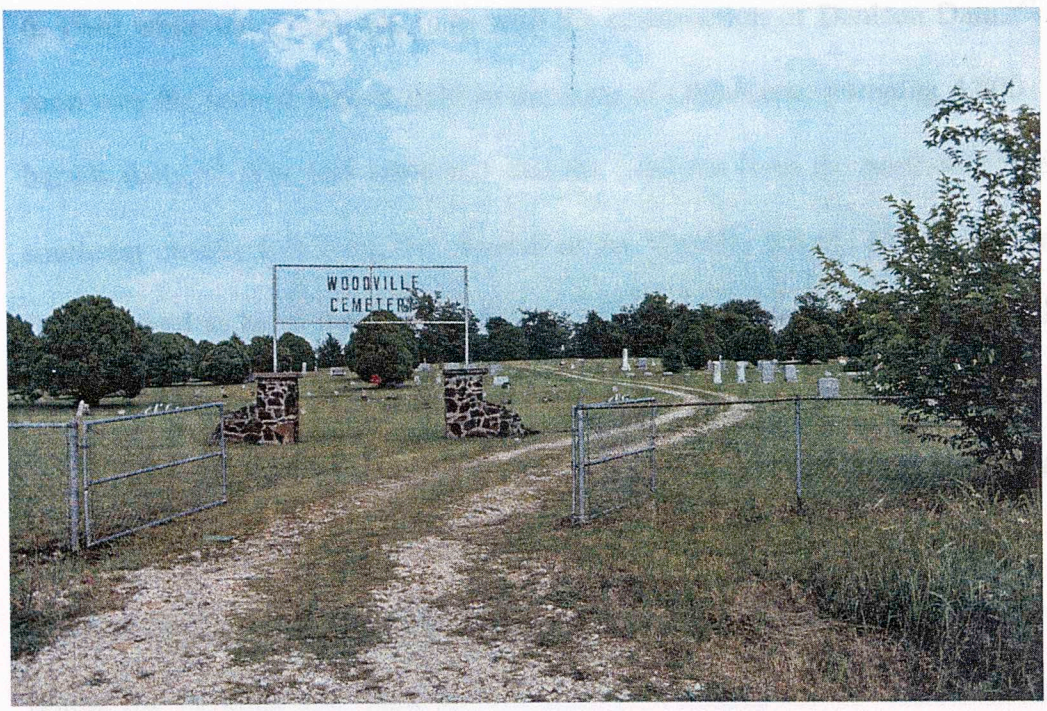


Figure 13: Woodville cemetery as it exists today, fifty years after it was moved to higher ground by the Corps.
Photo by author.

In the fall of 1940 the residents of Aylesworth should have been resigning themselves to vacating their land, but the population of the town jumped from 250 to around 300 people.[135] Oil had been discovered close to town and business was booming. Two groceries, a filling station, a lumber yard, and an oil loading dock all sprang up although just south of town near the Washita River federal appraisers were "dickering for farms."[136]

There were two oil fields near Aylesworth. One, the Aylesworth Oil Field, was just east of town. It extended southeast for about four miles, crossing under the Washita River arm of Lake Texoma and then out the other side into Bryan County beyond. The other nearby field, known as Cumberland Oil Field, lay four to five miles northeast of Aylesworth. Oil was discovered here on April 6, 1940 while the Corps was busy with the construction of Denison Dam.[137] It soon was the second largest field in the state of Oklahoma, pumping 4,800 barrels daily.[138] The bad news was that the field ran from the northwest to the southeast closely following the channel of the Washita River. Nearly the entire field seemed to be in the proposed reservoir area. In less than three years, the Pure Oil Company was producing oil from 67 wells that were drilled.[139]

The Corps had few options available, and the fate of the Denison Dam project seemed in jeopardy. Lowering the dam height enough to prevent flooding of the oilfield was not feasible due to its low elevation. It couldn't ignore the situation and flood the oilfield: oil interests had too much clout, and

the price of the land buyout would have increased dramatically due to the newly added value of the properties in the area.

The only other option was to design the lake to flow around the Cumberland field, which is eventually what the Corps did.[140] Towns were being moved, cemeteries were being moved (Figure 14), archeological sites were being flooded forever;[141] nothing could stop the rising waters of Lake Texoma except oil. To divert the water and keep the Cumberland field dry, the Washita River was detoured through two new channels east of the natural river channel and three dikes with a combined length of nearly four½ miles were built to surround the producing area.[142] The cost of the diversion and the dikes totaled $4,858,383.[143] The entire land acquisition costs for the rest of the reservoir totaled around $5 million; only slightly more than the cost to save a few square miles of oilfield. The result was that construction of the Denison Dam project continued, the oilfield continued to produce oil uninterrupted, and the people of Aylesworth, Woodville, and all the other towns in the reservoir area continued to flee the area.

On January 6, 1944 the dam outlets were closed and the lake began to fill.[144] By the time the lake had reached its normal pool elevation of 617 feet above sea level more than a year later, nine towns had been moved or abandoned, a total of about 5,800 people had been displaced from the countryside (Figure 13), 3,000 graves were moved from 49 cemeteries to higher ground, archeological sites were buried under the lake, historic sites such as



Figure 14: Moving a house out of the reservoir area to higher ground during construction of Denison Dam.
Source: Denison Daily Herald

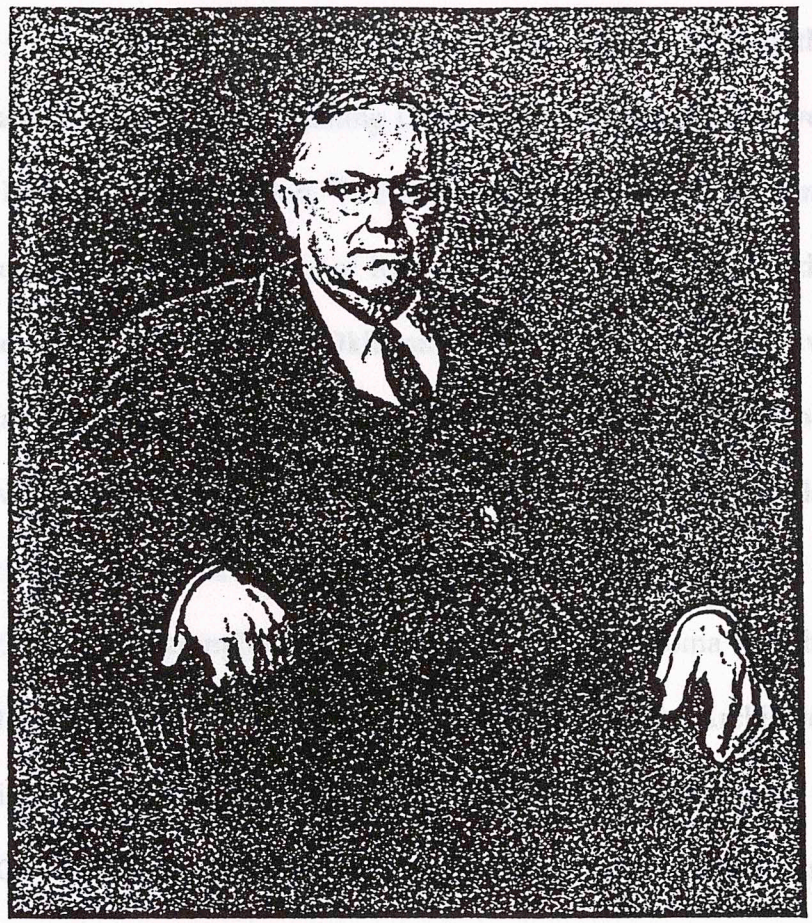
Glen Eden[145] were dismantled, never to be rebuilt, around 30 miles of railroad line was rebuilt, 5 miles of pipeline, 40 miles of highway, and 24 miles of power lines were moved. The exodus from the battlefield had been complete.

"Red" Phillips vs. the Denison Dam

> *"Meanwhile, all over Oklahoma, people have been getting down maps, trying to find out more about the project which suddenly has become a big political issue." Fort Worth Star Telegram, January 1939.*[146]

The ninth elected Governor of Oklahoma was a lawyer from the town of Okemah named Leon Phillips. Nicknamed "Red" due to his shock of bright red hair, Phillips was described as an idealist when elected to office in 1938 (Figure 15).[147] To people in southern Oklahoma, his legacy as governor is strongly tied to the Denison Dam project. He made it a priority of his administration to kill the project. While it seems as though his motivation stemmed from the idea that the Denison Dam project represented a violation of states' rights, the practical implications of his agenda were to put all future flood control structures in Oklahoma in jeopardy, and to call into question the constitutionality of the entire federal flood control program as it existed at the time. If Phillips had succeeded in this mission, the state of Oklahoma would be a much different place today.

Before Phillips came out with his strong stand against the project, there was little opposition on either side of the Red River. As early as 1935, some of the Oklahoma electric utilities denounced a possible hydroelectric dam located



LEON C. PHILLIPS
Governor of Oklahoma 1939-1943

R. V. Goetz, Artist

Figure 15: Portrait of "Red" Phillips, the Oklahoma Governor who opposed the construction of Denison Dam.
Source: Oklahoma Historical Society

near Denison because they were anxious about the cheap power it would provide the area.[148] Aside from this opposition, most of the people aware of the Denison Dam project were for it, including politicians on both sides of the Red, the Interstate Drainage Basin Water Planning Committee,[149] and the Red River Flood Control and Navigation Association.[150] The Texas delegation, led by Sam Rayburn, Speaker of the U.S. House of Representatives, firmly supported the proposed reservoir.[151] Politicians in Oklahoma were not so united, however. State politicians like Don Welch of Madill, Speaker of the Oklahoma House of Representatives, and the majority of the Seventeenth legislature were influenced by Governor Phillips and were against the Denison Dam.[152]

In 1938, the big stronghold of dam advocates in Oklahoma was the town of Durant. John MacDonald, state senator from Durant, Walter Archibald also of Durant, vice-chairman of the Oklahoma State Planning and Resources Board, and Wilbur Cartwright of McAlester, 3rd District Congressman were all staunch supporters of the project.[153]

The main local opposition to the construction of the Denison reservoir emerged from west of Durant, across the Washita River in Marshall County. The one entity that stood to lose the most from the project was Marshall County and its seat of government, Madill. Nearly half the area that was to be flooded was located in the low-lying areas of the county.[154] Marshall, already the smallest county in the state, stood to lose 20 percent of its area to the new

lake[155] and the fears in Madill were that the county would lose its identity and the town its seat of county government.[156]

It didn't take long for Phillips' opposition to the Denison Dam project to become known. During his first legislative message after taking office, he pounded the desk and stressed this was one of the most serious problems facing the state.[157] The governor's shopping-list of complaints was long and inflammatory. He objected to the permanent flooding of thousands of acres of fertile lands in Oklahoma, to the submerging of towns, and to the elimination of revenue from the tax rolls of the school districts, counties and cities in the south-central part of the state. He claimed the reservoir would change the territorial boundaries of Oklahoma, give an economic advantage to north Texas at the expense of Oklahoma, create a worse flood hazard both above and below the dam, and would constitute *"the most shocking disregard of states' rights that has yet occurred."*[158]

Phillips also asked the state legislature to repeal a statute passed by the first Oklahoma legislature, a statute that gave state consent for the United States to acquire land in Oklahoma for irrigation, drainage, and other purposes.[159] In a barb aimed at the leadership of north Texas, he claimed the industrial centers of that state were conspiring to divert enough water from the proposed reservoir to the Trinity River to make it navigable. The lower freight rates charged for water transport versus overland or rail transport would provide the State of Texas with an economic advantage to the detriment of Oklahoma.[160] Sam Rayburn

responded that the plan to put water into the Trinity River was either "a dream or brainstorm."[161]

Critical of the flood control potential of Denison Dam, Phillips said he didn't think the dam could serve as both a flood control and hydroelectric power dam.[162] He went on to say that if real flood control is desired, a better way of going about it would be to construct a whole series of smaller dams upstream on both the Red and Washita Rivers.[163] This would not only benefit Texas, Arkansas, and Louisiana but also the Oklahoma farmers upstream of Denison. This particular argument of Governor Phillips is reminiscent of the "Oklahoma Plan" that Congress and the Corps rejected in the late 1920's.

The states' rights issue centered on the ability of the federal government to take property within the borders of a state for their own purposes without consulting the state first.[164] Phillips stated, *"If a federal government can do this, then it can, with equal propriety, take all the other natural resources of the state, and indeed, destroy the state."*[165] He also pointed to a Supreme Court ruling that said the southern border between Oklahoma and Texas was at the southern bank of the Red River.[166] This meant Oklahoma should have control of the river itself, not the federal government. In part, this fear of the federal government trampling on states rights emanated from the authority the executive branch asserted during the Great Depression and World War II. The president of the Oklahoma State Senate, J.A. Rinehart, complained, *"From Colonial times until only the last few years, the sovereignty of the state has remained inviolate.*

But because of a national emergency these rights have been swept away."[167] Phillips found still another ally in Governor Aiken of Vermont, who also pronounced a "federal invasion" of this sort to be a violation of states rights.[168]

The most immediate concern following the Phillips speech was not whether or not he could kill the Denison Dam project.[169] One Oklahoma Senator, Elmer Thomas, responded to the controversy by saying he worried there might be a federal backlash against future flood control projects of this sort in Oklahoma.[170] Sam Rayburn was also quick to point this possibility out to the Oklahoma press.[171] This was no idle threat, coming from the Speaker of the House, and its meaning was not lost. The *Oklahoma News* ran an editorial to respond to the controversy entitled, "We Are For the Red River Dam."[172] While the paper acknowledged the sincerity of the Governor, they clearly stated, *"...it should be apparent that Oklahoma cannot block one tremendously important unit of the flood control program and hope for support of numerous other flood control projects in the state."*[173] Undeterred, Phillips pressed on.

What the Governor did next was to try to throw as many roadblocks in the way of the Corps as he could.[174] By June 1939, he was demanding that all the roads submerged by the reservoir be rebuilt by the government. He pressed as well for a reduction in the height of the dam by 25 feet, from 190 feet to 165 feet above the river bottom.[175] It was thought this reduction in the dam height would all but eliminate the power pool of the reservoir and make the generation of electricity impossible.[176] If hydroelectric power could be eliminated as a

benefit to the dams' construction, Phillips could then argue the project wasn't a wise investment by citing the Corps own cost-benefit analysis of the project. This ploy backfired when the Corps called his bluff. The height was reduced to 165 feet, but the dam was still large enough to provide for a hydroelectric power pool, and the relocated roads would also be rebuilt by the federal government.

Phillips was succeeding in becoming an aggravation to the Corps, but Denison Dam was proceeding. Phillips had to take the battle into a new arena and attack on a different front.[177] Claiming the federal government did not have the right to construct Denison Dam and flood part of Oklahoma, Phillips took his case to the Supreme Court where he was dismissed on the grounds that a state cannot file a lawsuit against the federal government without its consent.[178]

The crusade was not over yet though. Red Phillips soon was charging that the Red River wasn't legally navigable and the Corps should therefore have no control over it.[179] He also asserted the dam was not primarily a flood control dam, but for hydroelectric power.[180] If this was the case, then the project would lose the authority of the 1936 Flood Control Act, which asserted the federal government's responsibility to help reduce flooding. Just to be on the safe side, Phillips also claimed Congress had no right to get involved in flood control in the first place.[181] The underlying assumption of the entire federal flood control policy was that Congress had the right to intervene in flood control because it posed, *"a menace to national welfare."* If this was deemed outside of their

jurisdiction, as Governor Phillips was claiming, then federal flood control and all the projects authorized under it would evaporate.

The situation wasn't resolved until June 1941. Then an injunction filed by the State of Oklahoma against the private contractors working on the Denison Dam was dismissed on the grounds that the construction of the dam was intended to benefit navigation and flood control, and therefore was under the power of Congress to regulate and control.[182] After two and a half years of fighting the Denison Dam project, Governor Phillips had finally exhausted his ammunition. The Corps and Congress won the battle.

The Army Corps of Engineers and the Department of Agriculture

Ultimately, most of the battles that have been fought in the Texoma arena have been part of the mythic struggle of people and nature. Instead of living with the regional cycle of flood-drought, early white settlers decided to tame the streams. While there were plans drawn up for flood control in Oklahoma in the 1920's, nothing substantive was accomplished until the federal government stepped into the picture following the Great Mississippi River Flood of 1927. Following the Great Flood, the House Flood Control Committee began to hold hearings to determine the best way in which to eliminate disastrous floods, especially in the lower Mississippi basin.

One of the many people called to testify before the Committee was a lawyer from Oklahoma City named E.E. Blake. Blake represented the Flood

Control Committee created in the Oklahoma capital four years earlier. He presented a flood prevention scheme dubbed the "Oklahoma Plan": the construction of literally thousands of small reservoirs on upstream tributaries of major rivers (Figure 16). Theoretically, since most of the downstream flow during a flood comes from a streams' tributaries, storing the floodwater on the tributaries by building many small dams would eliminate a flood on the main stream. While the Corps strategy of simply raising levees protected people downstream, it did nothing to prevent flooding on the tributaries. The Oklahoma Plan was designed to prevent damage from occurring downstream next to the levees and in the upper areas of the basin as well by storing the water close to where it fell. This plan also eliminated much of the danger of levees being breached. If the stage of the stream was held in check by keeping the water stored in the tributaries, then there would be no threat of the water tearing through a weak spot in the miles of levees that existed downstream.

Ultimately, the Corps of Engineers prevailed and the Oklahoma Plan was dismissed by Congress. It was feared the plan did not have the capacity to hold back the waters and save the lower Mississippi Valley from another catastrophic flood like that in 1927.

Another idea that was found in the Oklahoma Plan was looking at flood control measures on a basin-wide scale. Contrary to the Corps' strategy of building individual projects to control flood symptoms on one part of a stream, the plan delivered to Congress by E.E. Blake comprehensively treated all parts

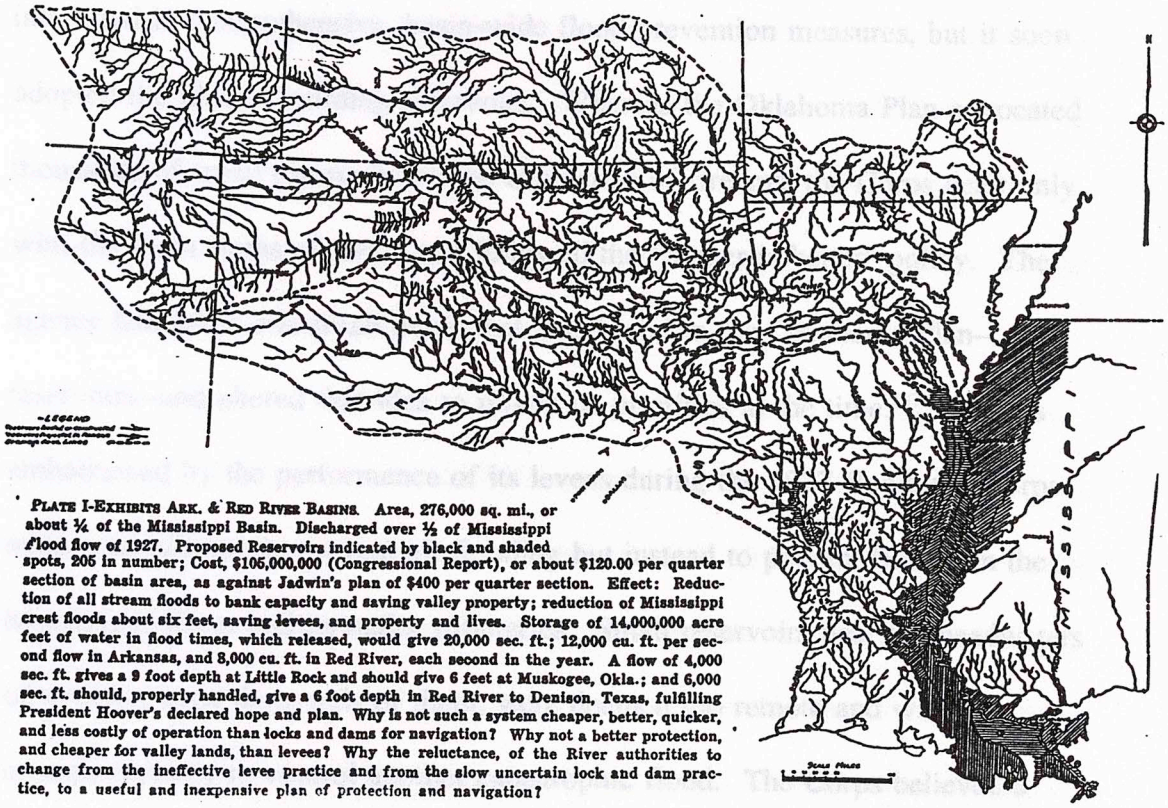


Figure 16: A map of the so-called Oklahoma Plan of flood control as proposed to Congress by E.E. Blake in 1927. This system differed from the Corps approach by advocating numerous small upstream dams instead of levees or giant reservoirs downstream.
Source: Oklahoma City Chamber of Commerce

of a drainage basin, the headwaters as well as the main stem, and was more concerned with flood prevention than flood control.

Here, too, Blake was rejected but by the time the Flood Control Act of 1936 was passed, the agency had shifted its policy to include building large reservoirs as well as levees on the main stems of rivers. It still was not interested in comprehensive, basin-wide flood prevention measures, but it soon adopted the idea of building reservoirs. Whereas the Oklahoma Plan advocated thousands of small reservoirs on the tributaries of streams, the Corps dealt only with the main stems of rivers and followed the "bigger is better" policy. The agency had taken one small detail that was found in the Oklahoma Plan--reservoirs--and altered that idea to reflect its priorities at the time.[183] Perhaps embarrassed by the performance of its levees during the 1927 flood, the Corps main goal was not to prevent all flooding but instead to prevent floods on the Mississippi River and its major tributaries. Small reservoirs near the headwaters of streams, even thousands of them, were deemed too remote and without enough capacity to control another catastrophic flood. The Corps believed a more effective plan for preventing flood damage downstream was to build a few gigantic reservoirs on the tributaries of the Mississippi River as a complement to levees.

Federal flood control policy evolved from the 1930's through the 1960's, and one of the areas most involved in this debate was the upper Red River Basin. At first, the Corps had almost complete control over federal flood control

policy. With the authorization they received in the 1936 Flood Control Act, they quickly began surveying and building structures to fulfill their mission. Denison Dam was one of the more prominent of these early structures. For a time, however, federal policy shifted away, in part, from the strategies of the Corps to the Department of Agriculture (USDA). One of the reasons this occurred was because of the success of one of the USDA's pilot programs, the Washita River basin, which of course empties into Lake Texoma. Because of both the magnitude and proximity of Denison Dam and the USDA's Washita basin program, the projects became symbolic of two philosophies of flood control and the agencies espousing them.

The Corps viewed the flood problem as a large scale one and wanted to store water in the tributaries of the Mississippi River to prevent another catastrophic flood like the one that occurred in 1927. Of primary concern to the Corps was the navigable sections of the larger rivers, so it planned to build large reservoirs as well as levees downstream. This strategy was reactive rather than proactive. Because the Corps wasn't looking at where the water was coming from, it could do nothing about preventing the flow. The best it could do was control the floodwater as it passed through the stream system.

In contrast, the SCS, within the USDA, approached the problem at a much smaller scale. Its concern was for the farms in the upper reaches of the watersheds. They were being decimated by flooding. Creeks and small streams that were allowed to flood were destroying crops, eroding soil on the uplands,

and depositing it in the lowlands with frightening frequency. The upper reaches of the Washita River in western Oklahoma in the 1920's flooded an average of 9 times per year. If enough of the smaller creeks flooded at the same time, they would cause the main-stem stream to rise as well. In turn, if a number of these main-stem streams began to rise, it might create a flood on the great trunk streams such as the Mississippi River. But wherever the flood occurred, the source of the flooding originated in the upper basins. Thus, the SCS strategy was to prevent flooding in the upper basins. If this were possible, the large scale stop-gap measures of the Corps wouldn't be necessary. The SCS plan used land treatment techniques designed to slow the water on its journey downstream and allow it to soak into the soil. Later, the SCS also began a program to build a network of small uncontrolled dams in the upper tributaries to catch the excess runoff the land treatment techniques didn't hold back.

Characteristically, the Corps' approach was that of an engineer: how to control a specific amount of water passing a specific point at a specific speed. The SCS approach was more comprehensive. It looked at the tributary streams in relation to one another and tried to *prevent* flooding. Although the common goal was to moderate natural forces, there was no unified approach.

> *"It (flood control) is further and specifically a conflict between government agencies competing for federal funds to be spent on their respective programs. The proponents of upstream engineering works and land management are aligned behind the flood control programs of the USDA. Those who favor main-stem reservoirs and levees look to, and are spearheaded by, the Corps of Engineers of the United States Army."*

The Flood Control Controversy: Big Dams, Little Dams and Land Management, 1954.[184]

Funds for domestic programs were tight during World War II. But the soldiers would eventually come home ready to work. It was imperative, therefore, for both the USDA and the Corps to show Congress the successes they had achieved since the passage of the 1936 Flood Control Act. A good track record would spur Congress to increase the funding for those programs that were working well.[185]

In the initial stages of the federal policy, the Corps had more support than the USDA. The Flood Control Act of 1936 directed the Corps to perform investigations and improvements of navigable rivers and their tributaries for flood control and other purposes. It also specified a number of projects that were to be constructed by the Corps, mostly levee construction but a few reservoirs as well. Whereas the Corps was directed to begin work on specific projects, the Secretary of Agriculture was only authorized to investigate how best to control upstream runoff and soil erosion. All 219 projects listed in the Act[186] were fully funded for construction plus; another $10 million was split between the Corps and the USDA for further investigations. While the total appropriations to the USDA was $5 million, $315 million went to the Corps.

Oklahoma was positioned to benefit from federal involvement in flood control. The Arkansas, North Canadian, South Canadian, Washita and Red Rivers all had a reputation for flooding. Also, the state had been involved in

trying to devise ways of preventing flooding as early as 1923,[187] four years before the Great Mississippi Flood. The contingent from Oklahoma present at the Congressional Flood Control Committee hearings, which began in late 1927, had a chance to explain the plan they had devised for Oklahoma and parts of Kansas, Texas, and Arkansas. Finally, the discharge during the 1927 flood on the Mississippi from the Arkansas and Red Rivers was thought to have added enough height to the flood stage to warrant flood control on those tributaries.

The Red River was one of the waterways marked for improvement in the 1936 Flood Control Act. The Denison Dam project did not get immediate funding, but it was one of ten national projects listed for continued study. When the next round of large projects was announced in the Flood Control Act of 1938, Denison Dam topped the list for the Red River basin.

Denison Dam was an important project for the Corps. It represented the shift in policy away from only building levees towards storing floodwater in the tributaries of the Mississippi River by means of large reservoirs.[188] This project was not only one of their first flood control reservoirs, but was also one of the agency's biggest.[189] Because of the propensity of the Red River to flood, any flood control plan in this basin would surely be well-tested. Denison Dam, as the keystone of the Corps' Red River basin plan, took on the burden of validating its overall flood control philosophy.

Watershed Flood Prevention

While the Engineers were enjoying the success of being granted hundreds of construction projects, the role of the USDA in federal flood control initially was ill-defined. The next installment of projects, the Flood Control Act of 1944, directed the USDA to get more involved in flood control. This Act authorized comprehensive watershed improvements in eleven basins around the country, one of which was the Washita River. These eleven basins were to be test areas to determine if the strategies the USDA was advocating would work. The one stipulation was that Congress didn't appropriate any extra money to implement these plans until the end of World War II.[190] The one thing the USDA did do was subdivide the watersheds into smaller areas. For example, each of the sixty-four tributaries of the Washita was designated as a sub-watershed of the Washita River. The sub-watersheds were studied to determine the best way to implement the SCS strategies, and local Soil and Water Conservation Districts were organized so the plans could be implemented the moment funds became available.

There were basically four strategies used by the SCS in these watershed improvement plans, most having to do with improving land use.[191] First, cropland remaining in production would be improved by introducing crop rotations, cover crops, strip-cropping, terracing, and contour plowing. Second, land that was deemed unsuitable for cropland[192] would be taken out of production and turned into pasture or woodlot. The third part of the basin plans

involved SCS buyouts of land that had eroded or deteriorated. Once purchased, the land would be contour plowed to control runoff and replanted in native grasses and trees. Once stabilized, it would then be leased out to area farmers for pasture land. Over 300,000 such acres were identified in the Washita Basin. Lastly, the SCS watershed flood prevention plan called for the construction of minor structures to impede the flow of water and soil from the land such as gully plugs, terraces, contour furrows, and small dams. The early "Oklahoma Plan" of flood control presented to Congress in the late 1920's had been all but forgotten. But the small dam idea that had characterized that early plan was now catching on among the ranks of the SCS.

With the SCS flood control policy now fully developed and spelled out step-by-step, it was ready to prove that flood prevention could work and be even more effective than the Corps' piecemeal approach. The success of the SCS program in the Washita River basin was significant for the same reasons the Denison Dam project was important to the Corps. The Washita would be one of the first basins to undergo SCS treatment, one of the biggest with an area of over five million acres, and its history of frequent flooding would be a worthy test for the SCS program.[193]

By the 1950's the Corps was still building huge reservoirs on rivers around the country but the effectiveness of those structures and the Corps' influence on policy was starting to be called into questioned.[194] At the same time, the eleven test-case watersheds of the SCS had gotten attention as an

effective way of controlling floods. The most successful of these eleven was clearly the Washita basin.[195] The first upstream flood control dam to be completed in the nation was on Cloud Creek in 1948, a tributary of the Washita. Another first for the Washita basin project was the speedy implementation of the Sandstone Creek plan (Figures 17 & 18). Sandstone Creek, one of the sixty-four sub-watersheds, is known as the "World's First Upstream Flood Control Project."[196] The work plan was developed by the SCS in 1949 and construction on the dams began in 1950. By 1952, all twenty-four of the small dams and the land treatments were complete.[197] As of 1984, the Washita Basin was the, *"...world's largest contiguous land area that has been treated with conservation measures."*[198]

The public was very enthusiastic about the Washita flood prevention program. Senator Robert S. Kerr of Oklahoma stated in his book, *Land, Wood and Water*, *"There was real appeal to the idea of small bands of farmers fighting the scourge of floods with 'little dams' and terraces, attacking trouble at its source."*[199] The success of the USDA's watershed flood prevention program in the Washita basin[200] led to the passage in 1954 of the Watershed Protection and Flood Prevention Act, also known as the Small Watershed Program. Essentially, it expanded the USDA program initiated in the eleven basins specified in the Flood Control Act of 1944 to any watershed nationwide less than 250,000 acres in size. As in the Washita program, it was still necessary for local people to organize and solicit help from the SCS in order for this program

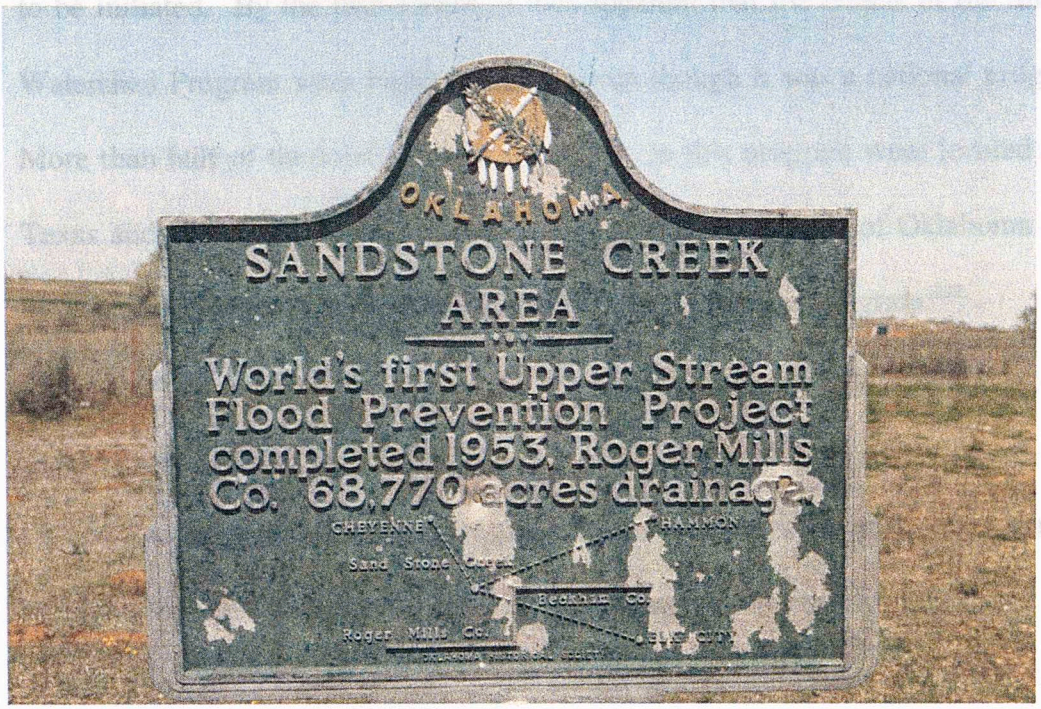


Figure 17: The Sandstone Creek watershed was one of the first showcases of the SCS "small watershed" flood control philosophy and is still pointed out to motorists passing through the area.
Photo by author.



Figure 18: Many of the small flood control reservoirs built by the SCS in the upper Washita Valley have become increasingly important to the recreation industry. Black Kettle National Grasslands was submarginal land bought by the USDA in the 1930's and taken out of production.
Photo by author.

to be initiated. By the mid-1960's, it was apparent that the effects of the Small Watershed Program were highly regional even though it was a national program. More than half of the total number of projects in this program were located in Texas and Oklahoma.[201] More than a third of the entire State of Oklahoma lies in watersheds which have applied for assistance under this program.[202]

Lake Texoma vs. the Washita Basin

The tremendous amount of press attention the small dam strategy was receiving in the Washita Basin and the region was bound to focus on Lake Texoma sooner or later. After all, the Corps had made Denison Dam into the keystone of its flood control program on the Red River. The reservoir was also one of the largest and oldest of the Corps' flood control reservoir projects. Since the development and success of the USDA's land treatment and small dam philosophy beginning in 1944, the year Denison Dam was dedicated, the big dams of the Army Engineers had been re-evaluated for their relative effectiveness.[203] For example, comparison of Lake Texoma and West Owl Creek, one of the sub-watersheds of the Washita treated by the SCS, showed that the USDA strategy prevented flooding better than Lake Texoma.[204] The West Owl Creek watershed experienced 13.5" of rainfall over a two day period in May, 1950, and did not flood. It was noted that the Denison Reservoir could not possibly hold more than 1.31" of rainfall in its watershed area without filling

up.[205] Despite the debatable accuracy of these comparisons, these data were used as proof that SCS policy made more sense.

One result of this debate was a growing questioning about the validity of Corps' flood control activities, especially if the USDA's flood prevention policies were as effective as they seemed. Giving the Corps jurisdiction over the downstream sections of rivers seemed unnecessary and a waste of resources. Proponents of the SCS policy stated *"There can be no dividing line between the tributary watershed and the source of downstream floodwater. They are clearly identical."*[206] As Luna Leopold put it, *"upstream detention dams, could in certain cases, take away benefits claimed for a Corps structure."*[207] Denison Dam, became the regional symbol of a now questionable Corps' policy at the same time as the Washita River basin, which emptied into Lake Texoma, became the symbol of USDA success.

The USDA flood prevention programs had their greatest success in both Texas and Oklahoma. Over half of the projects in this national program were located in these two states.[208] On a national scale, the Corps never relinquished its dominance in flood control issues. Large reservoirs continued to be built, a large number in Oklahoma, well into the 1960's. By this time though, the large lakes were becoming the focus of more than just flood control. Recreation was starting to become very popular on the reservoirs. Few flood control dams are being built anymore today by either the Corps or the USDA. Enthusiasm for this method of controlling flooding has waned in the 1970's and 1980's.

Chapter 4

Promised Land

> *"The one drawback of the Southwest has been that nature did not provide it with natural lakes. But the Army engineers are remedying this situation. Lake Texoma is an example of what they can do." Dallas Times Herald, October 1945.*[209]

Driving around the perimeter of Lake Texoma today, it is tempting to draw the conclusion that the reservoir exists solely for the sake of leisure. Recreation had very little to do with the plans people had for the giant reservoir, but it has become big business in the Texoma region. Private resorts, fishing guides, campgrounds and town festivals all capitalize on the reservoir. Pick up one of the many tourist brochures promoting the lake and its idyllic features: it is bound to brag about the eight to twelve million visitors who use the lake each year.[210] On the fiftieth anniversary of the completion of Denison Dam, it seems one of the biggest impacts the reservoir has been on the economic development of the shoreline.

But the water flowing down the Red River has been perceived as the road to the financial promised land in one way or another since white settlement in the early 1800's. Back then, wealth was gained by capitalizing on traffic flowing both up the river on boats and crossing the river on ferries. Navigation would be touted as an economic goldmine well into the 1930's. After large-scale commercial navigation failed to materialize, the goldmine was thought to be hydroelectric power and the construction of the Denison Dam in the 1930's and 1940's. Beginning in the 1950's, recreation and tourism became the economic hope of the region. So far, this last hope has not disappointed. While it grew slower than expected or desired, recreation seems to have delivered on its promise.

Early settlers depended on the Red River for their livelihood. It acted both as a transportation artery into the southern Great Plains from the east and as a barrier to be crossed by travelers heading north or south. Trading posts emerged to serve these travelers both at the head of navigation and at low water crossing points. Supplies and a bit of luxury could be had at these stops by travelers making their way upstream by boat, or traveling overland by horse or prairie schooner. Over time, many of these posts became the nuclei for settlements that grew up around them. The early towns that sprang up in the upper Red River Valley were distinctly tied to the river from the start.

White settlement of the upper Red River Valley began around the 1830's.[211] Two of the early settlements epitomize the idea of utilizing the waters of the River for economic gain: Preston and Red River City, both in Texas.

Preston

The Preston townsite began in 1837 as an Indian Trading Post run by Col. Holland Coffee.[212] It was located on the Texas side of the river upstream a few miles from the Washita-Red River confluence and near a large bend in the river.[213] The site attracted travelers because its shallowness made it easy to float prairie schooners across the otherwise dangerous Red.[214] Coffee's Trading Post offered travelers such amenities as supplies, blacksmith services, guides, and protection from hostile Indian groups. For the more refined, there was also the hospitality of Col. Coffee's mansion, Glen Eden, which had a famously well-stocked wine cellar.[215] The Trading Post, as well as an adjacent inn and plantation which were also run by Coffee, was an outpost of civilization in the untamed Southwest.

The perceived Indian threat and inhospitable nature of the land kept many settlers from coming to this area. The Republic of Texas, wanting to secure its northern border, needed to attract more people to the area. To help achieve this goal, William Preston of the Texas Rangers was sent to Coffee's Trading Post in 1840 to establish a stockaded fort. The presence of the appropriately named Fort Preston soon attracted quite a few settlers to the area. The town of Preston, next

to the fort, grew to be the largest town in northern Texas at one point. Due to its location on the head of navigation on the Red, it was considered the gateway for northern Texas. The California Gold Rush also increased the importance of Preston and Coffee's Trading Post. In 1849, a steady stream of miners headed west on Marcy's California Route passed through Preston, collecting any supplies they needed for the trip across the plains.

Preston stagnated when larger steamboats could no longer easily make the journey up the Red River that far and it lost its designation as head of navigation on the Red River. While there is still today a town named Preston on the edge of Lake Texoma, virtually all traces of its history have been obliterated by the reservoir. One of the only things that does remain in Preston is its reliance on the Red to survive, though the travelers of today are tourists enjoying Lake Texoma, instead of gold-struck miners heading west.

Red River City

The other early site that developed in the area was Red River City. A few miles downstream of Preston and the Coffee Trading Post, the Chief of the Chickasaw Nation, B.F. Colbert, decided in 1858 to take advantage of the rising traffic through the region by establishing a ferry across the Red.[216] The site he selected for both the ferry and his mansion "Riverside," is just south of the Oklahoma town that now bears his name where the trail called the Texas Road crossed the Red River.[217] The Texas Road was a "frontier passageway" that

linked settlements in Missouri and Kansas to the Red River and the commerce it brought from downstream (Figure 19).

Operation of the ferry service began in 1858 and immediately proved itself a success. A big part of that success was due to the stagecoach route that made its initial run on September 15th of that same year which ran from St. Louis to California. The Butterfield Stage Line (Southern Branch), carried both U.S. mail and passengers west semi-weekly and crossed the Red River using Colbert's Ferry.[218]

A boomtown named Red River City sprang up overnight on the southern landing. A general store, built about 200 yards from the ferry landing, was named the "First and Last Chance," and stocked dry goods and plenty of whisky.[219] Like Preston further upstream, Red River City capitalized on the travelers crossing the ferry by becoming a supply center for freighters, drovers, buffalo hunters, and trappers. The town was described as a, "wild shanty town of tents and shacks and the story was that entertainment was gaudy."

Eventually the ferry service was replaced by a succession of toll bridges that were periodically washed out when the Red was in flood. The first bridge was built by B.F. Colbert in 1875 with permission from President Grant and was washed out a year later. While a bridge still crosses the Red at that site today, Red River City is long gone. There is today no trace of the town once existing on the southern bank of the River. The Missouri, Kansas, and Texas Railroad, stretching south to the Gulf of Mexico, crossed the Red River near the site of

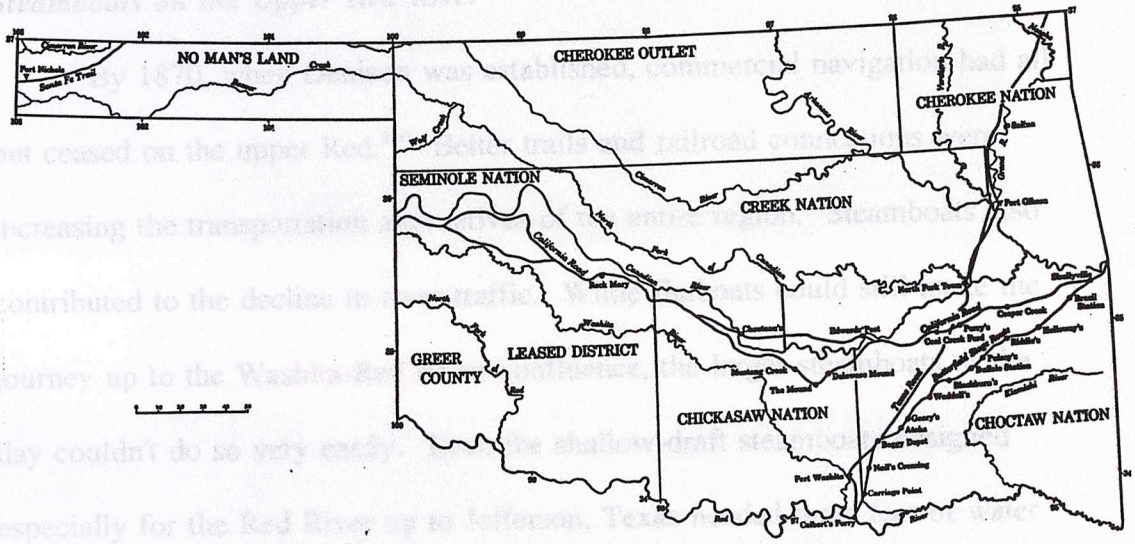


Figure 19: The Texas Road was one of the main routes which connected Missouri and Kansas to Texas. Colberts Ferry is the Oklahoma terminus of the trail where it crossed the Red River into Texas.
Source: Historical Atlas of Oklahoma

Colbert's Ferry for the first time on Christmas Eve, 1872 and stopped in Red River City. Soon after, most of the population of the town moved to higher ground about four miles south and established the town of Denison. The people that didn't move to Denison may have migrated to Colbert, the other townsite that was established at the same time on the northern side of the river.

Steamboats on the Upper Red River

By 1870, when Denison was established, commercial navigation had all but ceased on the upper Red.[220] Better trails and railroad connections were increasing the transportation alternatives of the entire region. Steamboats also contributed to the decline in river traffic. While flatboats could still make the journey up to the Washita-Red River confluence, the larger steamboats of the day couldn't do so very easily. Even the shallow-draft steamboats designed especially for the Red River up to Jefferson, Texas needed three feet of water when they were fully loaded with cargo. Three feet wasn't always in the channel of the upper Red. Steamboats also had difficulty making the journey upstream of Louisiana due to the presence of a logjam sometimes as long as one hundred and fifty miles, known as the Great Raft, which blocked the main channel of the Red around the present day location of Shreveport, Louisiana (Figures 20 & 21).

Despite the barriers to river traffic, the local leaders of the towns of Durant and Denison looked to navigation on the Red River as their salvation. Historically, Preston and Red River City had grown and done quite well relying



Figure 20: A typical scene along the banks of Lake Texoma near the location where the Red River flows into the more placid lake. The Red and Washita rivers still transport large amounts of debris, especially during high water.
Photo by author.



Figure 21: Example of logs drifting down the Washita River. A similar situation on the Red River created the Great Raft which extended for a length of about 150 miles before it was finally broken up on Thanksgiving Day in 1873.
Photo by author.

upon the commerce that was generated by both the river and the overland trails crossing it. In 1899, Denison created a Board of Trade to help stimulate navigation and establish the area as a commercial center. The goal was to capitalize on the agricultural goods that were being grown in the Oklahoma-Texas hinterland, especially cotton, which could be shipped down the Red to market in New Orleans. If steamboat traffic expanded to Denison, it could become the commercial gateway to the Southwest. Even with the expansion of railroads into the region, the Board of Trade was confident that they could transport bulk products, like cotton and other crops, cheaper by water if only there was regular river traffic.

There were two factors back in the late 1800's that made the Denison Board of Trade believe their plan could work: the commercial success of Jefferson, Texas, which was based solely on steamboat traffic, and the destruction of the Great Raft by the U. S. Army Corps of Engineers.

The city of Jefferson in the 1870's was the economic power the young town of Denison hoped to become. Jefferson was established on a tributary of the Red River in east Texas soon after Texas won its freedom from Mexico in 1836.[221] The location of the townsite later proved to be very agreeable to steamboat navigation. First, the bayou was wide enough to allow steamboats to turn around and head back downstream, and secondly there was always enough water to allow them to sail even fully loaded.

As early as 1844, steamboats were making their way up to Jefferson from ports like Alexandria and New Orleans. The first was a boat named the *Llama* which, captained by W.W. Withenberry, established the town as the head of steamboat navigation on the Red River system. By the next spring, steamboat captains discovered they could make the most of their round-trip journeys by taking on immigrants and supplies upstream and agricultural cargo downstream. To relieve boredom, passengers would take out their guns and practice their aim by shooting alligators in the river. For the return trip boats with names such as *Compromise*, *Texas Ranger*, *Yazoo Belle*, *Starlight*, and *Silver City* filled their cargo holds with cotton, hides, cattle, sheep and wool from as far away as the Texas panhandle, lumber, beeswax, tallow, and osage orange seeds to be planted for fence rows.

By 1870, Jefferson had built itself into the largest city in Northern Texas. With a population of 4,180, it was bigger than either Dallas or Fort Worth. Only the port-city of Galveston, which is on the Gulf of Mexico, surpassed it in commerce and industry in the state of Texas. Commercial statistics aren't available until 1880 for Red River cargoes upstream to Jefferson. In 1880, imports into the region by steamboat were estimated to have been over $12.5 million.[222] Imports and exports combined the following year totaled nearly $17 million.[223]

By the twentieth century, Jefferson was already starting to lose much of the commerce that had created it in the first place. While the town still

managed to ship annually over a million dollars worth of goods well into the 1920's, it never again lived up to its early title of "Gateway to Texas." Ironically, one of the things that sounded the death knell for commerce in Jefferson was the destruction of the Great Raft; the other reason Denison felt so confident about being able to turn itself into a successful river port.

As early as the 1830's, the government was pressured to improve navigation on the upper reaches of the Red. Both from upstream settlements and the military posts along the river. The main barrier to boats was a massive logjam called the Great Raft. In 1832, Capt. Henry Miller Shreve, Superintendent of Western River Improvements, Army Corps of Engineers, was put in charge of removing the raft.[224] With the help of snag boats he designed such as the *Archimedes* and *Souvenir*, Shreve was able to pull apart the Great Raft in only six years. The logs he pulled from the raft he either let float downstream or rammed into the distributaries of the Red, damming them up to keep the water in the main channel of the stream. But the battle between the Army Corps of Engineers and the Red River didn't end there.

By 1839, only a year after the Great Raft had been dismantled by Shreve, the channel of the Red re-clogged with another logjam in the same area. Lack of appropriations by Congress for maintenance was blamed for letting the river re-establish the raft. Thinking it would be easier to go around the barrier, sporadic Congressional appropriations funded unsuccessful schemes to bypass the raft for the next three decades.[225] Meanwhile, commercial navigation

continued to grow downstream in places such as Alexandria, Louisiana and Jefferson, Texas while Preston and Denison stagnated upstream.

A variety of factors led up to increased federal involvement with the Great Raft in the late spring of 1872. As the population of the upper Red River Valley increased, the cry for improved navigation increased as well. People who owned land along the Red upstream of the Great Raft also complained about the repeated flooding it caused. Landowners argued that part of the benefit of removing the raft would be the reclamation of lands they could not presently use due to repeated flood damage.

Another important factor was the national demand for cotton following the Civil War. While the cotton growing areas of the South were in disarray, Indian Territory and Texas were intact. Under the June 10, 1872 River and Harbor Act, Congress appropriated $150,000 for the Army Corps to remove the Raft once and for all.[226] The Great Raft of the Red River ceased to exist for good when the snag boat *Aid* broke through the last remaining section of the jam on Thanksgiving Day, 1873, less than a year after the town of Denison was established. But river traffic expanded upstream only as far as Fulton, Arkansas. While there were sporadic attempts to travel the distance up to Denison, the big winners in steamboat commerce were the cities of Shreveport, Louisiana and Fulton. In fact, Shreveport quickly eclipsed Jefferson as the principal Red River port.

By the end of the 1800's, Denison was ready to organize to make the boosters vision of a commercial center based upon steamboat transportation come true.[227] Although the breakup of the Great Raft destroyed the last major barrier to steamboats, there were still problems of low water, drifts and snags. One of the first actions of the Denison Board of Trade in 1899 was to send a lobbyist to Washington D.C. to garner support for improving the upper Red for navigation.

Enough federal interest was created by the visit of the Board of Trade representative to have Congress in August, 1900, send an engineer to investigate. J.E. Hicks was assigned to survey the 276 miles from Denison to Fulton and evaluate the prospects for navigation, flood control, and water storage on the Red River. The Board of Trade, upon learning of Hicks' imminent arrival, convinced Fred Weibens of Durant to take the engineer and a reporter from the Dallas Morning News down the river in the steamboat *Denison*.[228] The trip down to Fulton was slow going. Not only did they continuously run aground on sandbars, they also had to keep an eye out for submerged snags; uprooted trees that had lodged themselves in the bottom of the river and lurked just below the surface of the water. In the words of a newspaperman that went along for the ride, it was "snags and bars, snags and bars, all the way." The group encountered numerous drifts or "wreck heaps" as Hicks called them, that were three to four miles long and up to 150 feet high. These were accumulations of trees or other vegetation that drifted down the river until they ran aground or

were trapped by large logjams that had accumulated over a number of years. By the time the group had reached Fulton, Hicks had concluded that the river needed to be cleared of obstructions and snags as a first step to improving navigation conditions. He also commented that many of the Reds tributaries were surely destined to be impounded for water and hydroelectric power in the future.

While his journey down Red River in the *Denison* had convinced Hicks that the river above Fulton should be improved for navigation, others in the Corps of Engineers weren't as convinced it would be worthwhile. After Hicks reported back to the Corps, a committee made up of Army Engineers Major H.M. Hodges, Captain Judson, and Captain Weber visited the Red River Valley to gather their own impressions. While these men were considered sympathetic to the Red River project, they concluded in their report to Congress in 1903 that the amount of money that would be necessary to stabilize the banks of the River and clear its channel would be more than the benefits of such a project would create, due to the " undeveloped nature of Indian Territory and the lack of cultivation on the Texas side." When supporters of the Denison navigation project heard this report they decided to lower their sights and accept a more modest program of snag and wreck heap removal. Congress appropriated enough money for a program of pulling snags and destroying wreck heaps to begin in 1905.

The 1903 Congressional hearings on the Red River illustrated the fundamental difference in which the Corps and the Denison boosters viewed the navigation issue. Most of the manifestations of the promised land metaphor that have come into play since this time have assumed that the government would provide the means of economic expansion. From the point of view of the Corps, there needed to be a critical mass of local economic demand before any extensive improvement of the Red could be justified. For the next thirty years or so, the cost-benefit analyses the Corps performed negatively affected the chances of Denison becoming an important river-port because there were no large scale industries already there. The leaders in Denison, on the other hand, looked at the improvement of the channel as a first step in attracting steamboats and commerce to their town, not as a final step. *"Those favoring navigation thought the means of expansion should be provided, especially where the government controlled the chief source of relief from high freight costs (water transport)."*[229]

In 1905 the Denison Board of Trade tried to illustrate to the Corps of Engineers that there *was* sufficient commercial potential for further improvements of the river by contracting a small steamboat, the *Annie P.*, to ship cotton from Denison to Shreveport. This was the Boards' way of acknowledging that the Corps wouldn't get behind the push for upstream navigation until it saw there was commercial need. Since one of the Corps' arguments in 1903 had been that the underdeveloped nature of the area would

not provide enough benefits to justify further improvements, the *Annie P.* was used to illustrate to the Corps that steamboat travel to Denison was in demand. They hoped it would also spur other steamboat captains to make the journey up to Denison after seeing it was possible.

The impact of the *Annie P.'s* journey on the Corps is hard to gauge. While it understandably made quite a stir in Denison, there is little evidence to suggest anyone else took it very seriously. The Corps was forced to refer to the point where the Washita River drains into the Red as the head of commercial navigation, however, no new improvements on the stream above Fulton were approved until seven years later, in 1912. During that year, a program was approved by Congress for bank stabilization, dredging of shoals, maintenance to eliminate snags and drifts and clearing the banks of navigation. It didn't last very long. Four years later the program was discontinued on the recommendation of the Army Corps due to a lack of significant traffic. But this wasn't as momentous as one might think. Even while the project was in effect, no work had ever been performed on the Red. This is because the Corps only performed improvements, "where interests of navigation were involved and as funds were available." So even when they were authorized to make improvements, they still didn't have to do anything.

The Denison navigation boosters were dealt another blow in 1922, when the U.S. Supreme Court decided in a case between the states of Oklahoma and Texas that the Red River was <u>not</u> legally navigable above the Arkansas state

line. The suit between the two states originated due to a dispute over who owned the channel of the Red between the one hundredth meridian, part of the Oklahoma-Texas boundary, and the Oklahoma-Arkansas border. This seemingly minor matter took on greater importance in 1918 when large oil deposits were discovered underneath the bed of the river. Part of Oklahoma's case was that the riverbed ownership should belong to them because the Red was a navigable stream.[230] The court ruled differently:

> *"Oklahoma's evidence for the navigability of the river was impressive. The Court ruled that, while the government had attempted to improve navigability above Fulton, Arkansas, and that while for a time the traffic on the river had been heavy, the situation had changed by 1920. The Corps of Engineers had ceased work on the river, and commerce was negligible. " The Red River in Southwestern History, 1981.*[231]

Because there was no regular commercial traffic on the upper Red, the stream was legally no longer considered navigable past the Oklahoma-Arkansas border. In its final decision, the Supreme Court gave the southern half of the riverbed to the federal government, partial ownership of the northern half to the federal government and members of the Comanche, Kiowa, and Apache tribes, and the rest to the State of Oklahoma. In the process, the upper Red lost its status as a navigable stream.

Just when all hope of bringing navigation to the upper Red seemed lost, George D. Moulton of Denison, began proposing that a dam be built on the Red to protect the city and downstream farms from floodwater.[232] While on a trip

out west Moulton stopped and saw the site of Boulder Dam, which would impound the Colorado River and straddle the border between Nevada and Arizona.[233] Surely if the Colorado River could be tamed, so could the Red. After arriving back in Denison he wrote Oklahoma Congressman Charles D. Carter in 1926 to request copies of topographic maps of the valley, and took it upon himself to search for the best site for his proposed project. The site he finally chose was four miles north of Denison, near the present location of Denison Dam.

Once he determined the site, he went about trying to create interest in the project. At first, most people he tried to talk to about the project thought he was crazy. He later said, "Even my friends ducked out of way to escape my persistent evangelizing." It wasn't long though until the people interested in bringing navigation to the Texoma area, began to hear what the "apostle of the Red River Dam" was preaching. Up until this time, schemes to improve the navigability of the upper Red had concentrated on non-structural improvements such as removing snags and drifts, dredging shoals and clearing the river banks of vegetation. Even though Moulton was advocating a *flood-control* dam, the navigation boosters began to look at the advantages the structure could hold for them. At the time, conventional wisdom was that if a big enough dam was built, it would be possible to regulate the flow of the Red enough that boats could easily travel as far as the Denison Dam.

The combination of the potential benefits of damming up the Red and recent increases in railroad rates spawned the creation of two influential organizations.[234] The Red River Valley Improvement Association, established in 1927, was organized primarily by the Chambers of Commerce in Alexandria and Shreveport, both in Louisiana. The main goal of this organization was to push Congress to make improvements on the lower Red River, mostly in the interests of navigation. It had little effect on the proceedings going on at Denison, other than making the Red River a more prominent issue in Washington, D.C.

The second organization created during this period was the Red River Flood Control and Navigation Association, established in 1929. The very name of this organization, headquartered in Denison, shows the influence Moulton's idea had on the navigation boosters. It was thought that creating a big enough flood control dam at the Red-Washita confluence would allow river boats easy access to Denison as well as provide all the benefits of flood control. Later that year, this Texas group proposed a dam so big it would have flooded all or part of 11 counties in central and southern Oklahoma and part of 2 counties in Texas (Figure 22). It was estimated that the northern edge of this giant reservoir would come within 25 miles of Oklahoma City. The enormity of this proposed reservoir and the lands it would have flooded didn't make it very popular among many Oklahomans but did manage to create quite a bit of publicity for the idea of a dam at Denison. The Association kept publicizing the purported benefits of a reservoir located on the Red River over the next few years, although the size

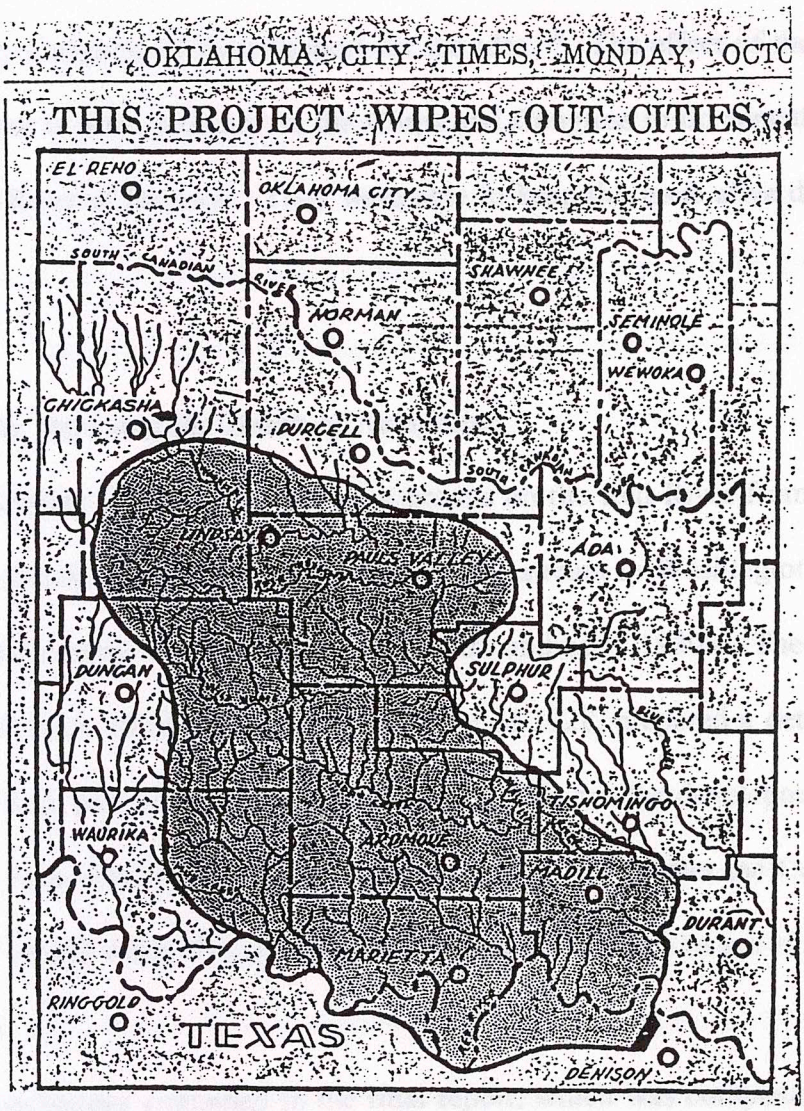


Figure 22: Proposed extent of a giant reservoir damming up the Red and Washita rivers for the purposes of navigation, 1929. Nearly all of the land to be flooded was in Oklahoma.
Source: Oklahoma City Times, 7 October 1929.

of the proposed reservoir was reduced considerably. In 1930, the group appeared at a public hearing on the Red River in Texarkana to plead their case.[235] The following year they convinced the Texas State Legislature to officially notify Congress of their support for the idea.[236] The effect of the organization was to keep pressure on the Corps and Congress to do something about the Red River at Denison. They were able to keep the issue alive during a crucial period.

The Rise of the Dam and the Death of Navigation

The lobbying efforts of the different groups on the Red River from Alexandria to Denison made the river a high-profile stream in Washington, D.C., during the flood control hearings of the late 1920's and early 1930's. The Army Corps, under Section 10 of the Flood Control Act of 1928, prepared a detailed survey of the Red, part of which outlined separate plans for the development of flood control, hydroelectric power, navigation and irrigation. After the Corps outlined what would work, they performed cost-benefit analyses to see if they were justified.

The conclusions contained in the final report, which was completed in December, 1935 and submitted to Congress the following month, were not quite what the Denison boosters hoped to hear. The Corps showed how a dam could be built near Denison not only for flood control but hydroelectric power and navigation benefits. It concluded, however, that the cost of the dam would

exceed any possible combination of benefits. Though it was feasible and perhaps desirable, it wasn't cost-effective.

The primary concern of Congress at this time was the prevention of another 1927 flood on the Mississippi River. In order to control floodwater draining into the Mississippi the Red River and the other tributaries of the Mississippi were to be controlled. The Corps outlined a plan to alleviate downstream flooding on the Red River which involved the construction of ten huge reservoirs strung out along the length of the river. *"The most important reservoir of the system would be formed by a dam across the Red River near Denison and would have a capacity of 6,400,000 acre-feet."*[237] The proposed Dam at the Denison site was to be the crowning jewel of the Red River flood control project. But the flood control dam didn't pass the Corps' cost-benefit analysis and was not recommended.

The Corps also looked at the possibilities of creating hydroelectric dams on the Red. The overall power plan the Army Engineers created for Red River Valley was centered on two large reservoirs; one at Denison and another upstream, near Gainesville, Texas. The rest of the plan included the construction of five run-of-river projects, which wouldn't impound any water, between Denison and the Kiamichi River. The large reservoirs were located near Denison and Gainesville to be close to the growth centers of Oklahoma City, Gainesville, and Dallas. This plan, as well, was not considered worth the price. It was not recommended.

The character of the local economy was one reason hydroelectric power, even when joined with the benefits of flood control, could not justify the expense of building a dam at Denison. Existing power in the region was generated primarily by steam plants that used either local coal or oil for fuel. One of the difficulties in trying to justify a massive hydroelectric power project like Denison Dam was the cheap price of these fuels. With all the oil finds in Oklahoma and Texas in the early part of the century, the region had more fuel than it could use or ship out. Simultaneously, there was insufficient industry in the Texoma region to take advantage of the power that could be generated there. Though the growth rates for industry in the region had, on average, been twice as high in recent years, and prospects for continued increases seemed to be good, the calculations still were against the Denison project. The annual cost of producing power at one of the big reservoir sites was estimated to be $5,322,000, while the benefits only amounted to $3,843,000 per year.

It should be noted that the costs and benefits cited above are only those that derive from the hydroelectric potential of the dam. Possible benefits in other areas were not factored in the calculations, though were mentioned. Assuming that the only function of the reservoir was power generation, the Corps stated that there would be no room for floodwater to be stored. Thus the project would therefore provide no tangible benefits to flood control. The report also looked at possible benefits the construction of a dam at Denison could provide to navigation. The results were basically the same. The increased and

more regular flow would possibly be of "some small assistance" in helping to maintain a navigable stage of water in the channel, but by itself the project offered no direct benefit to navigation on the Red. Navigation didn't pass the cost-benefit analysis test either. The Corps concluded that future development of navigation should be abandoned due to costs far exceeding benefits; even when the associated benefits to flood control, power development and irrigation are factored in.[238]

The way the Army Corps calculated its cost-benefit analyses was crucial to the ultimate approval or dismissal of the project. Because the Texoma region was still underdeveloped in terms of industry, there were no huge immediate economic gains to justify the construction of a dam for any purpose. Right or wrong, the Corps biased its cost-benefit analysis towards areas that were already well developed, while in the minds of the local leaders most of the benefits from the project would not appear until after its construction. The flood control benefits of the dam would stabilize the river and protect low lying areas from the periodic flooding of the Red. Hydroelectric power was to draw industry into the area and help it grow. Regulating the flow of the River may have also affected the longstanding dream of bringing navigation to Denison, which in turn would also stimulate industry and commerce. The benefits, according to the local leaders, would have synergistic effects resulting in an economic boom to the region. All these hopes now centered on the construction of a dam at Denison. The dam and its benefits would lead them to the promised land.[239]

Ironically, the Coast Guard today considers the Red River legally navigable upstream to Denison Dam, even though one official recently commented that he wouldn't try to travel down it in a john-boat. Downstream, folks around Jefferson, Texas have as recently as 1981 expressed interest in reviving river boat traffic on the Red.[240] The Army Corps even has proposed a plan to do it, though costs are still considered prohibitively high.[241] People in the Texoma area, however, seem to have forgotten all about the campaign to attract river commerce to Denison and make it into the, "Worlds greatest inland empire." Most people there now would scoff at the idea of trying to ship cargo downstream from Denison.

The Myth of Hydroelectric Power

> *"The invention of the combustion engine, which burns gasoline, started the decentralization of industry and population which is now going on all over the country. But the supply of oil is limited and eventually it will become exhausted. With the passing of the Gasoline Age we shall enter the Age of Electricity. This will mean the widespread decentralization of industry, the dispersion of population. It will cure most of the ills from which we now suffer as a nation." Denison Daily Herald, April 1939.*[242]

By the late 1930's, navigation had been proven by the Army Corps of Engineers to be too costly to extend to Denison. The hopes of creating a commercial center based upon river boat trade, which dated back to the turn of the century, were now quickly dissolving. The report the Corps made to

Congress in 1936 clearly stated that navigation should be abandoned.[243] Since white occupation began in the mid-1800's, the Red River had been the resource people turned to for future economic growth. The disillusionment of navigation left local leaders with no clear path into the future. The promise of hydroelectric power was able to fill this vacuum.

Further investigation into the Denison Reservoir project was ordered by Congress in 1936 following the Army Corps of Engineer report.[244] There was pressure on Congress to approve a dam, but different voices wanted different versions of the project. Some leaders were concentrating on building a flood control dam, while others wanted a reservoir intended to create hydroelectric power. Some die-hard navigation boosters kept pushing for a reservoir designed to improve conditions for navigation. The Congressional delegations of both Texas and Oklahoma backed the creation of any kind of reservoir at Denison and kept interest alive in Washington D.C. The most influential of these political leaders was Sam Rayburn.

In the 1938 Flood Control Act, Congress approved a dam designed for the dual purposes of flood control and hydroelectric power on the Red River at Denison. When appropriations were finally allotted the following year to begin the project, an impromptu parade was held in Denison (Figure 23).[245] The Dam itself had, by this time, come to symbolize and signify the success of the local lobbying efforts that begun decades earlier. It only reaffirmed to local leaders that their future revolved around the water flowing down the Red River.



Figure 23: The residents of Denison, Texas celebrated after the reservoir project was approved in 1938. It was thought the project would ensure the financial security of the town.
Source: Denison Daily Herald

"How are we going to go about capitalizing on it? [the dam] Isn't it about time that we began to give some thought to this matter?" Denison Daily Herald, August 1938.[246]

The immediate effect of the approval of the project was a housing boom and land speculation in the area, especially around the proposed dam site.[247] Local entrepreneurs looked to take advantage of the influx of thousands of workers and the large payroll that was expected to arrive once construction began. New homes and businesses began to pop up in established towns like Colbert, Denison and Durant, while at the same time new communities grew out of the prairie grass. Grassland was bought up and platted out into towns such as Lee Heights and Cartwright. The man who platted out Cartwright, Oklahoma, A.G. Harris, used a unique method to make his town more attractive to folks. The first business built in the town was a hospital which was staffed by a doctor from Durant.[248]

The town of Colbert, Oklahoma by April, 1939 had four additions to the town planned and four new lumberyards to supply them.[249] Two of these additions were staked out on the west side of town by local businessmen Charles Davidson and O. Kelley. Another addition, 3 miles west of town was named Red River City, not the same as the Red River City in Texas, it was sponsored by a couple of brothers named Jones who had dabbled in land speculation at other dam sites around the country. The last addition planned for Colbert was northeast of the city and was to be, *"devoted to colored citizens as Colbert*

adopts the ultra-modern metropolitan idea of segregating its races."[250] Boom towns that popped up adjacent to other dam construction sites in the region (such as Vinita next to Grand Lake, Oklahoma, and Cherokee, Kansas, next to Great Salt Lake) were looked upon as examples of what was bound to happen once construction began on the Denison Dam.[251] In these "wide-open" towns not only did storekeepers profit handsomely but landowners willing to sell their land did so as well. In Vinita, land that was unable to produce enough to pay taxes sold for around $133 per acre.[252]

Another town adjacent to the proposed reservoir also boomed during this time but for slightly different reasons. Tishomingo, Oklahoma, located on the Washita River, braced itself to take advantage of the tourist trade around the lake once it was completed. A vocal citizen, Hugh Hutchens, wanted to see Tishomingo become a resort city once the water rose up to the town.[253] This was one of the first rumblings of recreation that would occur in the area.

> *"They see the inevitable row of smokestacks lining the horizon, with factories humming, business booming and everybody getting rich overnight." Denison Daily Herald, June 1939.*[254]

Aside from the immediate boom surrounding the initial construction of the dam, the economic future of the region seemed to be tied to the opportunities that hydroelectric power brought. It was widely held that the dams five generators would be a magnet for industrial development. With its railroad connections and an inexhaustible supply of cheap electricity, Denison might see

its population double or triple within a year. The Corps agreed that the potential for industrial growth in this area was enormous and even went so far as to identify growth industries.[255] Between 1920 and 1930 industries had already increased by 273 percent in the Red River Valley, while national industrialization only increased by 79 percent.[256] The railroad companies were also keeping an eye on Denison. In July of 1939, the Frisco Railroad considered the town "the bright spot in North Texas."[257]

An editorial that ran in the local Denison newspaper on August 12, 1938 warned of the dangers of this excited optimism; *"Too many people think that when the dam is built everyone in the community will automatically become rich, or at least, will reap untold benefits."*[258] There were other voices urging caution as well. There was an opposing view that the dam would eventually wipe out many of the surrounding communities. There was the fear that towns like Denison would be gutted after the dam was completed. Most people in Denison at least, didn't hold such extreme views but were instead cautiously optimistic about the future. *"It (Denison) may never become a great Metropolis, but it is certain to become one of the outstanding cities of the Red River Valley. Those who take advantage of present opportunities and built for the future cannot possibly lose."*[259] One thing the town tried to avoid was the instability and seedy side of the boom towns. The local paper during this time, while expressing great enthusiasm for the future, tried to urge slow growth over the five years of dam construction.

Hydroelectric power never lived up to the high expectations people had for it. Though the dam was constructed to hold five 35,000 kilowatt-unit turbine generators with a combined output of 312 million kilowatt-hours annually, only two were ever installed; the first in March, 1945 and the second in September, 1949.[260] Most of the power supplied by these are used not by local industry but by local residential consumers. Before the completion of Denison Dam many of the surrounding rural areas were not hooked up to electric lines. After the arrival of the turbines many miles of Rural Electric Association lines were installed to serve these people. The reason cited by the Corps for never installing the remaining three generating units is lack of sufficient demand to offset the cost of installation and maintenance. While there has been interest expressed as recently as 1987 in installing more generators, nothing substantial has yet occurred.[261]

Companies did not flock to the region to establish factories. Local industries did not develop extensively either. By 1950, the only industries were a couple of small boat-manufacturing and fishing lure operations, even though power costs in the Texoma area were among the lowest in the country.[262] There was certainly no lack of cheap power. What the region did lack was sufficient capital to get businesses started and industrial "know-how." Another impediment was high freight rates. In a 1950 study of the socio-economic effects of the lake, it was optimistically stated, "The new rates set by the Interstate Commerce Commission, although still discriminatory, are more

favorable than existing rates and will afford some relief in this respect."[263] The dominant industry continued to be agriculture, not manufacturing, despite the existence of Denison Dam and its two turbine generators. In the words of one observer, *"Industries will not fall into the area like manna from Heaven, nor will they pop up like mushrooms in the spring of the year."*[264]

The boom town development that had occurred during dam construction for the most part faded away after 1944, when the structure was completed. Some of the boom towns sank back into the prairie grass; others barely survived. Cartwright, Oklahoma is today a collection of buildings housing a gas station and a few restaurants that probably only survive due to a location on Highway 75-A as it passes north over the dam into Oklahoma. Other towns such as Red River City and Lee Heights didn't fare so well.

The Dawn of the Recreation Age

> *"Although the lake was primarily designed for flood control purposes and the generation of hydroelectric power, it is becoming more and more important, not only for the people who live in the area but to the people of the Southwest, for its recreational advantages."*
> *Oklahoma Institute of Community Development, 1950.*[265]

On nearly every day during the summer the dominant sight on Lake Texoma is an abundance of boats: sailboats, power boats, and fishing boats. This image of the lake has become so pervasive that it is difficult to imagine another use for the reservoir, absurd to think it wasn't created solely for

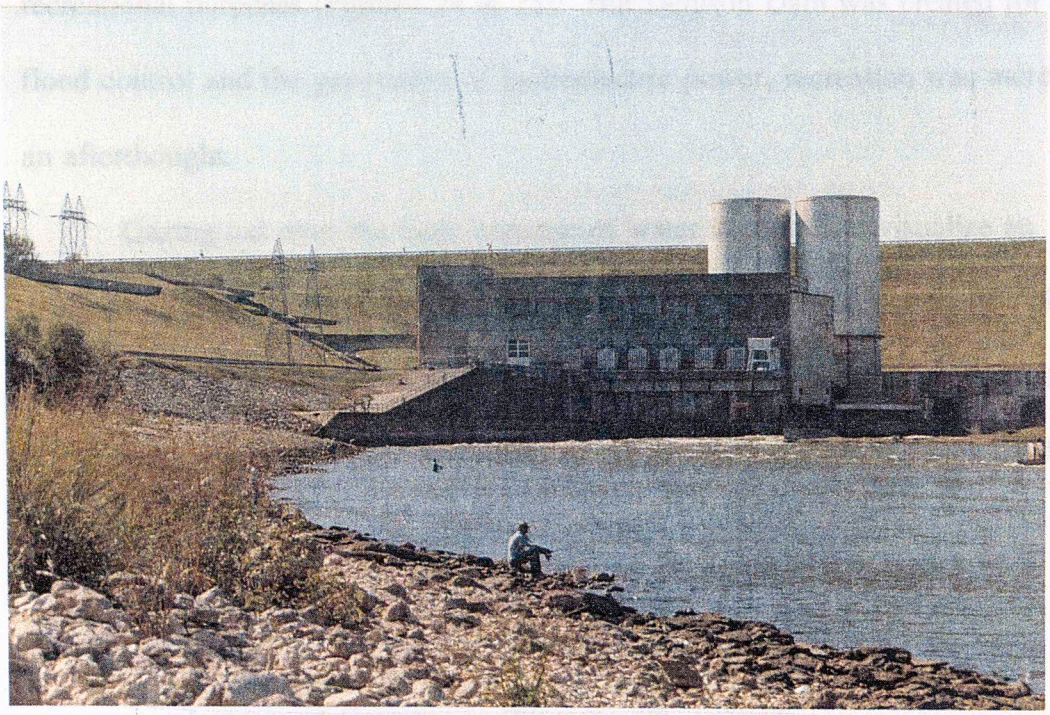


Figure 24: Looking at the Denison Dam and Outlet Works. To the left are the power lines leading from the two power generators inside. In the foreground fishermen are visible. Fishing and recreation have become the major stimulus to the economy since the 1950's.
Photo by author.



Figure 25: Some of the boat docking facilities available at Grandpappy Point, on the Texas side of Lake Texoma. Boating on the lake have become big business.
Photo by author.

recreational purposes (Figures 24 & 25). But Denison Dam was created for flood control and the generation of hydroelectric power; recreation was merely an afterthought.

Gazing out over the huge expanse of water it is hard to visualize an artificial structure to the east holding it back. In the late 1930's and early 1940's the opposite was true. It was difficult for local residents to grasp the enormity of the landscape change that was about to occur alongside the banks of the Red River.

> *"...they were not prepared to accept 'The Lake.' It was difficult to visualize before it was formed and difficult to believe when they could see its expansiveness." Oklahoma Institute of Community Development, 1950.*[266]

The dam, on the other hand, was a visible structure they could actually see under construction at the site where the old Baer's Ferry, one of the many ferries that had previously transport across the Red, used to cross the river. After all, it was the *structure* that would hold back the floodwater and generate electricity to power industry in the region. When future tourism was mentioned before the early 1940's, it was primarily centered around the dam. It was thought that tourists would flock to see one of the world's largest dams. At the time, Denison Dam was the largest rolled-fill earth dam ever constructed. Comparisons were drawn to the tourist booms that followed the construction of Boulder Dam in the west and the eight Tennessee Valley Authority dams in the east.[267] References made to the recreational potential of the lake itself, with a few exceptions, were vague and nebulous. Newspaper

articles mentioned the lake would be a "drawing card" for tourists simply because of its size.

> *"A well-known characteristic of the American people is a strong desire to see the largest of anything, no matter what it is. This may be relied upon to attract many visitors to see the largest earthen dam of its kind in the world and to see one of the largest artificial bodies of water in the United States." Recreational Resources of the Denison Dam and Reservoir Project, 1943.*[268]

Aside from sporadic reminders from outside sources of the recreational potential they were constructing, the first serious attention paid to it was by the National Park Service.[269] In 1941 Sam Rayburn, requested the Secretary of Interior to have the Park Service study the possibilities of recreation on the reservoir.[270] The foreword of the document states that recreation is increasingly being considered an important collateral use of water projects, especially in the more arid sections of the country. It is also hoped that this report, "may stimulate planning for the recreational use of other water control projects."[271]

The Park Service report advised developing tourist facilities at strategic points around the lake and creating a National Recreation Area:

> *"Unlike a natural area such as a national park, the principle features-the dam and lake- represent a spectacular achievement of man on a grand scale." Recreational Resources of the Denison Dam and Reservoir Project, 1943.*[272]

A population of around six million people living within two hundred miles of the dam site, and a nearly complete lack of "big water" bodies in the area, led

the Park Service to believe the potential for tourism at the reservoir was high. The only two large lakes in the area were Caddo Lake, which is located in far eastern Texas near the city of Jefferson, and Grand Lake O' the Cherokees, in the northeast corner of Oklahoma.[273] Both are only about half the size of Lake Texoma. Potential yearly attendance was estimated to be between six hundred thousand ans a million people annually.

The Park Service recreation plan specified the areas to be developed, what should be built to take advantage of the tourist trade, and what the structures should look like. Management of the sites was also considered. The study stated that the developments could either be leased out to private concessionaires, the way that National Parks were operated, or run by a non-profit organization such as National Park Concessions Inc.

At the time, there was no funds available for the National Park Service to implement any of the plans it had developed. This, combined with the view that the Park Service was policing the land surrounding the lake too enthusiastically, generated enough grass-roots ire in 1949 to get jurisdiction over recreational development transferred to the Corps. It is possible that inter-agency rivalries had a role in the final decision as well.

> *"Denison has glimpsed the Elysian Fields and cries in anguish, for fear it cannot enter." Dallas Morning News, February 1946.*[274]

Not everyone was pleased that the development of recreational facilities was transferred to the Corps. "An atomic bomb would have stirred the community little more."[275] Some people who had seen the Park Service plan thought that its implementation would turn Lake Texoma into one of the finest "pleasure spots" in the country.[276] Trading the Park Service plan for the Corps would be like, "trading a turkey for a hummingbird."[277]

One group pressing Congress to leave the project in the hands of the Park Service was the Lake Texoma Development Association.[278] Formed soon after completion of Denison Dam, members of this organization came from the towns of Marietta, Madill, and Kingston in Oklahoma, as well as Denison, Sherman, and Gainesville in Texas. They felt the Corps would not even "scratch the surface of recreational possibilities." The Corps had proven to the locals that it could get things done by building the reservoir in the midst of a World War but had never before administered an area for recreation.[279] The Park Service had proven itself an expert at administering recreation areas, but the Corps was untested. Lake Texoma became the Corps' test case for recreational development.

Development of recreational facilities around the lake proceeded no quicker under the Corps than it did under the Park Service, even though by 1950 it was reported that, "*The values from this source (recreation and tourism) are likely in time to outweigh any economic benefits derived from flood control and the generation of power.*"[280] By the time the Corps had developed its own

recreation plan in 1952, the Korean War had erupted and funds were once again frozen.[281] Ironically, during the last days of the National Park Service administration, Lake Texoma received a $1 million appropriation for capital improvements. Even though the money was transferred to the Corps when they took over, it was never used.[282] While the Corps didn't provide instant resort facilities, such as those planned by the Park Service, it did quickly improve access to the lake and eased up on the policing of the federal land surrounding the lake. This had the effect of reducing much of the local pressure that had earlier been responsible for the Park Service being relieved of duty.

While there was some initial interest in the recreational potential of the reservoir project, this interest seemed to stress the novelty of the lake more than its potential economic benefits.[283] By 1944 only twenty-nine people had applied for boat licenses for the lake.[284] Once the reservoir area filled with water, more people started to realize the opportunities, and people were awed by the sight before them.[285] As one local newspaperman noted, *"(the Corps) has done more to change the face of the earth in the last four years than all the military engineers have done in recorded history."*[286] Denison Dam, the largest rolled fill earth dam ever created, attracted enough people to the site in 1948 to shatter all the National Park Service travel figures for a single year (Figures 26 & 27).[287] Nearly two and a half million people came to see the huge reservoir created by the U.S. Army.[288] The next most popular attractions were Lake Mead and the Lincoln Memorial, and they had over eight hundred thousand fewer visitors.[289]



Figure 26: Early tourism literature showcased the novelty of Texoma, "the largest body of water between the Canadian border and the Gulf of Mexico." 1949.

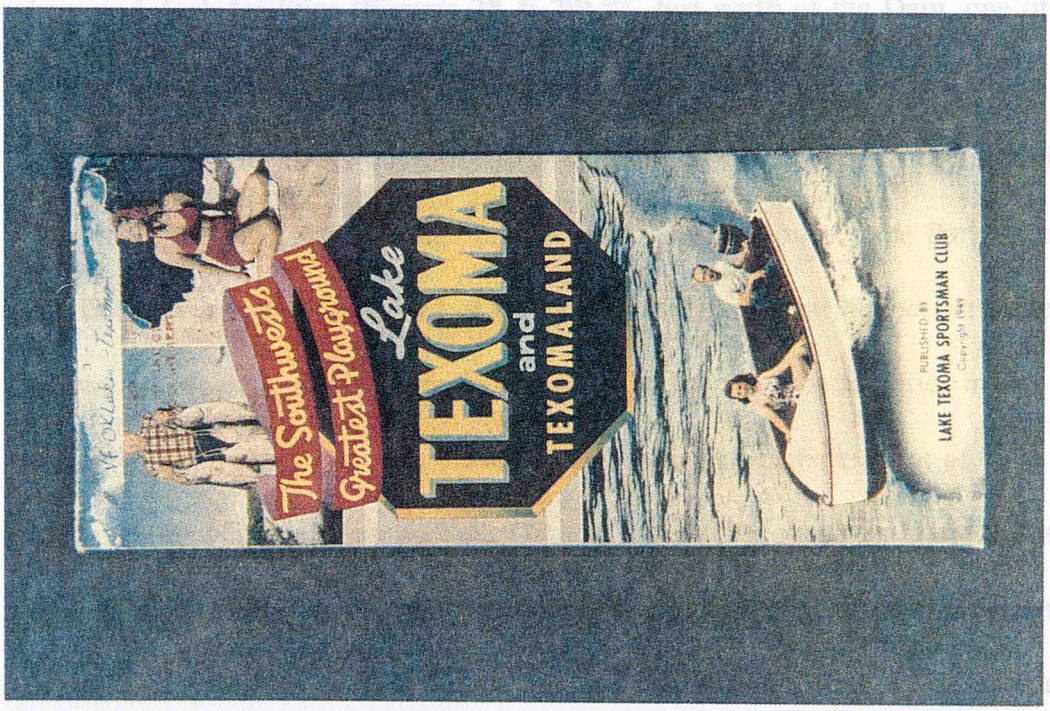


Figure 27: This 1949 publication advertising the recreational aspects of Lake Texoma was written by the Lake Texoma Sportsman Club, the forerunner to the Lake Texoma Association.

Granted, most of the visitors came from either Texas or Oklahoma, but according to the National Park Service "every state in the union" was represented, as well as several foreign countries.[290]

Throughout the decades of the 1950's and 1960's Lake Texoma continued to set new records for attendance. By the 1960's, the lake was consistently drawing more than eight million people per year.[291] The type of tourism began to slowly change though. More people started using the lake instead of simply looking at it. In 1952, Oklahoma began building a huge facility to capitalize on the incredible number of tourists being attracted to the lake. Lake Texoma State Park, as it was later designated, included a lodge, two hundred and fifty tourist cottages, a golf course, tennis courts, an ice skating rink, a swimming beach and boat and dock facilities (Figures 28 & 29).[292] Just north of the Dam, one of the tourist areas, called Burns Run, was turned into a "carnival-equipped" resort that even had rides.[293] It was affectionately called "Lake Texoma's Coney Island."[294] By 1958, the State of Texas had begun work on Eisenhower State Park[295] and the Corps was spending a third of the segment of its annual budget set aside for recreation projects, a quarter million dollars, to improve the facilities in the area.[296] By this time, the number of visitors per year exceeded that of Yellowstone National Park and the Grand Canyon; Texoma was home to over sixteen thousand boats (Figures 30 & 31).[297] Lake Texoma even had its own boat-building industry. The Yellow Jacket Boat Co. was located on Texoma, and Mercury nearly located a large outboard motor plant there as well.[298]

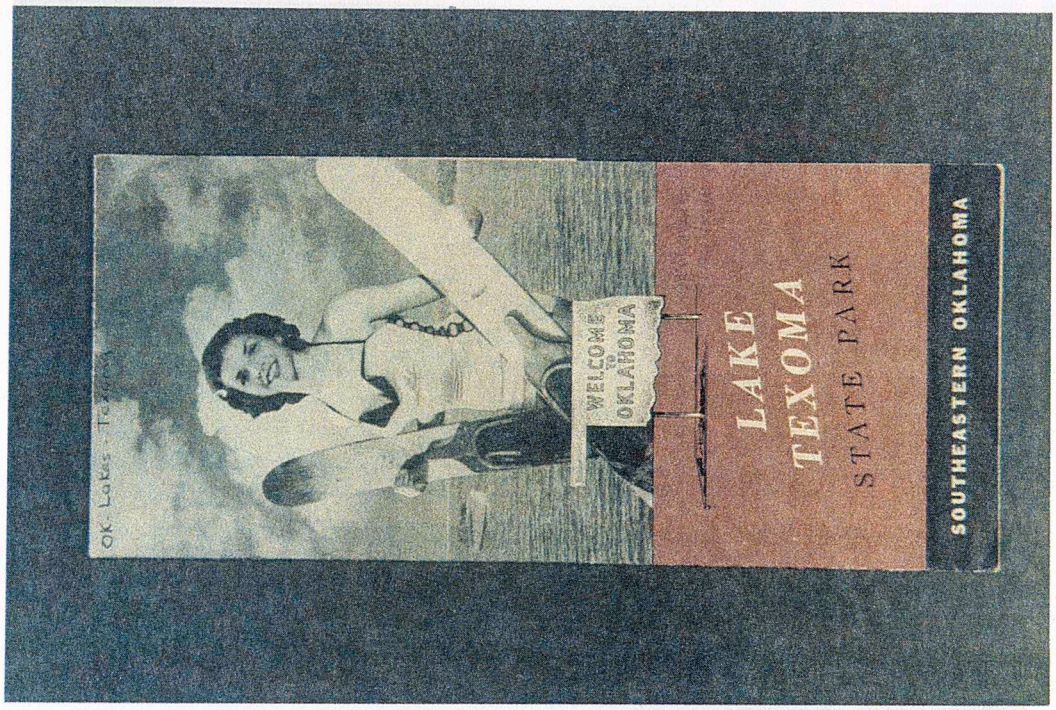


Figure 28: The establishment of Lake Texoma State Park on the Washita arm of the lake in Oklahoma in 1952 emphasized the resort atmosphere of the recreational development.



Figure 29: This page from a 1960's tourist publication provides "proof" that striped bass were there and capable of being caught.



Figure 30: Before the ten county region of south central Oklahoma became "Lake Country," it was known as "Fun Country." As seen in this brochure, water recreation was still stressed as the main activity n the area.

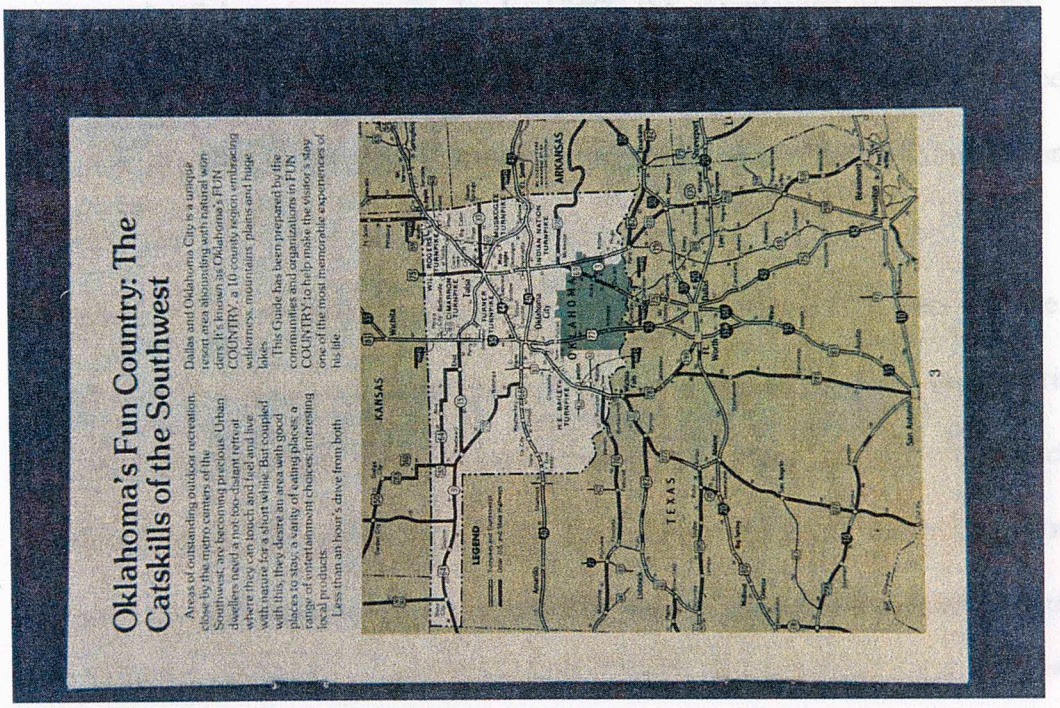


Figure 31: A tourist brochure from the 1970's building up the resort image of the lake by comparing it to the Catskills.

The Lake Texoma Development Association also did a lot of work in stirring up interest in recreation on the reservoir (Figures 32 & 33). They sponsored fishing derbies, boat races, and even invited a New Englander named Shirley Mae France to train for her attempt at swimming the English Channel in the cold expanse of Lake Texoma.[299]

> *"They fished, they swam, they water skied, they sun-bathed and they lounged around under the oaks, the cedar elms and the bois d' arc." Dallas Times Herald, August 1967.*[300]

Fishing was becoming a large draw also. At the beginning of the 1950's, the "Southwest's hottest fishing spot"[301] was estimated to be supplying one ton of fish per day to lucky anglers.[302] This included both sport-fishing and a small commercial fishing industry.[303] In the 1960's the complexion of the fishing industry in Lake Texoma changed forever when Striped Bass were introduced into the lake (Figure 34).[304] A decree by the Oklahoma Wildlife Commission, with the State of Texas deferring, ordered commercial fishing banned indefinitely to give the fish a chance to establish themselves.[305] This had the effect of killing the small commercial fishing industry on Texoma and ensuring the success of the sport-fishing industry, which was more conducive to attracting tourists (Figure 35). As of 1994, Lake Texoma has produced the world-record striped bass, weighing in at over thirty-two pounds, and also the world record blue catfish, which weighed in excess of one hundred and eighteen pounds.[306]



Figure 32: The Lake Texoma Association has been active in promoting recreation and tourism since the late 1940's. This publication is from the 1950's.

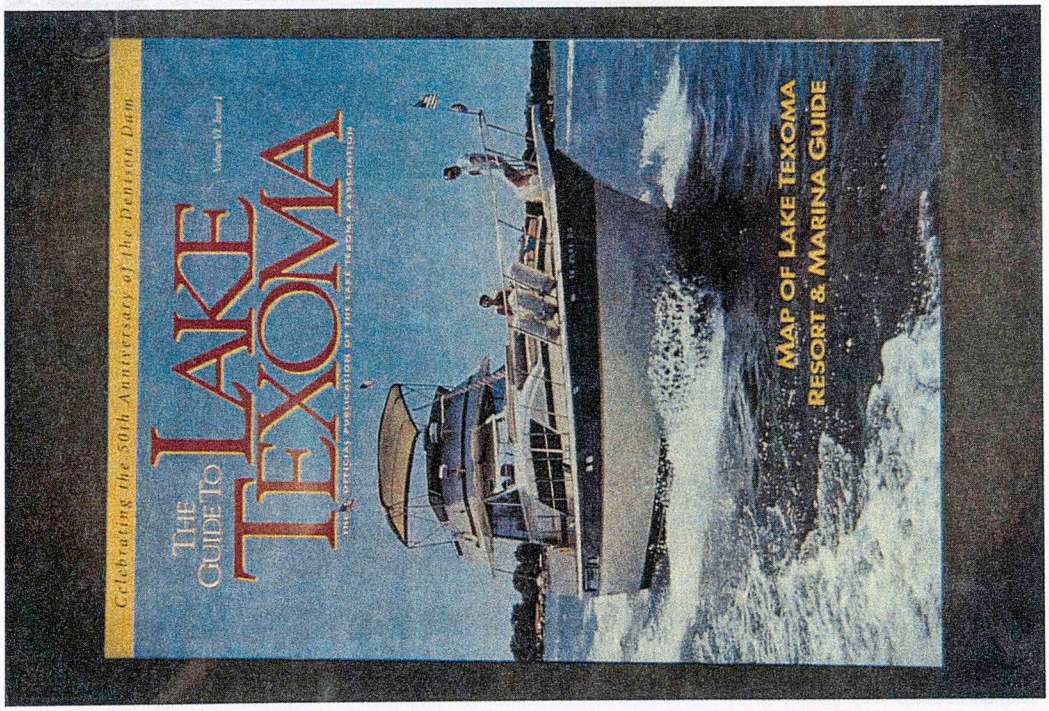


Figure 33: A 1994 Lake Texoma Association publication celebrating the fiftieth anniversary of Denison Dam. Shows how the luxury level of boating on the reservoir has changed since the early days.



Figure 34: "Sassy Striper" has become a symbol of Kingston, Oklahoma which proudly proclaims itself the "Striper Capital of the World."
Photo by author.



Figure 35: "King Sandie" illustrates how important the lake has become to the people of Madill, Oklahoma who each year hold a Sand Bass Festival to attract tourists to town.
Photo by author.

Recreation and tourism in the Lake Texoma area have transcended novelty and become big business.[307]

There have been clashes between the local businessmen and the Corps. As early as 1949, only five years after the Dam was completed, there was concern about how the original project purposes of flood control and hydroelectric power were going to affect recreation. Would the installation of the second turbine generator would leave fishermen on the lake "high and dry"?[308]

Most of the friction between the recreation promoters and the Corps has centered around fluctuations in the lake height.[309] From a recreation viewpoint, the ideal lake elevation is high enough to prevent boats from grounding themselves in low spots around the lake, with few fluctuations around that level. The Corps, however, was forced to administer the lake as a flood control structure which meant that the level would fluctuate depending on the amount of water flowing into the lake from both the Washita and Red rivers. It is also better, from a flood control point of view, to keep the lake level down during low flow conditions. This way, the lake would be able to absorb more flood water during high flow. In 1956, the lake was at record low levels due to a drought in the region. The Lake Texoma Association sought "emergency relief" from the Corps to help them eliminate some of the stumps that were not only an eyesore but were becoming boating hazards as well.[310] They also asked the

Corps to raise the height of the power pool from 617 feet to 620 or 622 feet.[311] The Corps refused.

Problems with the water level seem to have ebbed somewhat following the flood of 1957 that filled the entire reservoir and sent water flowing over the spillway. By the 1980's, the problem had resurfaced. There were ongoing negotiations at the time to reroute some of the water in the lake to Dallas for municipal water supplies. Fishermen as well as wildlife advocates were upset because they thought that the Corps had approved the plan without fully looking at the consequences to the lake level and wildlife habitat. The Oklahoma Wildlife Federation in April of 1987 filed suit to stop the transfer of water to Dallas saying, *"(Lake Texoma) is an irreplaceable natural recreational and economic resource for Oklahoma."*[312] As soon as people were reassured by the Corps that the lake level would not be significantly impacted by the diversion, the uproar died. It did, however, illustrate how sensitive people were about fluctuations in the level of Lake Texoma.

Aside from low lake levels it is also a fact of life that the resorts and many of the businesses adjacent to the lake flood every now and then. After all, one of the main purposes of the reservoir is still flood control. In the summer of 1987 this point was brought home when high lake levels inundated many marinas and resorts. Even worse, none of the businesses that were flooded out had flood insurance because of Lake Texoma being a flood control reservoir.[313] In 1988 the Lake Texoma Association was able to change the official

designation of the Denison Dam project to include recreation.[314] From that point on, the Corps was legally bound to take into account the impact of changing lake conditions on recreation as well as hydroelectric power and flood control.

Slowly, recreation has become the "bread and butter" of the regional economy. Between nine and twelve million people visit Texoma annually.[315] As of 1993, Lake Texoma was home to two wildlife refuges, a state park each in Oklahoma and Texas, fifty-four Corps parks, twenty-four private resorts and numerous campgrounds and golf courses ringing the shoreline.[316] The pessimists of the early 1940's, who speculated the lake would never be able to clear itself of the red sediments that both the Washita and Red Rivers dump into it, have been proven wrong. Most of the lake is clear, blue water.[317] Lake Texoma has also been transformed into an important symbol to the surrounding communities. City logos and numerous festivals centered around the lake show how it has become an important part of the lives of the people living near it. Recreation is no longer a side-benefit of the project, but on an equal footing legally with flood control and the generation of hydroelectric power. For many people near Lake Texoma, it is the only purpose.

Chapter 5

Conclusions

Three of the ways in which people and institutions have related to Lake Texoma can be seen viewing the lake as *Savior, Battlefield*, and *Promised Land.* Many of the meanings the reservoir has had for people can be directly related to the means the lake has provided for them. The three metaphors are not as exclusive in time or in people's minds. In other words, different people may have viewed the lake differently during the same time period just as some people may have been influenced by more than one metaphor.

Lake Texoma has taken on the metaphorical role of *Savior* by delivering people from dire physical and social conditions since its creation. It rescued people downstream from the omnipresent threat of flooding on the Red River. Only two times in the past fifty years has the reservoir failed to fully contain the combined floodwater of the Red and Washita rivers. Texoma also saved those people from the many problems associated with periodic flooding such as disruption and destruction of commerce, transportation, and communication.

Areas of stagnant water have also been reduced which may have had an indirect

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effect upon the reduction of the spread of malaria throughout the region. The reservoir delivered people in the Texoma area from the uncertainty of municipal water supplies in times of drought by providing an alternate source to be tapped. The lake has also helped to rescue the area adjacent to it from the dire economic structure that existed previously by fostering higher rates of farm ownership, lower tenancy rates, and by moving people from the country side to towns. To those who benefit from these changes, Lake Texoma was a *Savior.*

Lake Texoma assumed the metaphorical role of *Battlefield* by acting as the sphere of contention between opposing forces. The reservoir area was the place where the forces of nature were attacked and contained in the war between human occupants of the southern Great Plains and the natural forces that produced the severe flooding characteristic of the area. Denison Dam and the Texoma area were also the focus of a battle between two government factions trying to defeat the same enemy-- flooding. Due to philosophical differences as well as bureaucratic rivalries, the Soil Conservation Service and its Small Watershed Program was pitted against the Army Corps of Engineers and its giant reservoirs and levees downstream in the Red River Valley. Another battle between the Corps and oil interests was fought when the Cumberland Oil Field was discovered in the reservoir area during construction of the dam. In order to save the dam project the Corps was forced to protect the field from flooding by shielding it from the water of Lake Texoma.

The Denison Dam project was the site of a battle in the war between state sovereignty and federal authority. Since the vast majority of land to be flooded by the reservoir lay north of the Red River, Governor Leon Phillips saw the project as an infringement of the federal government on the integrity of the State of Oklahoma and tried everything within his power to stop it from being built. Some of the casualties of these wars were the refugees caught in the middle and forced to flee the battlefield. While the people in the reservoir area didn't have a hand in the fighting, they suffered the consequences of the battles being fought here.

Both the Red River and Lake Texoma have assumed the metaphorical role of *Promised Land* through delivery of economic salvation and security to the region. To the first white settlers in the area, the Red River provided the seeds of their economic success by providing a local transportation hub created by travelers either coming up the river by boat or crossing the Red by ferry. Between the late 1800's and the 1930's, the idea of bringing commercial navigation to the confluence of the Washita and Red was touted as the way to transform the region into a gateway into the Southwest. Cheap water rates would make Denison into the distribution center for all the agricultural goods produced in the Southwest.

The idea of damming the Red River for flood control fundamentally changed the way people saw the stream. At first, the proposed structure was seen as bringing them one step closer to navigation on the upper Red. Soon the

potential of hydroelectric power became the catalyst that would deliver people to the Promised Land. It eclipsed the idea of navigation. Cheap power would make the region into an industrial mecca by attracting big business. While most people soon realized that hydroelectric power was unable to deliver them to the Promised Land, others were seeing that potential in another untapped benefit of the reservoir-- recreation and tourism. The rise of the recreation industry on Lake Texoma, albeit slower than anticipated fifty years ago, perhaps has finally delivered on the promise of the water to provide financial security and success to the region.

Appendix I

The Nature of Metaphor

"All thinking is metaphorical." Robert Frost[318]

Metaphor is superficially easy to define. It is a way of relating two or more different things by asserting some sort of similarity.[319] Beyond this simplistic definition, widespread agreement on the exact nature of metaphor ceases to exist.[320]

Another widely held view of metaphor is that it also has the power to not only connect two dissimilarities on an intellectual level, but also to stir emotion or create an image. A metaphor can suggest different levels of meaning between objects or concepts. While a literal meaning may be suggested, a deeper or more abstract meaning may also be hinted at simultaneously. W. Bedell Stanford called this ability to entertain two different points of view at the same time "Stereoscopic vision."[321]

How metaphors create an image or stir emotion varies depending upon each individual academic discipline.[322] For while interest in the use of metaphor

has increased in the past couple of decades in disciplines such as physics, anthropology, economics, and human geography, each discipline has a different idea about what exactly it is and how it can be used.[323] Some of the geographers involved in the debate over metaphor are Anne Buttimer, Yi-Fu Tuan, Trevor Barnes, James Duncan, and Patrick McGreevey.[324]

In recent decades a sort of taxonomy of metaphor has emerged. Yi-Fu Tuan, in his article entitled "Sign and Metaphor," cited the Philip Wheelwright definition of metaphor to distinguish two types of metaphorical use: epiphor and diaphor.[325] Epiphor is the term used to draw a comparison between two objects where the meaning of one is well known and the other is less well known. This relationship provides for an extension of meaning from the known object to the unknown. Diaphor, on the other hand, strives for the creation of meaning through the juxtaposition and synthesis of different objects. This relationship is synergistic in the sense that the meaning created as a result of the metaphor is greater than the combination of its separate parts.

Livingstone and Harrison also describe a duality by creating the categories "translation" metaphor and "interaction" metaphor.[326] In application, these categories are very similar to the epiphor and diaphor idea Tuan used. Translation metaphors simply extend the meaning from one object to the next, while the interaction metaphor strives to create a separate meaning.

Shibles describes different types of metaphors based upon whether or not they are still valid temporally.[327] Active metaphors are those whose relationships

are still valid and meaningful. Dead or extinct metaphors represent a relationship between two or more objects that no longer applies as it once did in the past. Dormant metaphors are those expressions that do not hold the same meaning they once did but may revive themselves if conditions are right.

The way metaphor is constructed opens it to interpretation in different ways by the reader. "While the meaning of the metaphor tails off at the edges, this border indecisiveness constitutes its main explanatory strength - openendedness."[328] Readers are involved in the material more dynamically because they are forced to interpret what the metaphor is implying.[329]

Three metaphors are used in this study to illustrate how people have interacted with the Red River and the Denison Dam project over the past century: Savior, Battlefield, and Promised Land. It should be stressed that these by no means represent the entire spectrum of meanings and uses attached to Lake Texoma.

It should also be noted that the metaphors used were not decided upon *a priori*. Rather, they evolved and jelled during the research portion of the project. I identified trends and themes as they became apparent rather than forcing data into previously designated metaphors. One commonality all three metaphors seem to have is the ability to capture the reverence people showed towards the power of water. The Red River, the dam and the overall project, and the lake all seemed to instill an awe that was reflected in the descriptions people used when referring to them. Although I decided not to investigate this

in depth, I did try to hint at this power by embedding religious overtones in the metaphors.

1. See House Document Number 275, Seventy-eighth Congress, First Session, *Watershed of the Washita River (Oklahoma and Texas): Letter From the Under Secretary, Department of Agriculture Transmitting A Report of a Survey of the Washita River Watershed in the States of Oklahoma and Texas, Made By This Department, Pursuant to the Flood Control Act of June 22, 1936* (Washington D.C.: USGPO, 1943) p 3.

2. See Oklahoma Water Resources Board, *Oklahoma Water Atlas* (Oklahoma City: Oklahoma Water Resources Board, May 1990).

3. See Tourism Department- State of Oklahoma, *Oklahoma Native America: 1994 Vacation Guide* (Oklahoma City: State of Oklahoma, 1994) p 83.

4. See Department of Tourism- State of Oklahoma, *Oklahoma Native America: Vacation Guide '93: Cherokee Strip Land Run Centennial* (Oklahoma City: State of Oklahoma, 1993) p 27.

5. See *Oklahoma Native America: Vacation Guide '93*, p 16.

6. *Oklahoma Water Atlas*, p 68.

7. For further discussion of "means" and "meanings" see Ben Marsh, "Continuity and Decline in the Anthracite Towns of Pennsylvania," *Annals of the Association of American Geographers,* 77:3 (1987): pp 337-352.

8. "Every time I say that this or that representation could be replaced with another, we take a further step toward the goal of grasping the essence of what is represented." Ludwig Wittgenstein as quoted by Karsten Harries in "The Many Uses of Metaphor," *On Metaphor,* ed. Sheldon Sacks (Chicago: University of Chicago Press, 1978) p 168.

9. See Paul Ricoeur, "The Metaphorical Process as Cognition, Imagination, and Feeling," *On Metaphor*, ed. Sheldon Sacks (Chicago: University of Chicago Press, 1978) p 141.

10. See Peter Goin, "Rephotographing Tahoe," *Landscape* 31:3 (1992): pp 8-15.

11. See J.R. Short, L.M. Benton, W.B. Luce and J. Walton, "Reconstructing the Image of an Industrial City," *Annals of the Association of American Geographers* 83:2 (1993): pp 207-225.

12. See Anne Buttimer, "Nature, Water Symbols, and the Human Quest for Wholeness," *Dwelling, Place and Environment; Towards a Phenomenology of Person and World,* (Boston: Martinus Nijhoff, 1985) pp 259-280.

13. See Nancy Lee Wilkinson, "No Holier Temple: Responses to Hodel's Hetch Hetchy Proposal," *Landscape* 31:3 (1991): pp 1-9.

14. See Patrick McGreevey, "Niagara as Jerusalem," *Landscape* 28:2 (1985) pp 26-32; Patrick McGreevey, "Imagining the Future at Niagara Falls," *Annals of the Association of American Geographers* 77:1 (1987) pp 48-62; and Patrick McGreevey, "Reading the Texts of Niagara Falls: the Metaphor of Death," *Writing Worlds: Discourses, Text and Metaphor in the Representation of Landscape,* eds. Trevor J. Barnes and James S. Duncan (New York: Routledge, 1992) pp 50-72.

15. See Ben Marsh, "Continuity and Decline in the Anthracite Towns of Pennsylvania," *Annals of the Association of American Geographers* 77:3 (1987) pp 337-352.

16. See "Denison Dam Dedicated at Huge Rally," *Dallas Morning News*, 2 July 1944.

17. See Oklahoma Institute of Community Development--The University of Oklahoma, *Socio-Economic Effects of Lake Texoma Reservoir--Volume I* (Norman, Oklahoma: 1950).

18. See Soil Conservation Society of America, *Oklahoma Celebrates The Golden Anniversary of Soil Conservation* (Oklahoma City: Soil Conservation Society of America, 1984).

19. *Oklahoma Water Atlas*, p 12.

20. Severe flooding on the river from the confluence of the Ohio and Mississippi at Cairo, Illinois south to Memphis and on down to Louisiana caused enough concern for New Orleans that levees were destroyed with dynamite upstream to release the pressure on the swollen river. This was in 1927. Previous to this flood, the only program the federal government was involved in that could be considered flood control was the Army Corps of Engineers policy of building levees up along stretches of navigable streams.

21. More specifically, the Corps stated, "It is doubtful if there will ever be a necessity to utilize it [Lake Texoma] for this purpose [water supply] unless great cities or industries become established in the valley because of the numerous tributaries and the large ground water supplies. The proposed Denison Reservoir, therefore, cannot be reasonably assumed to have any appreciable benefits to public water supplies." House Document Number 541, Seventy-fifth Congress, Third Session, *Letter From the Secretary of War: A Letter From the Chief of Engineers, United States Army, Dated March 4, 1938, Submitting a Report, Together With Accompanying Papers and Illustrations, on Further Investigation of Denison Reservoir, Tex., With a View To Flood Control and Development of Hydroelectric Power, Authorized by the Flood Control Act*

Approved June 22, 1936. (Washington, D.C.: USGPO, 1938) p 69.

22. See House Document Number 541.

23. See *Socio-Economic Effects of Lake Texoma Reservoir- Volume III.*

24. Another effect the establishment of the reservoir was anticipated to have would be the moderation of the local climate. Due to the large amount of water that would no doubt evaporate from the lake, rainfall was to be stabilized, eliminating the periodic droughts that the region is prone to have. The actual effect the lake has had on the microclimate of the region is unknown, though it seems safe to say the large-scale alterations of precipitation patterns had probably not occurred. "Malaria Control is Among Lake Benefits," *Denison Daily Herald,* 29 July 1939.
"Current Comment: Denison Dam," *Denison Daily Herald*, 23 August 1939.

25. See Dorothea Lange and Robert Taylor, *An American Exodus: A Record of Human Erosion* (New York: Reynal & Hitchcock, 1939) p 68.

26. See "Made Work is Making a Lake," *Daily Oklahoman*, 29 October 1933.

27. See "Made Work is Making a Lake."

28. See *Socio-Economic Effects of Lake Texoma Reservoir: Volume I,* Page 12

29. See House Document Number 275, p 4.

30. See House Document Number 275, p 6.

31. See House Document Number 275, p 6.

32. See "Lots of County History Sits Below Texoma," *(Tishomingo, Oklahoma) Capital Democrat*, 14 April 1983.

33. From a personal interview with Mr. Dale McCuan who has lived in the Woodville area, in his own words, "since the sun was the size of a quarter." March 4, 1994. Woodville, Oklahoma.

34. For more on the demographics of the local population following construction of the dam see *Socio-Economic Effects of Lake Texoma Reservoir: Volume II.*

35. See *Socio-Economic Effects of Lake Texoma Reservoir--Volume II*, p 5.

36. See *Socio-Economic Effects of Lake Texoma Reservoir--Volume II*, p 8.

37. "Made Work is Making a Lake," *Daily Oklahoman*, 29 October 1933.

38. See "Made Work is Making a Lake."

39. "Lets Build a Dam! Here Are Men and Scenes Involved," *Daily Oklahoman*, 26 March 1939.

40. See Mead, E.K., "$54,000,000 Denison Dam is Ready to Go, With Dedication Set July 1: Gigantic Power and Flood Control Project, Now Completed After Five Years' Work, Will Benefit Regions Industrial, Land Values by Millions," *(Dallas) Times Herald*, 18 June 1944.

41. See "$54,000,000 Denison Dam is Ready to Go." .

42. "Lake Texoma's History Full of Interesting Facts," *Durant Daily Democrat*, February 22 1983.

43. See "$54,000,000 Denison Dam is Ready to Go".

44. See Boswell, Walter, "Huge Denison Dam is Symbol of Our Age, Rayburn Says," *(Dallas) Times Herald*, 1 July 1944.

45. See "Huge Denison Dam is Symbol of Our Age.".

46. See Hicks, Robert E., "$54,000,000 Denison Dam Project is Virtually Completed," *Fort Worth Star Telegram*, 13 June 1943.

47. For an account of the 1957 Lake Texoma Flood see John Clift, *Once in a Hundred Years: The High Water Story of Lake Texoma* (Denison, Texas: Denison Daily Herald, June 1957).

48. See R.G.M., "The Smoking Room," *The Daily Oklahoman*, no date.

49. See *Once in a Hundred Years.*

50. See R.G.M., "The Smoking Room," *The Daily Oklahoman*, no date.

51. See *Once in a Hundred Years.*

52. See *Once in a Hundred Years.*

53. See *Once in a Hundred Years.*

54. See Kimsey, Leonard, "A Veritable Sportsman's Paradise: Lake Texoma Provides Fishermen With All They Can Take Away." *(Dallas) Times Herald*, 23 April 1950.

55. See "Texoma Starts Its Trip Down," *Dallas Morning News*, June 7, 1957.

56. The Corps used discharge data from the 1908 flood on the Red River to determine how much flood water the dam should be able to hold under the most severe conditions. At the time of construction the 1908 flood was calculated as the 100 year flood for the Red River.

57. See "Without the Dam: No Lake!" *1993 Lake Texoma and Surrounding Area* (Kingston, Oklahoma: Lake Texoma Association, 1993).

58. For more on the immediate impacts of the reservoir see *Socio Economic Effects of Lake Texoma Reservoir: Volumes I-III.*

59. See "232,690 Visitors Jam Lake Texoma Resorts on July 4th Holiday," *(Dallas) Times Herald*, 8 July 1952.

60. See "Salt Water Springs Get Texoma Salinity Blame," *Dallas Morning News*, 25 July 1971.

61. See "Salt Water Springs Get Texoma Salinity Blame."

62. See "Lake Texoma Waters Potentially Potable," *Dallas Morning News*, 9 April 1955.

63. See "Water of Lake Texoma Okayed For Human Use," *Dallas Morning News*, 11 January 1952.

64. See "Lets Act Now on Water," *Dallas Morning News*, 18 October 1952.

65. See "Dallas Gets Water Tip: Tap Texoma Below Dam," *Dallas Morning News*, 15 February 1953.

66. See "Dallas Gets Water Tip."

67. See "Potentiality in Texoma Waters," *Dallas Morning News*, 13 October 1956.

68. The Lake Texoma Association was formed in the 1940's as the Lake Texoma Sportsman's Club, and was also known as the Lake Texoma Development Association in the late 1940's.

69. See "Groups Agree on Lake Level: Texoma Reservoir to Supply Suburbs," *(Dallas) Times Herald*, 16 February 1987.

70. See David Hanners, "Plan to Tap Texoma Irks Outdoor Fans," *Dallas Morning News*, 12 April 1987.

71. See National Park Service--Department of Interior, *Recreational Resources of the Denison Dam and Reservoir Project; Texas and Oklahoma* (Washington, D.C.: USGPO, October 1943).

72. See *Recreational Resources of the Denison Dam and Reservoir Project.*

73. See *Socio-Economic Effects of Lake Texoma Reservoir: Volume III.*

74. See *Socio-Economic Effects iof Lake Texoma Reservoir--Volume III.*

75. See *Socio-Economic Effects of Lake Texoma Reservoir--Volume III.*

76. See *An American Exodus.*

77. See *Socio-Economic Effects of Lake Texoma Reservoir: Volume II.*

78. See *Socio-Economic Effects of Lake Texoma Reservoir--Volume II.*

79. See McCuan interview.

80. See *Socio- Economic Effects of Lake Texoma Reservoir: Volume I.*

81. See *Socio-Economic Effects of Lake Texoma Reservoir--Volume I.*

82. See *Socio-Economic Effects of Lake Texoma Reservoir--Volume I.*

83. See *Socio-Economic Effects of Lake Texoma Reservoir--Volume I.*

84. See *Socio-Economic Effects of Lake Texoma Reservoir--Volume I.*

85. Farm tenancy decreased during this period as well, especially next to the lake. Bryan county in Oklahoma showed the largest decline, dropping from ⅔ of the farm population renting in 1940 to less than 25% in 1949. The next largest decline was in Marshall county which dropped from 64% tenancy in 1940 to 31% in 1949. See *Socio-Economic Effects of Lake Texoma Reservoir: Volume I*, p 56.

86. See "Dam Town, Ghost-to-Be, Enjoys Boom," *Oklahoma City Times*, 3 October 1940.

87. See Morris P. Moore, "Red River Exodus," *Daily Oklahoman*, 18 July 1943.

88. For more on out-migration after construction of the dam see *Socio-Economic Effects of Lake Texoma Reservoir: Volume I.*

89. See "Dam Encourages Tishomingo Man," *Denison Daily Herald*, 4 October 1939.

90. See untitled, *Denison Daily Herald*, 30 January 1939; "Oklahoma Visitor Here Favors Dam," *Denison Daily Herald*, 22 January 1939; "Current Comment: Oklahoma and Denison Dam," *Denison Daily Herald*, 18 February

1940.

91. See *Socio-Economic Effects of Lake Texoma Reservoir--Volume II.*

92. See "Says Woodville Residents Here Give Favor for Dam," *Denison Daily Herald*, 19 January 1939.

93. See "Lets Build a Dam! Here Are Men and Scenes Involved," *Daily Oklahoman*, 26 March 1939.

94. See "Let's Build a Dam."

95. An interesting side note to this quote, it seems as though the federal appraisers were not giving money for the buildings or structures people had on their land. They could take them with, but they did not get paid for their "dilapidated buildings." See "State's Rights Big Issue When Dam Discussed," *Denison Daily Herald*, 26 January 1939.

96. See *Socio-Economic Effects of Lake Texoma Reservoir--Volume III.*

97. See "Lots of County History Sits Below Texoma," *(Tishomingo, Oklahoma) Capital Democrat*, 14 April 1983.

98. See "Lots of County History Sits Below Texoma."

99. From McCuan interview.

100. Personal Interview with Mr. Robert Taylor of the Oklahoma Department of Wildlife on 17 February 1994 in Oklahoma City.

101. See *Recreational Resources of the Denison Dam and Reservoir Project.*

102. See "Red River Exodus."

103. See *Socio-Economic Effects of Lake Texoma Reservoir--Volume I.*

104. See *Socio-Economic Effects of Lake Texoma Reservoir--Volume I.*

105. See *Socio-Economic Effects of Lake Texoma Reservoir--Volume I.*

106. See *Socio-Economic Effects of Lake Texoma Reservoir--Volume I.*

107. See *Socio-Economic Effects of Lake Texoma Reservoir--Volume I.*

108. The Denison Dam project became a sort of toponymic battlefield as well in 1949 when it was proposed by Oklahoma Representative Jack McGahey of Durant that the name of the dam be changed to "Okachito Dam," which in the Choctaw language means "big water." Following this proposal there was an

immediate outcry by area Chickasaws, since it was their tribal land that was inundated by the reservoir when it was completed in 1944. One response by a daughter of a former chief of the Chickasaw tribe, Mrs. Juanita Johnson of Oklahoma City, was that if the name were changed to a Choctaw word, "...all the Chickasaws buried beneath the waters of the lake would raise such a rumpus they'd kick the lake dry overnight. See "War Paint in Style Again: Chickasaws Want to Chop up Choctaws Over Name of Dam." *Dallas Morning News*, 22 December 1949. It should also be noted that this was the only reference to Native American concerns about the Denison Dam project that was uncovered during this research project. While further research may find that there indeed were Native American concerns about the project, none of the mainstream sources indicated this. In the reservoir area itself, only 146½ acres of land of the 180,166.03 acres total was purchased from the Choctaw- Chickasaw tribes. See *Socio-Economic Effects of Lake Texoma Reservoir, Volume II*, p 124.

109. For more information on the Frontier Lake State campaign contact the Oklahoma Department of Tourism.

110. See "Lots of County History Sits Below Texoma."

111. See "Lots of County History Sits Below Texoma."

112. From McCuan interview.

113. From McCuan interview.

114. In 1937 Denison had a population of 13,800, Sherman- 15,700, and Durant- 7,400. See *Congressional Drainage Basin Committees' Reports for the Red and Ouachita Basins* (Washington, D.C.: USGPO, December 1937).

115. See Public Law # 761, Seventy-fifth Congress, Third Session, *Flood Control Act of 1938*, (Washington, D.C.: USGPO, 28 June 1938).

116. While it is documented in a number of places that opposition to the project helped to lower the height of the dam, the only opposition mentioned in the records is Governor Phillips of Oklahoma. There may have been others involved in this but no clear documentation was found. For more information on this see "Lets Not Build a Dam," *Daily Oklahoman*, 19 March 1939; "Lets Build a Dam! Here Are Men and Scenes Involved," *Daily Oklahoman*, 26 March 1939; "Hope for Milder Stand on Dam by Phillips is Seen," *Denison (Texas) Daily Herald*, 8 June 1939; "Denison Dam Design Given Army Approval; $50,800,290 Project May Start in Fall; Height Cut Slightly," *Dallas Morning News*, 20 May 1939.

117. The reservoir size at a pool elevation of 640 feet would have been 35,900 acres in Texas and 91,700 acres in Oklahoma. At a pool elevation of 617 feet, the existing normal pool elevation, the reservoir flooded 26,000 acres in Texas

and 69,000 in Oklahoma. See "Denison Dam Design Given Army Approval; $50,800,290 Project May Start in Fall; Height Cut Slightly," *Dallas Morning News*, 20 May 1939.

118. See "Huge $54,000,000 Denison Dam Project is Virtually Completed."

119. Some of these communities were little more than hamlets. Isom Springs, for example, only had a population of 12. The largest of these four towns were Hagerman, Powell, Aylesworth, and Woodville. Two articles that discussed some of the smaller places to be inundated were Robert E. Hicks "Huge $54,000,000 Denison Dam Project is Virtually Completed," *Fort Worth Star Telegram*, 13 July 1943; and "Historic Sites to Disappear As Lake Fills: Red River Dam Means Obliteration of Places Remembered by Residents of Area," *Dallas Morning News*, 10 November 1939.

120. From McCuan interview.

121. The town was name after Judge Woods who was on the federal bench during the territorial days and who owned a farm nearby. From a WPA file found in the Oklahoma Historical Society Records in Oklahoma City.

122. From McCuan interview.

123. From McCuan interview.

124. For more information on the conditions of the area prior to the Denison Dam see *Recreational Resources of the Denison Dam and Reservoir Project.*

125. From McCuan Interview.

126. See Carol Campbell, "Woodville Survives- In Memories," *Daily Oklahoman*, 10 June 1991.

127. See "Woodville Survives- In Memories."

128. From McCuan Interview.

129. See "Woodville Survives- In Memories."

130. From McCuan Interview.

131. From McCuan interview.

132. See "Says Woodville Residents Give Favor for Dam," *Denison Daily Herald,* 19 January 1939.

133. Like Harney-turned-Woodville, Aylesworth was also affected by the coming of the railroads. In order to honor one of the surveyors of the Arkansas-

Choctaw Railroad, and therefore ensure that the line would run through their town, the community renamed itself Aylesworth. The original town name was Ball, Oklahoma. From the WPA file on Aylesworth located at the Oklahoma State Historical Society in Oklahoma City.

134. See "Dam Town, Ghost-to-Be, Enjoys Boom," *Oklahoma City Times*, 3 October 1940.

135. See "Dam Town, Ghost-to-Be, Enjoys Boom."

136. See "Dam Town, Ghost-to-Be, Enjoys Boom."

137. See "Huge $54,000,000 Denison Dam Project is Virtually Completed."

138. See "Huge $54,000,000 Denison Dam Project is Virtually Completed."

139. See "Huge $54,000,000 Denison Dam Project is Virtually Completed."

140. See *Recreational Resources of the Denison Dam and Reservoir Project.*

141. Some early Native American archeological sites were discovered near the confluence of the Washita and Red during construction of the dam. In a race against the Army Corps, archaeologists from the University of Oklahoma with help from the Works Project Administration around 1941 began to excavate and move as much as possible before the areas were flooded by the rising lake. The information found at these sites was looked upon as one of the missing links in the information they had concerning the relationship between the Southwestern tribes and the Southeastern tribes. See *Recreational Resources of the Denison Dam and Reservoir Project* for more information.

142. See "Denison Dam to Open New Industrial Era: Dedication Rites Set Saturday," *Dallas Morning News*, 25 June 1944.

143. See "Huge $54,000,000 Denison Dam Project is Virtually Completed."

144. From an unpublished document found in the Denison Public Library Vertical File on Lake Texoma entitled *Lake Texoma and Denison Dam* by Todd Garner, 7 April 1983.

145. Glen Eden was the mansion built by Col. Holland Coffee in the 1830's. The Indian Trading Post that Col. Coffee built alongside his mansion was the focal point for future settlement into the area. The town of Preston grew up around the old Trading Post and an Army Fort that was created to protect area residents against marauding Indians. In the early days of construction of Denison Dam, the National Park Service was called out to the area to survey the recreational possibilities the new reservoir would hold. One of their tasks was to inventory the historical sites that were destined to be submerged. Glen Eden was the most prominent of the old structures and was taken apart piece by piece

and numbered so that it could later be reconstructed on higher ground. Unfortunately this was never done. There was a group of German Prisoners of War helping to clear timber from the reservoir site that were camped near the southern end of the dam where the numbered boards were being stored. One cold winter the prisoners gathered the lumber up and burned it to keep warm. The only thing that remains of the site is a granite marker in the Preston cemetery. For more information on the historical sites see *Socio-Economic Effects of Lake Texoma Reservoir*; "Lake Texoma's History Full of Interesting Facts," *Durant (Oklahoma) Daily Democrat*, 22 February 1983; "Denison Dam to Open New Industrial Era: Dedication Rites Set Saturday," *Dallas Morning News*, 25 June 1944; "Denison Dam Design Given Army Approval; $50,800,290 Project May Start in Fall; Height Cut Slightly," *Dallas Morning News*, 20 May 1939; Clift, John., "Lake Texoma's Golden Anniversary!," *The Lake Texoma Magazine; 1994 Anniversary Edition*, (Arlington, Texas.: Lake Publications, 1994).

146. See "Red River Dam Turns Big Issue in Oklahoma: New Governor Flails Project in First Message to Legislature: State Split on Proposal," *Fort Worth Star Telegram*, 15 January 1939.

147. See Otis Sullivant "The Next Governor," *Daily Oklahoman*, 13 November 1938.

148. See "The Red River Dam- 155,000 Acre Lake," *Daily Oklahoman*, 7 July 1935.

149. See "Phillips Wants Series of Dams Instead of One," *Denison Daily Herald*, 25 July 1939.

150. See "The Red River Dam- 155,000 Acre Lake," *Daily Oklahoman*, 7 July 1935.

151. See "The Red River Dam-155,000 Acre Lake."

152. See "Red River Dam Turns Big Issue in Oklahoma: New Governor Flails Project in First Message to Legislature: State Split on Proposal," *Fort Worth Star Telegram*, 15 January 1939.

153. See "Red River Dam Turns Big Issue in Oklahoma."

154. See "Lets Build a Dam!"

155. See "Lets Build a Dam!"

156. See "Opposition of Phillips Unlikely to Kill Dam: Oklahoma Governor's Attitude Expected Only to Delay Denison Project," *Fort Worth Star Telegram*, 15 January 1939.

157. See "Red River Dam Turns Big Issue in Oklahoma."

158. See "Red River Dam Turns Big Issue in Oklahoma."

159. See "Red River Dam Turns Big Issue in Oklahoma."

160. See "Red River Dam Turns Big Issue in Oklahoma."

161. See "Opposition of Phillips Unlikely to Kill Dam."

162. See "Opposition of Phillips Unlikely to Kill Dam."

163. See "Governor Phillips Renews Attack on Denison Dam: Claims Plan Violation of State's Rights: Wants Legislature to Protest to Congress that Oklahoma Boundaries Would be Destroyed Under Plan: Demands State Be Given Hearing," *Denison Daily Herald*, 10 January 1939.

164. See "Opposition of Phillips Unlikely to Kill Dam."

165. See "Governor Phillips Renews Attack on Denison Dam."

166. See "Opposition of Phillips Unlikely to Kill Dam."

167. See "State's Rights Big Issue When Dam Discussed," *Denison Daily Herald*, 26 January 1939.

168. See "State's Rights Big Issue When Dam Discussed."

169. See "Phillips Fight Arouses Ire of Sooner Editors," *Denison Daily Herald*, 23 January 1939.

170. See "Oklahoma to Lose Projects Senator Says: Thomas Warns Fight on Dam Jeopardizes All State Projects," *Denison Daily Herald*, 20 January 1939.

171. See "Opposition of Phillips Unlikely to Kill Dam."

172. See "Opposition to Phillips Dam Stand Should Grows: Oklahoma Paper Finds Project Entirely Meritorious," *Denison Daily Herald*, 30 January 1939.

173. See "Opposition to Phillips Dam Stand Should Grows."

174. See "Says Opponents Are Stalling For More Time," *Denison Daily Herald*, 24 May 1939.

175. See "Hope For Milder Stand on Dam By Phillips is Seen," *Denison Daily Herald*, 8 June 1939.

176. See "Phillips Asks For Reduction in Dam Height: 'Compromise' Offer Would Erase Power: Engineers Not Expected to 'Fall' for Clever Power Ruse,"

Denison Daily Herald, 7 June 1939.

177. See "Phillips Wants Series of Dam Instead of One," *Denison Daily Herald*, 25 July 1939.

178. It is ironic that the state of Oklahoma, today with over 4,300 man-made lakes within its borders, went to court to claim the construction of Lake Texoma was unconstitutional. See *Oklahoma Water Atlas* p 64; "Constitutional Changes In Flood Program Considered if Necessary in Dam Case," *Denison Daily Herald*, 21 December 1939; "U.S. Would End Denison Dam Suit Filed By Phillips," *Dallas Morning News*, 1 October 1940.

179. See "Constitutional Changes in Flood Program Considered if Necessary in Dam Case," *Denison Daily Herald*, 21 December 1939.

180. See "Court Refuses to Void Writ on Denison Dam," *Dallas Morning News*, 24 October 1940.

181. See "Court Refuses to Void Writ on Denison Dam."

182. See "Denison Dam Project Okay, Court Holds," *Dallas Morning News*, 3 June 1941.

183. For a discussion on the development of Corps policy see Jamie W. Moore and Dorothy P. Moore, *The Army Corps of Engineers and the Evolution of Federal Flood Plain Management Policy* (Boulder: Program on Environment and Behavior Special Publication Number 20., Institute of Behavioral Science-University of Colorado, 1989).

184. See Luna B. Leopold and Thomas Maddox Jr., *The Flood Control Controversy: Big Dams, Little Dams, and Land Management* (New York: sponsored by the Conservation Foundation, Ronald Press, 1954) p 84.

185. The idea that interagency rivalries for funds would intensify during World War II in anticipation of the post-war boom first came to light during a conversation with an environmental historian at the University of Oklahoma named Dr. Donald Pisani in the fall of 1993.

186. Only 22 of the 219 projects the Corps was directed to construct dealt with reservoirs. Most were additional levee construction, which was the Corps "flood control" philosophy before the Flood Control Act. While there was a shift starting to take place towards reservoirs, it was only in its initial stages by 1936.

187. The impetus behind the Oklahoma desire to institute flood control was the disastrous flooding that occurred in the state in the spring of 1923. Damages from the flooding included the destruction of the dam that held back the city of Oklahoma City's municipal water supply, later called Lake Overholser, as well as

every wagon and railroad bridge in the state. It was feared that the entire city would be flooded by both the North Canadian River and the water from Lake Overholser. This got the attention of both the leaders in the state capital and the railroads, who had to wait for their tracks to be repaired before they could cross Oklahoma again.

188. Large dams for water storage had begun to appear in the state of California in the 1920's. Large dams such as Boulder Dam on the Colorado River were becoming almost tourist destinations. People were awed by the site of these structures. See Robert E. Kerr, *Land, Wood and Water*, (New York: Fleet Publishers, 1960) pp 98-104.

189. At the time it was constructed, Denison Dam was the largest rolled-fill earthen dam in the world. The reservoir impounded behind the dam was to be a monument to the achievements of mankind, and the Army Corps of Engineers.

190. Actual construction of these plans didn't begin until 1947. See Soil Conservation Society of America, *Oklahoma Celebrates the Golden Anniversary of Soil Conservation*, (Oklahoma City: Soil Conservation Society of America, 1984).

191. Unlike the Army Corps plans, the SCS treatments were all voluntary. A landowner could either choose to participate or not in the programs the SCS were advocating. To improve local cooperation in these ventures, Soil and Water Conservation districts were created, usually at the county level. Oklahoma passed the model law allowing the creation of these entities in 1937. In this way the SCS could educate the landowners and let peer pressure persuade some that participation was in their best interests.

192. This was determined by the degree of erosion that had already occurred on the land as well as the degree of slope found on the land. Steep slopes were recommended not to be used for cropland. About 200,000 acres in the Washita Basin had been so badly eroded they were abandoned by the owners. These lands were reseeded with native prairie grass to stabilize the soil and provide future pasture land. See, Soil Conservation Service--U.S. Department of Agriculture, *The Washita River: Progress Status, Washita River Flood Prevention Project*, (Stillwater, Oklahoma: USDA, no date).

193. See House Document Number 275.

194. See Arthur Maas, *Muddy Waters: The Army Engineers and the Nations Rivers* (Cambridge, Massachusetts: Harvard University Press, 1951), for more on the Army Corps during this period.

195. Elmer Petersen writes, "This [the Washita Basin project] is not the only project of the kind, since, at this writing, there are ten others in the nation, but this one is regarded as more or less of a 'pilot' project- at any rate it has received

more national publicity than any other." *Big Dam Foolishness: The Problem of Modern Flood Control and Water Storage*, (New York: Devin-Adair, 1954) p 161.

196. See Charles Straub, "Little Dams Stop Big Floods," *The Farm*, 13:3 (Autumn- 1958).

197. See Soil Conservation Society of America, *Oklahoma Celebrates the Golden Anniversary of Soil Conservation* (Oklahoma City: Soil Conservation Society of America, 1984) p 94.

198. See *Oklahoma Celebrates the Golden Anniversary of Soil Conservation*, p 65.

199. See Robert S. Kerr, *Land, Wood, and Water* (New York: Fleet Publishers, 1960) p 293.

200. "In fact, the pioneer efforts for the Washita Valley Project led to the national upstream program..." See Robert S. Kerr, *Land, Wood and Water* (New York: Fleet Publishers, 1960) p 293.

201. See R. Burnell Held and Marion Clawson, *Soil Conservation in Perspective*, (Baltimore: Resources For the Future by Johns Hopkins Press, 1965) p 78.

202. See *Soil Conservation in Perspective*, p 78.

203. For more on the "Big dam vs. Small dam" debate see, *Big Dam Foolishness: The Problem of Modern Flood Control and Water Storage*, by Elmer Petersen, Devin-Adair, New York, 1954.; "Little Dams Stop Big Floods"; and *The Flood Control Controversy.*

204. See *Big Dam Foolishness*, p 47.

205. See *Big Dam Foolishness*, p 48.

206. See *Big Dam Foolishness*, p 165.

207. See *The Flood Control Controversy*, p 87.

208. See *Soil Conservation in Perspective*, p 78.

209. See "Possibilities of Lake Texoma," *Dallas Times Herald*, 19 October 1945.

210. See Lake Texoma Association, "We Have What You Want," *1993 Lake Texoma and Surrounding Area* (Kingston, Oklahoma: Lake Texoma Association, 1993).

211. Back then the River was under French influence and was referred to on maps as Riviere Rouge. See *Recreational Resources of the Denison Dam and Reservoir Project*, p 15.

212. See *Recreational Resources of the Denison Dam and Reservoir Project.*

213. This bend is known as Preston Bend.

214. See *Recreational Resources of Denison Dam and Reservoir Project.*

215. See *Recreational Resources of the Denison Dam and Reservoir Project,* p 16.

216. See *Recreational Resources of the Denison Dam and Reservoir Project*, p 17.

217. The site of the old Colbert ferry is approximately where Highway 75 now crosses the Red River.

218. The 2,795 mile long route, aside from establishing the first mail contract with the federal government connecting St. Louis to California, became in the 1860's an important migration route for people moving west. The trip took, on average, about twenty-five days and would typically cost a traveler $200 from the St. Louis Arch to the Golden Gate. See *Recreational Resources of the Denison Dam and Reservoir Project* for more.

219. See W.B. Morrison, "Colbert Ferry on Red River, Chickasaw Nation, Indian Territory; Recollections of John Malcolm, Pioneer Ferryman," *Chronicles Of Oklahoma* 16:3 (September 1938): pp 302-314.

220. Denison was the second choice of the KATY promoters. Their first choice was actually Sherman, Texas ten miles further south. Sherman, however, refused to pay a bonus of $50,000 to the rail line. Denison was created instead and named after one of the KATY promoters. Red River City was too untamed and didn't have the capital to attract them. Denison was the terminus of the line in Texas. See James D. Morrison, "The Union Pacific, Southern Branch," *Chronicles of Oklahoma* 14:2 (June 1936).

221. Jefferson is on Cypress Bayou, which flows east into Caddo Lake and is connected further downstream to the Red River.

222. Commercial statistics aren't available until 1880 for Red River cargos upstream to Jefferson. See House Document Number 378, Seventy-fourth Congress, Second Session, Red River, LA., ARK., OKLA., and TEX.: Letter from the Secretary of War Transmitting Pursuant to Section 1 of the River and Harbor Act Approved January 21, 1927, Section 10 of the Flood Control Act Approved May 15, 1928, and the River and Harbor Acts Approved March 3,

1925, and July 3, 1930; A Letter from the Chief of Engineers, U.S. Army, Dated Dec. 2, 1935, Submitting a Report, Together with Accompanying Papers and Illustrations, Containing a General Plan for the Improvement of Red River, LA., ARK., OKLA., and TEX., for the Purposes of Navigation and Efficient Development of its Water Power, The Control of Floods, and the Needs of Irrigation (Washington, D.C.: USGPO, 3 January 1936).

223. See House Document Number 378.

224. Capt. Shreve later founded the town of Shreveport, Louisiana on the banks of the Red. See Fred Tarpley, *Jefferson: Riverport to the Southwest* (Wolfe City, Texas: Henington Publishers, 1983).

225. It should be noted that the raft presented more of a barrier to steamboats and larger vessels than it did to the smaller flatboats that helped settle the upper Red River Valley. Since the main channel of the River was clogged with debris, much of the water dammed up by the structure flowed around the mass of wood and formed parallel waterways. These flooded areas adjacent to the Red were shallow and slow moving, making them easy for flatboats to get through but too shallow for steamers. Travel around the raft via these was not necessarily pleasant. The slow moving water meant that mosquitoes and other insects thrived in these areas. The threat of malaria made this more than just a nuisance for travelers. Another difficulty with the shallow waters was the presence of drifting logs just below the surface that could tear into the hull of a boat. For steamboats, there was little incentive to try and circumnavigate the Great Raft to reach the upper Red River with conditions the way they were.

226. The Army Engineer in charge of the operation to destroy the raft, Lt. E.A, Woodruff, decided this time to use nitroglycerin, which had recently been developed, along with snag boats. When the snag boats were having difficulty moving sections of the jam, 10-20 pound cans were sunk in the Red and detonated. The use of nitroglycerin not only saved time but also broke up the debris into smaller pieces which could be disposed of more easily.

227. While the Oklahoma town of Durant had some outspoken citizens that advocated navigation, they never seemed to organize as well as Denison.

228. Weibens was a hardware merchant from Durant who had recently built a small steamboat, thirty-six feet long and six feet wide, specifically to ply the waters of the Red River. Before the journey, members of the Denison Board of Trade convinced Weibens to rename the boat *Denison.* Previously, it had been called the *Durant.*

229. See House Document Number 378.

230. Historically, the Red River had been legally considered navigable. The Adams- Onis Treaty granting the United States ownership to the land was cited

by the State of Oklahoma as evidence. See Carl Newton Tyson, *The Red River In Southwestern History* (Norman, Oklahoma: University of Oklahoma Press, 1981).

231. See *The Red River In Southwestern History.*

232. Moulton was the step-son of an early Denison entrepreneur, Col. J.B. McDougall. McDougall owned a range of businesses in town ranging from a laundry, to a bank and opera house. McDougall's successes ensured Moulton a comfortable legacy which allowed him to pursue other interests. See Claud Easterly, "Moulton's Idea Became Reality," *Denison Daily Herald*, 17 October 1993.

233. Boulder Dam is now referred to as Hoover Dam. Newspaper articles refer to Moulton's trip out west as occuring in the 1920's but the Boulder Dam wasn't begun until 1931. See "Moulton's Idea Became Reality."

234. Railroad rates were boosted twice in the late 1920's. In April, 1927, the Interstate Commerce Commission cleared the way for rails to increase rates in this part of the country. Another increase followed soon thereafter in 1928. Local leaders claimed that the high rail rates had retarded growth in the region, particularly in regard to manufacturing, and that was why there was no local industry that would immediately benefit from the establishment of navigation. They argued that if the Red was improved, industry would boom. Although the Corps did admit later that freight charges were higher, they claimed it was a function of population density and disputed the claim that high transportation costs alone had retarded growth in the area. See House Document Number 378 for more.

235. See House Document Number 378, p 254.

236. See House Document 378, p 254.

237. See House Document Number 378, p 3.

238. The plan the Corps came up with for improving navigation on the Red involved a system of reservoirs downstream from Denison. To provide adequate control of the flow of the river these reservoirs would have to be kept full as often as possible. This meant that there would be no room left for storage of floodwater. This put the plan at odds with the flood control aims of the Congressional Flood Control Committee. An alternative that was mentioned was the construction of ten reservoirs with uncontrolled outlets together with a series of locks and dams from Denison to the mouth of the Red. Taken together, the immense construction cost of the project and the limited traffic the Corps foresaw doomed the project from the start. Overall cost was estimated to be $261,000,000 while the potential benefits totaled only $17,000,000. See House Document Number 378 for more.

239. After the Denison Dam project had been authorized in 1939, some die-hard navigation advocates in the area lobbied Congress to re-evaluate the potential benefits the projects could have on navigation. One of the most vocal supporters of this review was George Moulton, the man considered to be the father of the Denison Dam idea. This was one of the last gasps of the navigation movement and did little to influence those in power. See "Moulton's Idea Became Reality"; "Hearings This Week to Mark Revival of Engineers' Study of Navigation Possibilities," *Denison Daily Herald*, 12 March 1939.; "Many Benefits Loom For Area During, After Building of Dam," *Denison Daily Herald*, 19 August 1939.

240. See *Jefferson: Riverport to the Southwest.*

241. See *Jefferson: Riverport to the Southwest.*

242. See "Taking the Long View," *Denison Daily Herald,* 6 April 1939.

243. See House Document Number 378.

244. See House Document Number 378.

245. See Claud Easterly, "Denison's 'Impossible Dream' Turns 50," *Denison Daily Herald*, 17 October 1993.

246. See "Today: In Denison," *Denison Daily Herald*, 12 August 1938.

247. See Claud Easterly, "Colbert Not Asleep at the Switch, Starts Work to Bring Realization of Red River Dam Expansion Dream," *Denison Daily Herald*, 24 April 1939.

248. See "Hospital Started As First Enterprise at Oklahoma Dam Town," *Denison Daily Herald*, 12 July 1939.

249. See "Dam Activity at Colbert Pushed," *Denison Daily Herald*, 5 July 1939.

250. See "Colbert Not Asleep at the Switch."

251. See "Booms Exist Where Dams are Being Constructed; Project Would Have its Effect Here," *Denison Daily Herald*, 28 April, 1939.

252. This is about five times more than the average price per acre the government gave residents in the Denison Dam reservoir area. See "Grand River Dam Adds Life to Former Sleepy Section," *Denison Daily Herald*, 19 April, 1939.

253. See "Dam Encourages Tishomingo Man," *Denison Daily Herald*, 4 October 1939.

254. See "Today: In Denison," *Denison Daily Herald*, 20 June 1939.

255. Primarily due to the combination of abundant power and water, as well as the local natural resources, four industries were identified; the manufacture of fertilizer, plastic, synthetic rubber and chemicals. Other industries that were widely thought to develop were cotton textiles, paper milling and timber-treating. See House Document Number 541, p 40; also "Dams Abundant Water Supply Brings Varied Industrial Possibilities Here; Survey Lists Advantages for Post-War Expansions," *Denison Daily Herald*, 29 June 1944.

256. See House Document Number 378, p 604.

257. See "Railroads Watch Dam Development," *Denison Daily Herald*, 18 July 1939.

258. See "Today: In Denison," *Denison Daily Herald*, 12 August, 1938.

259. See "Today: In Denison," *Denison Daily Herald*, 20 June 1939.

260. See U.S. Army Corps of Engineers, *General Information: Denison Dam and Lake Texoma* (Tulsa, Oklahoma: date unknown).

261. Francis Gajan of the Southwestern Power Administration was quoted in 1987 as saying, *"If the Texoma area is going to continue to grow and continue to attract more people and industry, it will have to be able to meet that demand. And the quickest way to meet it is with hydropower from generators on the Denison Dam."* Based upon this statement, it seems as though the hopes of the Dam attracting numerous industries due to cheap power are still alive today. See "U.S. Official Predicts Growing Need For Denison Dam Generators," *Dallas Morning News*, 31 October 1987.

262. See *Socio-Economic Effects of Lake Texoma Reservoir: Volume I*, p 177.

263. See *Socio-Economic Effects of Lake Texoma Reservoir--Volume I,* p 105.

264. See *Socio-Economic Effects of Lake Texoma Reservoir--Volume I*, p 103.

265. See *Socio-Economic Effects of Lake Texoma Reservoir--Volume I*, p 322.

266. See *Socio-Economic Effects of Lake Texoma Reservoir--Volume I*, p xliv.

267. See *Recreational Resources of the Denison Dam and Reservoir Project.*

268. See *Recreational Resources of the Denison Dam and Reservoir Project*, p 44.

269. See "Denison Dam Seen as Boon," *Denison Daily Herald*, 26 March 1939.

270. This was accomplished under authorization of the Park, Parkway, and Recreation Study Act of June 23, 1936. See *Recreational Resources of the Denison Dam and Reservoir Project*, p x.

271. See *Recreational Resources of the Denison Dam and Reservoir Project*, Foreword.

272. See *Recreational Resources of the Denison Dam and Reservoir Project*, p 9.

273. The original name of Grand Lake, Pensacola Reservoir is referred to in *Recreational Resources of the Denison Dam and Reservoir Project.*

274. See William T. Rives, "Denison Fearing Dissolution of Lake Texoma Park Dream," *Dallas Morning News*, 17 February 1946.

275. See "Denison Fearing Dissolution of Lake Texoma Park Dream.".

276. See "Denison Fearing Dissolution of Lake Texoma Park Dream."

277. See "Denison Fearing Dissolution of Lake Texoma Park Dream."

278. The group was originally called the Lake Texoma Sportsmen Club.

279. See Donald James Voeller, *Development and Distribution of Recreational Facilities in the Lake Texoma Project Area* (University of Oklahoma Thesis, Norman, Oklahoma: 1962).

280. See *Socio-Economic Effects of Lake Texoma Reservoir: Volume III.*

281. See *Development and Distribution of Recreational Facilities in the Lake Texoma Project Area.*

282. See *Development and Distribution of Recreational Resources in Lake Texoma Project Area.*

283. See "Current Comment: Denison Dam," *Denison Daily Herald*, 23 August 1939; "Tourist Trade to Be Big When Dam Built Here," *Denison Daily Herald*, 2 May 1939.

284. See "Many Planning to Use Boats on Lake," *Denison Daily Herald*, 29 June 1944.

285. See "Possibilities of Lake Texoma," *Dallas Times Herald*, 19 October 1945.

286. See "Lake Texhoma Shores to be Scene of Huge Recreation Project," *Dallas Morning News*, 10 June 1945.

287. See "Texoma Tourists Set New Record," *Dallas Times Herald*, 1 October 1948.

288. See "2,397,508 Visit Lake Texoma," *Dallas Times Herald*, 27 October 1948. The National Park Service in calculating the attendance figures used a "travel year," which ended in September instead of a normal calendar year.

289. See "2,397,508 Visit Lake Texoma."

290. See "Tourists Rate Texoma Tops," *Dallas Times Herald*, 1 August 1948.

291. See "Lake Texoma Draws Over Seven Million," *Dallas Morning News*, 2 January 1959; "Lake Texoma Tourists Set Records in 1965," *Dallas Morning News*, 7 January 1966; Montgomery, Bill., "Lake Texoma Packs 'Em In For New Record," *Dallas Times Herald*, 25 August 1952; "6,598,704 At Texoma During '55," *Dallas Morning News*, 8 January 1956; "Texoma Heading For Record Year," *Dallas Times Herald*, 13 September 1955; "Attendance at Texoma Runs High," *Dallas Times Herald*, 7 September 1967.

292. See "Texoma State Park Resort Appears Near," *Durant Weekly News*, 25 July 1952.

293. See "232,690 Visitors Jam Lake Texoma Resorts on July 4th Holiday," *Dallas Times Herald*, 8 July 1952.

294. See Jean Simmons, "Texoma Draws 'Em in By the Millions: Much For All," *Dallas Morning News*, 15 June 1958.

295. See "Texoma Draws 'Em in By the Millions."

296. See "Texoma Plans," *Dallas Morning News*, 30 September 1958; Kenneth Foree, "Gigantic Marina At Texoma to be Model For U.S.," *Dallas Morning News*, 7 July 1960.

297. See "Gigantic Marina At Texoma to be Model for U.S."

298. See John Clift "Lake Texoma's Golden Anniversary!," *The Lake Texoma Magazine: 1994 Anniversary Edition* (Arlington, Texas: Lake Publications, 1994).

299. See "Lake Texoma's Golden Anniversary!." Another English channel swimmer, Roy Sutter, was attracted to Lake Texoma to train in 1950 as well. See "Swimmer is Chilled By Texoma Dip: 3-Mile Stint," *Dallas Morning News*, 9 January 1950.; "Resort at Lake Texoma Will Be Host to Swimmer," *Dallas Times Herald*, 29 December 1949.

300. See "Texoma Popular With Sportsmen," *Dallas Times Herald*, 27 August 1967.

301. See Durant Chamber of Commerce, *Facts About Lake Texoma: From Durant, Oklahoma, Gateway to the Fabulous Recreation Area* (Durant, Oklahoma: no date).

302. See Leonard Kimsey, "A Veritable Sportsman' Paradise: Lake Texoma Provides Fishermen With All They Can Take Away," *Dallas Times Herald*, 23 April 1950.

303. See Alfred Houser, *A Study of the Commercial Fishery of Lake Texoma*, (Thesis- University of Oklahoma, Norman, Oklahoma: 1957).

304. It wasn't known whether or not the "Stripers" would take hold in the lake or not since they thrive in salty water. They did prove successful in adapting to Texoma's slightly brackish water and soon became the most popular sport fish in the lake.

305. See "Commercial Fishing Banned Indefinitely," *Dallas Morning News*, 10 November 1970.

306. See Lake Country Tourism Association, *1993 Adventure Guide to Oklahoma's Lake Country* 5:5 (1993): (Oklahoma City: Resource Design Associates, Inc., 1993). p 16.

307. See "Texoma Popular With Sportsmen," *Dallas Times Herald*, 27 August 1967; "Lure of the Lakes," *Dallas Morning News*, 13 January 1971; "Texoma Birthday," *Dallas Morning News*, 5 July 1965.

308. "Engineer Says Texoma Okay," *Dallas Morning News,* 16 October 1949.

309. See Gilbert Hall, "Big Lakes Also 'Bait' To Tourists: Recreational Program Defended as Lush State Industry," *Oklahoma City Times*, 4 May 1954.

310. See Don Swanson, "Texoma Appeal for Aid Killed," *Dallas Times Herald*, 21 November 1956.

311. See *Once in a Hundred Years.*

312. See David Hanners, "Plan to Tap Texoma Irks Outdoor Fans," *Dallas Morning News*, 12 April 1987.

313. See John Gutierrez-Mier, "Marinas Suffer As Water Levels Climb, Plunge: 2 Lakes Face the Opposite Problems," *Dallas Morning News*, 14 June 1987.

314. See Lake Texoma Association, *The Guide to Lake Texoma* (Oklahoma City: Resource Design Associates, Inc., 1993).

315. See Lake Texoma Association, "We Have What You Want," *1993 Lake Texoma and Surrounding Area* (Kingston, Oklahoma: Lake Texoma Association,

1993).

316. See *1993 Adventure Guide to Oklahoma's Lake Country.*

317. Most of the sediment settles out in the upper stretches of the lake where the rivers flow into it.

318. For more readings on the concept of metaphor see Warren A. Shibles, *Metaphor: An Annotated Bibliography and History* (Whitewater, WI: The Language Press, 1971).

319. See eds. Trevor J. Barnes and James S. Duncan, *Writing Worlds: Discourse, Text and Metaphor in the Representation of Landscape* (New York: Routledge, 1992) p 10.

320. "What metaphor is can never be determined with a single answer." See Wayne C. Booth "Ten Literal 'Theses'," *On Metaphor*, ed. Sheldon Sacks, (Chicago: University of Chicago Press, 1978) p 173.

321. As quoted by Paul Ricoeur, "The Metaphorical Process as Cognition, Imagination, and Feeling," *On Metaphor*, ed. Sheldon Sacks, (Chicago: University of Chicago Press, 1978) p 152. An example of this type of shift in perception in the geographical literature can be seen in D.W. Meinig's "The Beholding Eye: Ten Versions of the Same Scene," *The Interpretation of Ordinary Landscapes*, (New York: Oxford University Press, 1979).

322. See Karsten Harries "The Many Uses of Metaphor," *On Metaphor*, ed. Sheldon Sacks, (Chicago: University of Chicago Press, 1978) p 167.

323. See Writing Worlds, p 10.

324. Usually the academic geneaology for this idea is extended as far back as J.K. Wrights seminal paper "Terrae Incognitae: The Place of the Imagination in Geography," *Annals of the Association of American Geographers* 37:1 (1947) pp 1-15.

325. See Yi-Fu Tuan, "Sign and Metaphor," *Annals of the Association of American Geographers*, 68:3 (September 1978): pp 363-372. The Philip Wheelwright quote is from *Metaphor and Reality* (Bloomington, Indiana: Indiana University Press, 1962).

326. See David N. Livingstone and Richard T. Harrison "Meaning Through Metaphor: Analogy as Epistemology," *Annals of the Association of American Geographers*, 71:1 (1981): pp 95-107.

327. See Warren A. Shibles, *Metaphor: An Annotated Bibliography and History* (Whitewater, WI: The Language Press, 1971).

328. See "Meaning Through Metaphor," p 98

329. See "The Metaphorical Process as Cognition, Imagination, and Feeling," p 147.

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OU–138