

# Twin Buttes Archaeological Report

David L. Nickels and Raymond P. Mauldin

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## **Dedication**

The report is dedicated to the memory of Mr. B. J. Corbell, owner of Spring Ranch Creek, for his generosity and genuine interest in our archaeological survey. He provided the authors with the motivation and desire to see this publication through to completion.

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## **Introduction**

The more than 12,000 acres of rich land now known as Twin Buttes Reservoir contains archaeological sites that tell a story of human occupation over the past 11,000 years. Few details about Native American life in this area were known prior to the survey conducted by the Center for Archaeological Research (CAR), The University of Texas at San Antonio. The reservoir area had not been intensively surveyed for archaeological sites, and CAR's survey provided a prime opportunity to fill knowledge gaps, and uncover evidence of nineteenth- and twentieth-century farming and stock raising activities carried out in the area.

The report begins with the monumental construction of the Twin Buttes Dam and an understanding of its importance to the region. Next are descriptions of the climate, soils, and plants and animals that have inhabited the area for thousands of years. You will gather an understanding of why we looked for archaeological sites where we did, and how we went about finding and documenting the 199 archaeological sites found during the survey of the Twin Buttes Reservoir area. With all the discoveries made at these sites, we are now able to reconstruct portions of an otherwise untold story that took place in western Tom Green County, Texas over the course of the past 11,000 years.

We hope you enjoy it!



Twin Buttes CAR collection

*Texas*

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## Twin Buttes Reservoir Construction

The construction of the Twin Buttes Dam was a monumental undertaking. A substantial amount of the earth used to build the 8.1-mile long dam came from the immediate area. The earthen-filled dam was built between May 3, 1960 and February 13, 1963. The structure has a volume of 21,442,000 cubic feet, an amount of earth which roughly equals a 10-foot square hole in the ground extending over 40 miles deep.

The reservoir retains runoff from 2,813 square miles of the Edwards Plateau and surrounding plains. Two separate reservoir pools, identified as the Main Pool and the South Pool, make up the reservoir (Figure 1). The pools are connected by an equalization canal and are frequently maintained at different water levels. When water levels rise to roughly 1926.5 feet, the two pools then join to form a single lake.

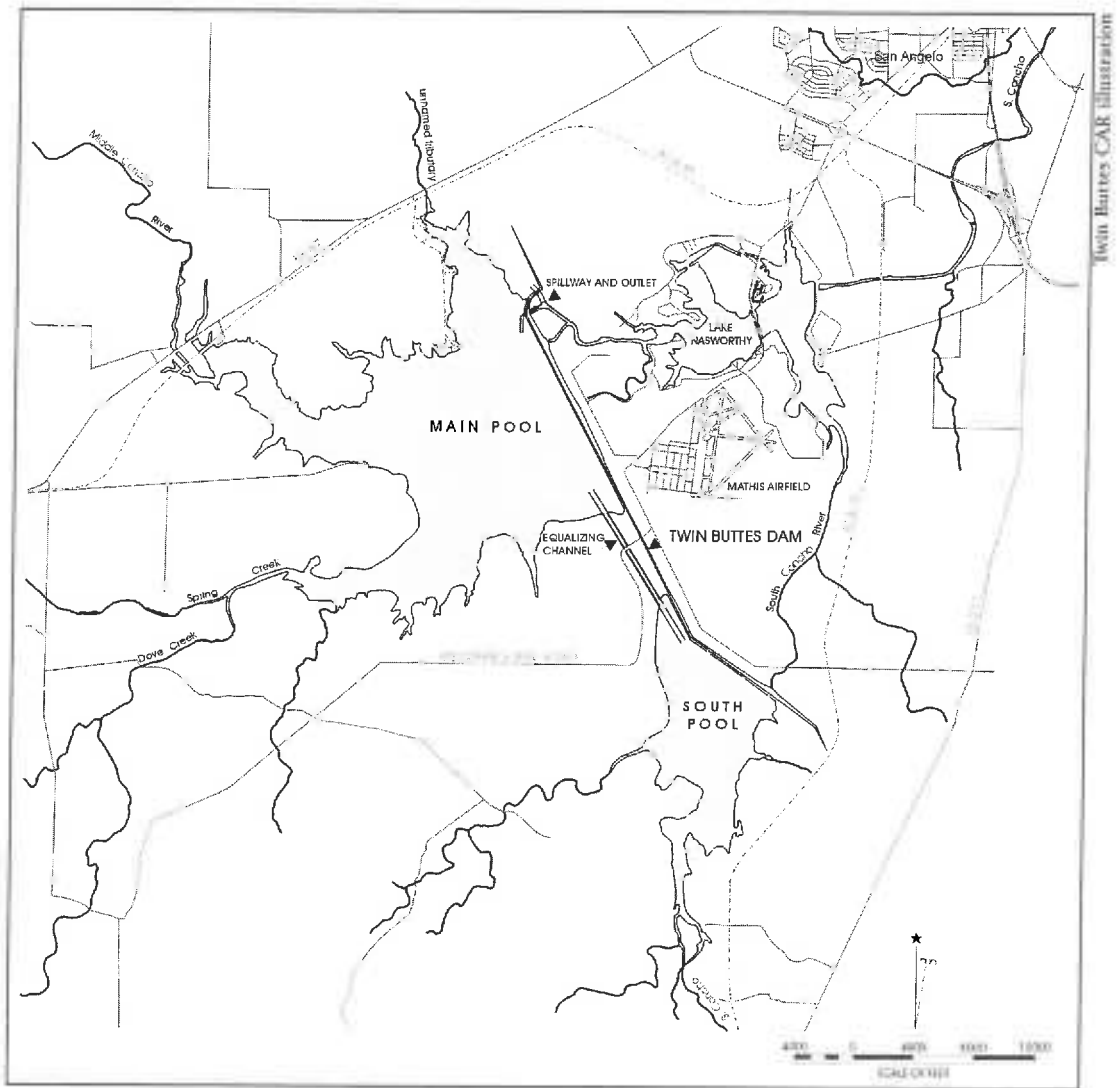


Figure 1. Map of the Twin Buttes Reservoir area.

Three primary drainages, the South Concho River, Spring Creek, and the Middle Concho River, flow into the reservoir. Below the dam, water is released from the Main Pool into the Middle Concho, and eventually flows into Lake Nasworthy located to the east (see Figure 1).

Since the dam was completed in 1963, water levels in the reservoir have fluctuated in response to the variable and unpredictable rainfall received in this portion of the state.

The amount of water held back by the dam is measured in acre-feet. An acre-foot of water is simply the amount of water it takes to cover an area of 43,560 square feet (1 acre) to a depth of one foot; this amounts to 325,851 gallons. In May 1975, the reservoir reached its all-time high of 205,200 acre-feet, nearly 67 billion gallons of water. However, this was recorded after an

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An acre-foot of water is the amount of water it takes to cover an area of 43,560 square feet (1 acre) to a depth of one foot.

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unusually wet year; normally the water level in the reservoir stays well below its 186,000 acre-feet (more than 60 billion gallon) capacity.

Figure 2 shows the amount of water that has been recorded in the reservoir since 1963, and how it has fluctuated over the years. Prior to August of 1971, the reservoir pool level was consistently below 23,500 acre-feet, a capacity that roughly translates into a little over 7½ billion gallons. From August 1971 through August 1983, the reservoir was well above the 50,000 acre-feet level, and held less than 16½ billion gallons. In the 1980s, lake levels declined reaching a low of 16,560 acre-feet, or about 5½ billion gallons. Throughout the late 1980s and into the 1990s, the water levels have continued to fluctuate dramatically.

The reservoir serves as an important source of water for the city of San Angelo, and offers recreational opportunities such as fishing, hunting, weekend camping, four-wheeling, and dirt bike racing for the people of Tom Green and other surrounding counties.

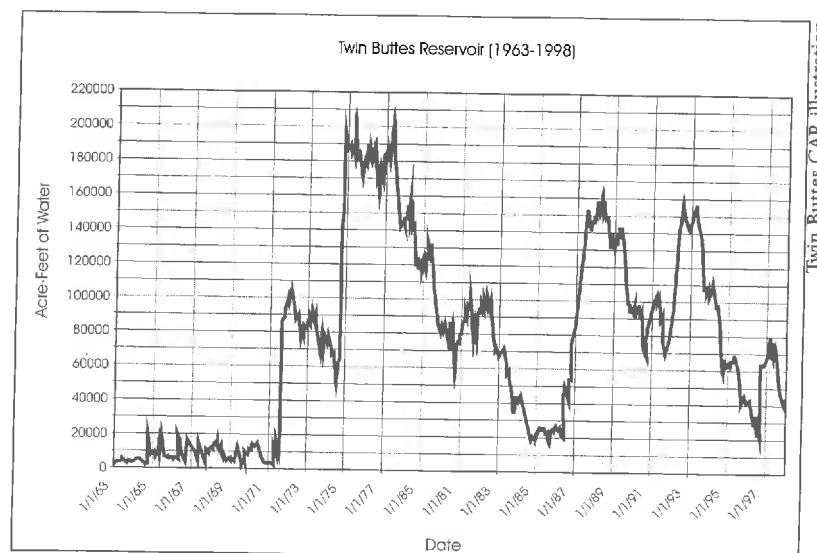


Figure 2. The reservoir began filling rapidly in 1972, but levels have since fluctuated.

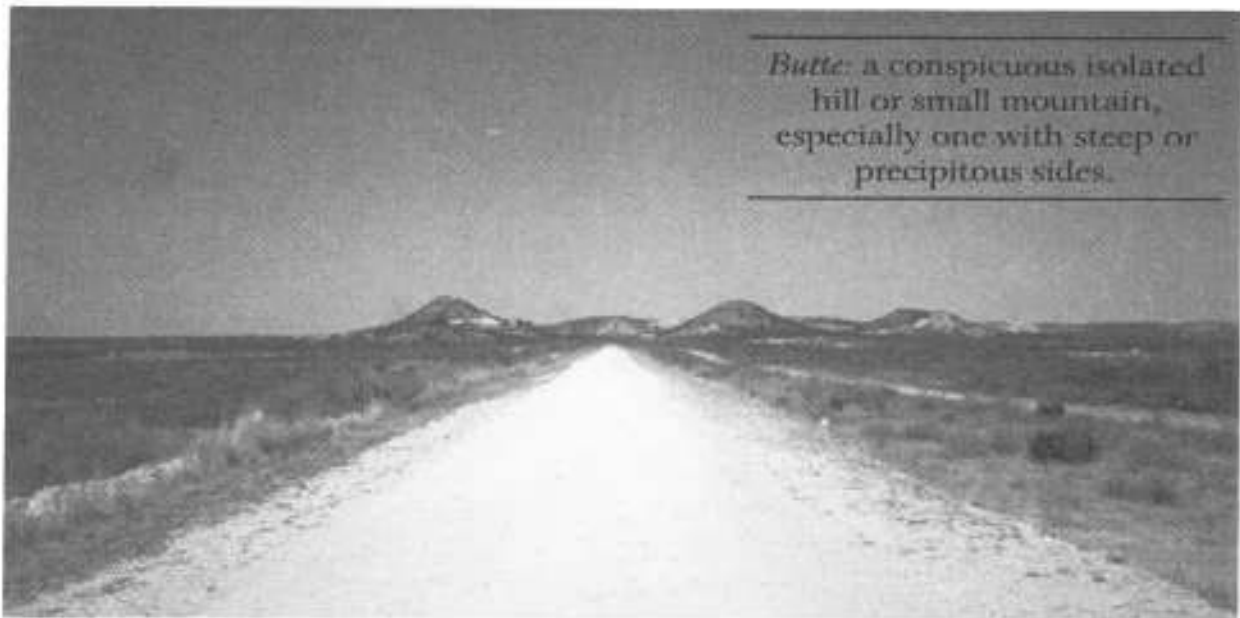


Twin Buttes CAR collection



Twin Buttes CAR collection

Much of the reservoir land is leased by individual ranchers for cattle and sheep grazing.



Twin Buttes CAR collection

Figure 3. This road (situated on top of the dam) leads towards the Twin Buttes feature, after which the reservoir was named.

## The Setting

### Introduction

The setting of an archaeological project provides information useful in understanding what resources were available to people. The native plants, animals, and types of water sources impact how an area was used, when it was used, and by whom.

### The Physical Environment

Tom Green County, located in west-central Texas, covers 989,000 acres and is comprised primarily of relatively flat ranch land, with about 195,000 acres used for farming (14,000 of which are irrigated). Twin Buttes Reservoir, in the western portion of Tom Green County, is named after two prominent features or mesas which tower to nearly 200 feet above the flat or gently sloping surrounding terrain.

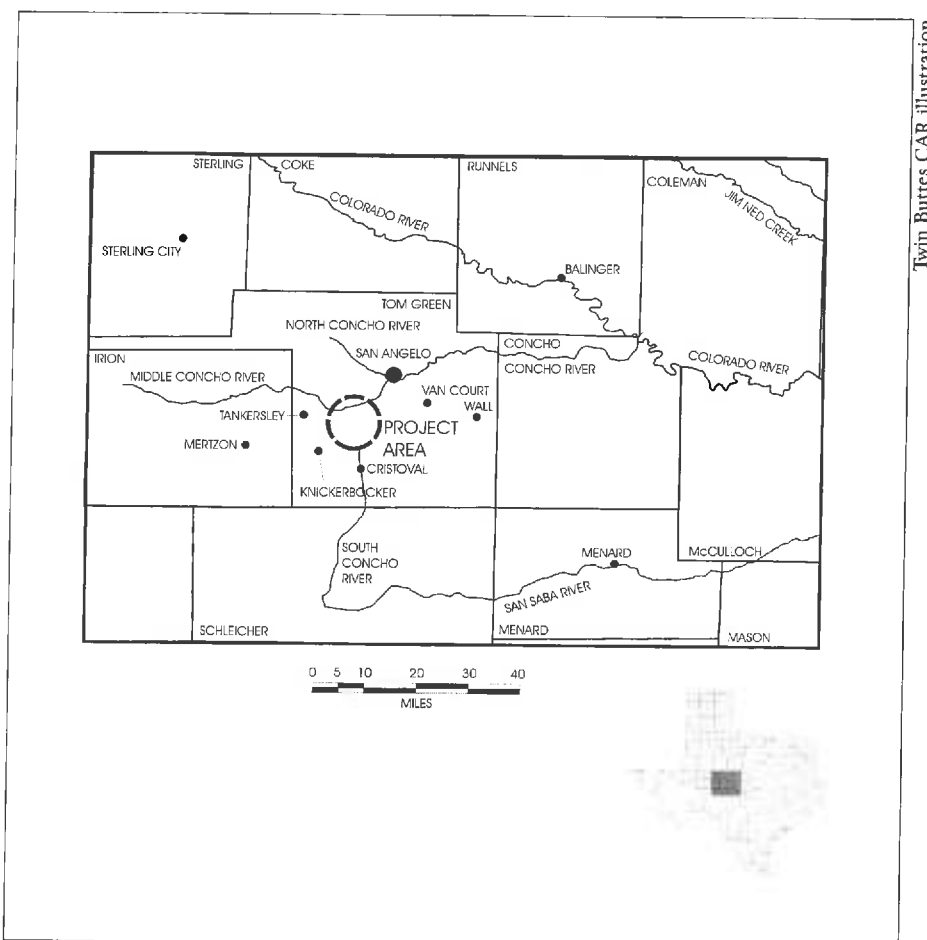


Figure 4. *Twin Buttes reservoir is located in west-central Tom Green County, in west-central Texas.*

## The Setting

Tom Green County is situated at the southern edge of the Rolling Plains (Osage Plains), an undulating plain with areas of steeply eroded canyons. To the south and west is the Edwards Plateau of Central Texas' "Hill Country," named for its rugged, stream-eroded topography (Figure 5).

The Rolling Plains, distinguished by the silty clay loams and stony clays found in valleys overlying the

silt and sandstone beds of Permian-age (between 245 and 286 million years old), covers about 80 percent of Tom Green County. Gradually, these plains change to the fine sandy loams located on the eroded slopes of the Edwards Plateau. Geologically, the area provides abundant outcrops of limestone and gravels from the Edwards limestone and San Angelo conglomerate formations.

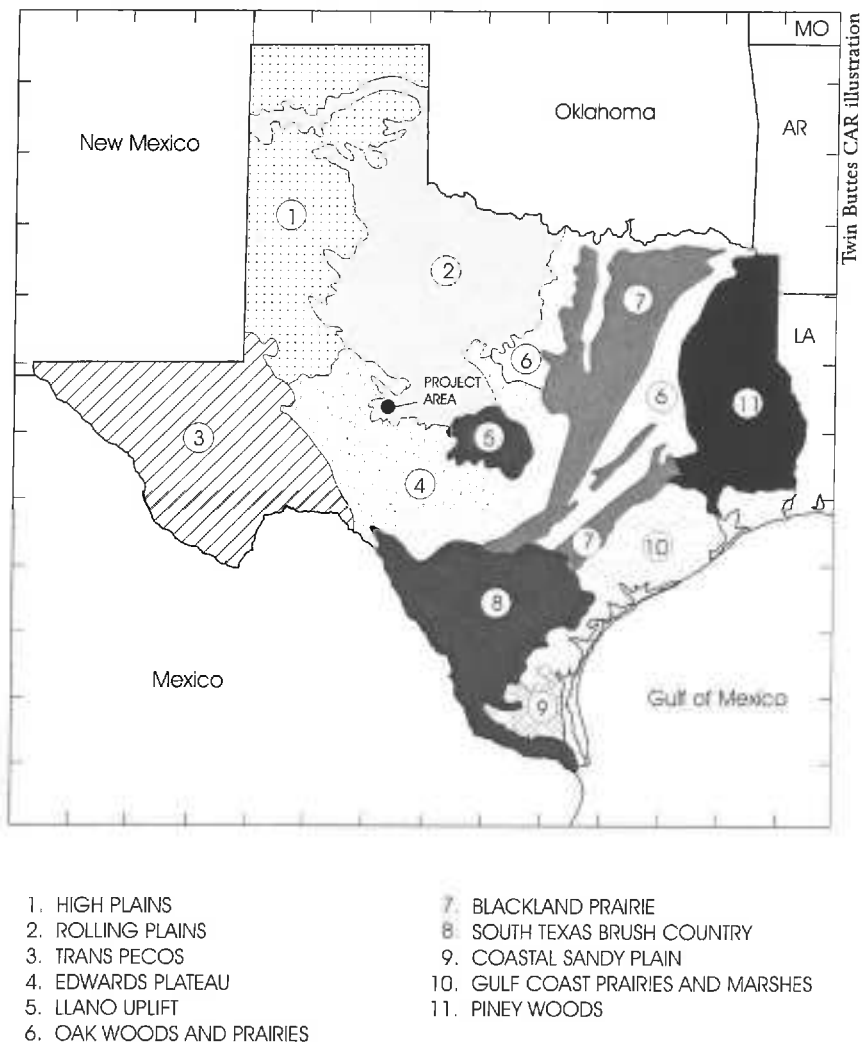


Figure 5. *Regions in Texas defined by the differences in topography and vegetation.*

## The Weather

The modern climate of the area is semi-arid, with humidity often in excess of 40 percent. Large fluctuations in temperature occur throughout the year, with average temperatures ranging from around 59 degrees in January to nearly 98 degrees in August.

Rainfall over the last 50 years has been about 20½ inches per year, although significant fluctuations are common. The driest year during this period was 1956, when only slightly more than seven inches fell. The wettest year on record was 1987 when over 38 inches fell (Figure 6). More than 64 percent of the annual rain occurs during the summer months (May–October), and the driest period is during the late fall, winter, and early spring months (November–February).

This combination of variable rainfall and temperature patterns results in periods of abundant moisture as well as frequent droughts. From 1900 to 1990 there are just two periods where moderately wet conditions occurred for more than 24 consecutive months. The first occurred in the early 1930s, the second in the late

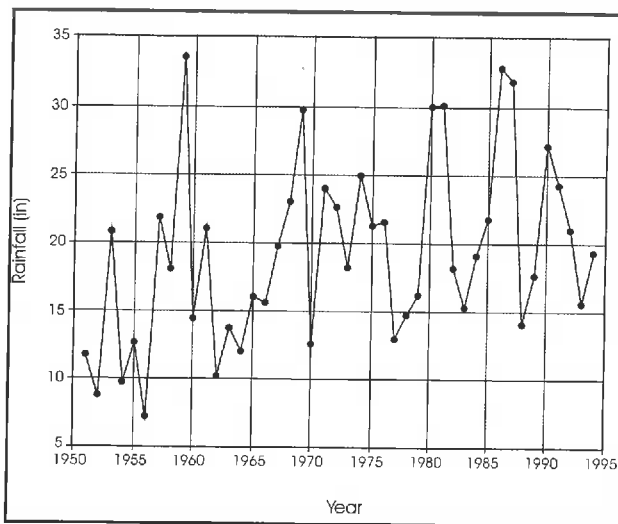


Figure 6. Annual rainfall has varied greatly over the past 50 years, making every year a risk for farmers and ranchers who depend on it for crops and feed grasses.



Twin Buttes CAR collection

Twin Buttes CAR illustration

Seasonal changes can bring variety to the landscape of Twin Buttes.

1950s. In contrast, there were four periods of drought. These occurred between 1909 and 1912, 1916 and 1918, 1933 and 1935, and from 1950 to 1957. These periods of prolonged droughts not only had a severe impact on local plants and animals, but were devastating for the farmers and ranchers of the area.

In addition to having to deal with unpredictable rain, farmers and ranchers have to be concerned with the number of days between freezes each year. Although the growing season averages around 232 days a year, the number of days per year which occur between the periods of freeze can fluctuate significantly.

### ***The Wind***

Winds average between 9 and 12.2 miles per hour (mph) throughout the year at San Angelo. The highest average monthly wind speed, above 11 mph, occurs during the spring months of March, April, and May. Peak gusts in excess of 70 mph have been recorded during the months of May, June, and November at San Angelo. Substantial waves, swells, and lake warnings are often issued as a result of high winds.

### ***What About the Soils?***

The soils at the higher elevations overlooking the Middle Concho, South Concho and Spring Creek in the Twin Buttes reservoir are a clay loam, set on top of caliche. Because they are on slopes and subject to wind and water erosion, they are often less than 20 inches in depth. Nearer the confluence of the Middle Concho and Spring Creek, and in the lower reaches on the western side of the South Concho above the dam is a clay loam that shrinks and swells, causing wide cracks to appear in the ground during periods of severe drought.

### **Many Rivers and Streams Still Flow; Others Don't**

There are many rivers, streams, and springs in and around Twin Buttes. The three major rivers that make up the Concho River watershed come together in Tom Green County; the North Concho, Middle Concho, and South Concho join near San Angelo forming the



Twin Buttes CAR collection

Figure 7. Since record-keeping began in the 1930s, the South Concho has flowed every day, except upon two occasions.

Concho, which ultimately empties into the Colorado River to the northeast. A few of the major tributaries flowing into the rivers include Spring, Dove, Burks, Pecan, and Kickapoo creeks. Four of these drainages, the South Concho, the Middle Concho, Dove Creek, and Spring Creek all flow into the reservoir.

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### **Three major rivers come together in Tom Green County: The North Concho, the Middle Concho, and the South Concho meet to form the Concho River.**

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The South Concho has by far contributed the most steady flow of any of the rivers and streams that feed the reservoir, and based on records that date back to the early 1930s, it has flowed every day except for two (Figure 7). It was at its highest during the late 1930s, and at its lowest in the mid-to-late 1960s. Unlike the South Concho, the Middle Concho is often a dry river bed. In 1960 water did not flow down the channel through the reservoir area for 218 days. Although a high volume of water normally bursts forth from its headwaters in Centralia Draw in eastern Upton County, it appears that most, and sometimes all of the waters of the Middle Concho disappear into an underground aquifer just above the town of Tankersly.



## Flora & Fauna

No water was flowing in the Middle Concho when CAR conducted the archaeological survey at Twin Buttes Reservoir in 1997 and 1998. In fact, as of this writing (October 2000), the South Concho still continues to flow, even though the Middle Concho and Spring Creek are dry.

In addition to the many rivers and streams, there are, or have been, many springs in the area. Among those that have attracted people to the region for millennia are Good Springs (also known as Seven, Headwater, or Spring Creek Springs) located near the community of Mertzon in Irion County; Dove Creek Springs southeast of Mertzon; Government, or Main Springs, in nearby Schleicher County; Mill Spring south of Christoval; Lipan Spring southeast of Wall; and Kickapoo Springs south of Vancourt. Several historically documented springs in Irion, Schleicher, and Tom Green county no longer flow, probably as a result of a lowered water table.

### *Plants and Animals*

The area is rich in natural diversity, with a wide variety of plants and animals. Due to its location between the Rolling Plains and the Edwards Plateau, Tom Green County hosts a unique combination of soils, moisture, and temperatures which nurture a vegetation mosaic. Live oak, cedar, and mesquite thrive in the eastern portion of the region, while in the western portion there are more shrubs and brush growing beneath the mesquite and cedar trees. Closer to Twin Buttes, in Tom Green County mesquite and juniper (cedar) trees, and mixed prairie grasses grow well in the upper elevations around the reservoir, and also grow around Lipan Flats and other lower elevations of the Rolling Plains. The lower, undulating hills around the reservoir have many live oak trees, with large stands at the headwaters of Spring and Dove creeks, as well as at the headwaters of the South Concho. In the deeper soils along these stream banks, are dense stands of pecan, elm, black willow, and hackberry.

Within the immediate area around Twin Buttes, it is unlikely that changes in climate drastically altered the plant and animal communities over the past few thousand years. This can be seen most clearly in the types of animals that now inhabit the area. The greater changes have been induced by recent and historic human intervention which ranges from clearing the wooded areas along the rivers, to pumping more water for irrigation thus lowering the water tables, and permitting overgrazing by livestock. The introduction of large open-range cattle herds in the 1860s, sheep in the late 1870s, and the rise in human populations in the region during the late nineteenth and early twentieth century, have had a dramatic impact on the flora and fauna,



Figure 8. *A cool drink from Kickapoo Springs, circa 1904.*  
(Reproduced from the *Water Powers of Texas*, by Thomas U. Taylor, 1904.)

## Flora & Fauna



Twin Buttes CAR collection

Figure 9. Mixed grasses grown amidst juniper (cedar) and mesquite trees on the hills and slopes around the reservoir, where the soils are stony and shallow.

and changed water flow patterns. It is likely that prior to these changes, the streams and springs documented earlier flowed with greater abundance during wetter intervals, and may have been unpredictable during the longer dry periods. Wetter periods seem to correlate with a greater abundance and variety of plants and animals. It makes sense that humans would use the area around Twin Buttes more heavily during the wetter periods than during drier times, such as the very dry period that occurred roughly 5,000 years ago.

Even with the significant environmental changes experienced over the past 11,000 years, the rich diversity of modern plants and animals in the Twin Buttes area is remarkable. Native species of plants, and a wide variety of fish, reptiles, and mammals thrive here. The reservoir area contains large areas of undisturbed or minimally disturbed land with abundant water, food, and cover for wild animals.

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317 species of birds;  
35 species of fish;  
36 species of snakes;  
18 species of mussels; and  
a variety of small reptiles  
are present in the area.

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At the O. H. Ivie Reservoir northeast of San Angelo, 47 species of native mammals, including white-tailed deer and pronghorn have been recorded. Well into the nineteenth century, buffalo herds numbering in the thousands were present in the San Angelo region, and it appears that at various times over the last several hundred years, these herds were substantial in size.

Some of the more common mammals which reside here are bobcats, coyotes, jackrabbits, cottontail rabbits, striped skunks, cotton rats, raccoons, armadillos, opossums, and white-tailed deer (Figure 11). Turtles, tortoises, and numerous snakes, particularly diamond-backed rattlers, several species of king snake, and the Texas patch-nosed snake are often seen (Figures 12–14). Many species of birds have been identified, and the streams are alive with catfish, white bass, crappie, bluegill, and gar.

Much of the undisturbed or minimally disturbed uplands are densely covered with yucca, pigweed, mesquite, huisache, catclaw, buckthorn, and prickly pear cactus. Along the creeks are live oak, hackberry, pecan, river walnut, greenbriar, poison ivy, white brush, and numerous other plants. Such diversity is characteristic of areas rich in water and fertile soils. Even though research suggests that juniper has been growing in the region for at least the past 10,000 years, overgrazing by livestock and restricted range fires in modern times have allowed juniper (popularly known as cedar) to increase in density.



Twin Buttes CAR collection

Figure 10. Archaeologists saw many species of birds in the Twin Buttes area, such as turkeys and ducks.



Twin Buttes CAR collection

Figure 11. *White-tailed deer are still plentiful in wooded areas around Twin Buttes.*



Twin Buttes CAR collection



Twin Buttes CAR collection



Twin Buttes CAR collection

Figures 12–14. *The fauna of Twin Buttes. (12) Kingsnake (left-top), (13) Diamondback Rattler (left-bottom), and (14) Nine-banded Armadillo.*



**Points of interest:**

*Nine-banded Armadillos were not present during prehistoric times; they came to the area in the 1880s. In the 1970s, armadillo racing was a popular sport for many, and in 1981—the armadillo became the official mascot of the state of Texas.*



Twin Buttes CAR collection

Figure 15. This Twin Buttes prairie dog represents only a remnant population of the hundreds of millions that lived in Texas when settlers came to the Twin Buttes area in the 1880s.



**Points of interest:**

One account indicates that a prairie dog “town” once extended for 250 miles from San Angelo to Clarendon, with around 400 million animals living in it. By 1918, most of the animals had been poisoned by ranchers who believed these creatures ate many of the grasses intended for their cattle.

Table 1. Animals living in the Twin Buttes area

Common Name / Scientific Name
Opossum / <i>Didelphis virginiana</i>
Raccoon / <i>Procyon lotor</i>
Nine-banded armadillo / <i>Dasypus novemcinctus</i>
Eastern cottontail / <i>Sylvilagus floridanus</i>
Jackrabbit / <i>Lepus californicus</i>
Striped skunk / <i>Mephitis mephitis</i>
White-tailed deer / <i>Odocoileus virginianus</i>
Bobcat / <i>Lynx rufus</i>
Kingsnake / <i>Lampropeltis</i> sp.



Twin Buttes CAR collection

Figure 16. Native Americans harvested the purple prickly pear “tunas” and leafy green pads during the summer months, and in times of drought when water was scarce the juice could be used as a source of liquid.

**Tuna:** (1) Any of several flat-jointed tropical American cacti of the genus *Opuntia*, which includes the prickly pears...  
 (2) The edible fruit of any of these cacti. Also called cactus pear.

Table 2. Plants common to the Twin Buttes area

Common Name / Scientific Name
<b>Near a creek or river</b>
Bog rush / <i>Juncus texanus</i>
Cattail / <i>Typha angustiflora</i>
Greenbriar / <i>Smilax bona-nox</i>
Pecan / <i>Carya illinoensis</i>
Poison ivy / <i>Rhus toxicodendron</i>
River walnut / <i>Juglans microcarpa</i>
Yaupon / <i>Ilex vomitoria</i>
<b>Near a creek or river, and on hillsides</b>
Coastal live oak / <i>Quercus virginiana</i>
Hackberry / <i>Celtis laevigata</i>
Honey mesquite / <i>Prosopis glandulosa</i>
Huisache / <i>Acacia smallii</i>
<b>On hillsides and ridges only</b>
Agarita / <i>Berberis trifoliolata</i>
blackbrush acacia / <i>Acacia rigidula</i>
Buckthorn / <i>Rhamnus caroliniana</i>
Catclaw / <i>Acacia greggii</i>
Guayacan / <i>Guaiacum angustifolium</i>
Horse creeper / <i>Echinocactus texensis</i>
Javelina bush / <i>Ondalia ericoides</i>
Lace cactus / <i>Echinocereus reichenbachii</i>
Lime prickly ash / <i>Zanthoxylum fagara</i>
Snakewood / <i>Colubrina texensis</i>
Tasajillo / <i>Opuntia leptocaulis</i>
Texas persimmon / <i>Diospyros texana</i>
Texas prickly pear / <i>Opuntia lindheimeri</i>
Trecul yucca / <i>Yucca treculeana</i>
Viscid acacia / <i>Acacia neovernicosa</i>
Whitebrush / <i>Aloysia ligustrina</i>



**Points of interest:**

In 1528, Spanish explorer, Cabeza de Vaca, not having seen an opossum before, described it as "a wild animal which carries its young in a pouch on its belly."



Twin Buttes C.A.R. collection

Figure 17. Other common land animals found in the reservoir area include rabbits, turtles, and opossums. The opossum here was photographed while trying to hide in an old irrigation pipe at Twin Buttes Reservoir.

## The Past

### What was the Environment Like in the Past?

To understand past human behavior, we must know something of the environment in which prehistoric groups contended for resources. We have already seen something of Twin Butte's present environment; however, the environment has not always been this way. Paleoenvironment is simply a term scientists use for past environment. Although many questions remain unanswered, paleoenvironmental studies give us some information on the changes that have occurred in the climate and vegetation over the past 11,000 years, the earliest period when humans are believed to have occupied the area. What we do know comes from our ability to reconstruct past environments using pollen and other plant materials, and animal bones trapped in old river and lake sediments.

*...mesquite beans were a common  
food for south Texas Indians*

Geologists have divided the period for which there is evidence of Native American occupation into two epochs: the Pleistocene and the Holocene. The Pleistocene is the period of ice ages and glaciers, and spans the period between approximately 2 million to 10,000 years ago. The Holocene, spanning the last 10,000 years, is the modern period that has witnessed the development of all major civilizations. Scientists study pollen found preserved in swampy bogs to find out what the environment must have been like for certain plants to survive. Also, animal bones are studied to determine what animals lived in the area during different periods, as well as what prehistoric Native Americans ate during the past several thousand years. Some of the animal bones studied are from animals that now are extinct.

Based on the pollen samples, archaeologists believe that from about 12,000 to 10,000 years ago, Texas and northern Mexico were much wetter and cooler than today. The South Texas Plains was a mosaic of woodlands and scrub grasslands. Animal bones collected over the years from paleontological and archaeological sites in the region reveal the presence of mammoths, mastodons, and long-nosed peccaries. These species were extinct by 10,000 years ago. Late Pleistocene deposits also reveal the bones of still-living animals. However, today some of these animals are found much farther north only, and others are found only further to the south or west.

In the Late Pleistocene, the presence of these animals grouped together suggests that the climate was much different with cooler summers and milder winters. With the melting and receding

## **Pleistocene and Holocene**

of the glaciers much farther north by about 10,000 years ago, the climate began to shift to modern conditions. The absence of the bones of cool-weather animals and extinct animals in deposits that are younger than 10,000 years ago along South Texas streams indicates the beginning of a warming trend. Based on pollen and animal bones, it appears that the climate became more moist and warm beginning about 10,000 years ago. Then, about 8,000 years ago, it appears that the climate became drier and perhaps even warmer.

Beginning after 8,000 years ago, the oak-juniper woodlands of Central Texas were slowly replaced by spreading grasses and scrub brush, presumably because of increasingly warmer and drier conditions. On the South Texas Plains, grasslands began to dominate at the same time, also indicating a trend toward a warmer climate. The drier conditions became most extreme in Central Texas about 5,000 years ago. Eventually the semi-arid conditions familiar to us today prevailed, and the vegetation shifted back to plants that were adapted to these conditions, such as oak, mesquite, grasses, cactus, and yucca. As conditions varied between warm and dry, and cool and moist during these last 10,000 years, so did the coming and going of grazing animals such as bison.

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Eventually the semi-arid conditions familiar to us today prevailed and the vegetation shifted back to plants that were adapted to the conditions, mesquite, grasses, cactus, and yucca.

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As the climate in Texas became warmer and drier, the “big game” became less plentiful. People living on the Edwards Plateau and on the Texas plains began to explore new ways to adapt. In spite of the many changes in climate, the flexibility and mobility of this hunting and gathering way of life enabled the people of the two regions to adapt successfully without major alterations in their way of life for thousands of years. Despite arid conditions, availability of water was seldom a serious problem because numerous rivers, creeks, and springs are found throughout the area.

The variety of resources, plants and animals from different environmental settings and sources for cobbles to make stone tools made this region rich from the viewpoint of its prehistoric inhabitants (Figure 18). More importantly, this variety provided insurance during periods of time when resources fluctuated. The impact of these fluctuations could be lessened by simply moving a few miles to an area with more water, more food plants, or better hunting. Most archaeologists believe that prehistoric hunters and gatherers consciously took advantage of nature’s variety. In the fall and spring, early Texans moved into the oak-juniper woodlands of the Hill Country, where deer, turkey, pecans, mesquite beans, and acorns were collected in the fall, and sotol and yucca were collected in the spring. Prickly pear fruit and small animals would be exploited during summer rounds on the plains to the south. The Twin Buttes area is believed to have been an abundant prehistoric source for pecans, bison, antelope, fish, shellfish, and small mammals during the fall, winter, and spring.

Much of our knowledge of early historic environments as well as prehistoric people’s seasonal land use patterns in Texas comes from the chronicles of Alvar Núñez Cabeza de Vaca and later Spanish travelers. According to Cabeza de Vaca, during the several years he lived among the Native Americans in South Texas in the early 1500s, the fall and winter months were spent along the rivers, where pecans and wild roots were harvested and game was hunted. In the summer months, they left the rivers and moved around while harvesting prickly pear tuna. During the course of a year their territorial range covered perhaps 180 miles.



**Points of interest:**

The agave plant leaf fibers were used to make many items, such as baskets and sandals. Agave “hearts” which resemble onions, grow underground beneath their stalks, and when cooked in an earthen pit oven have a thick, syrupy texture.

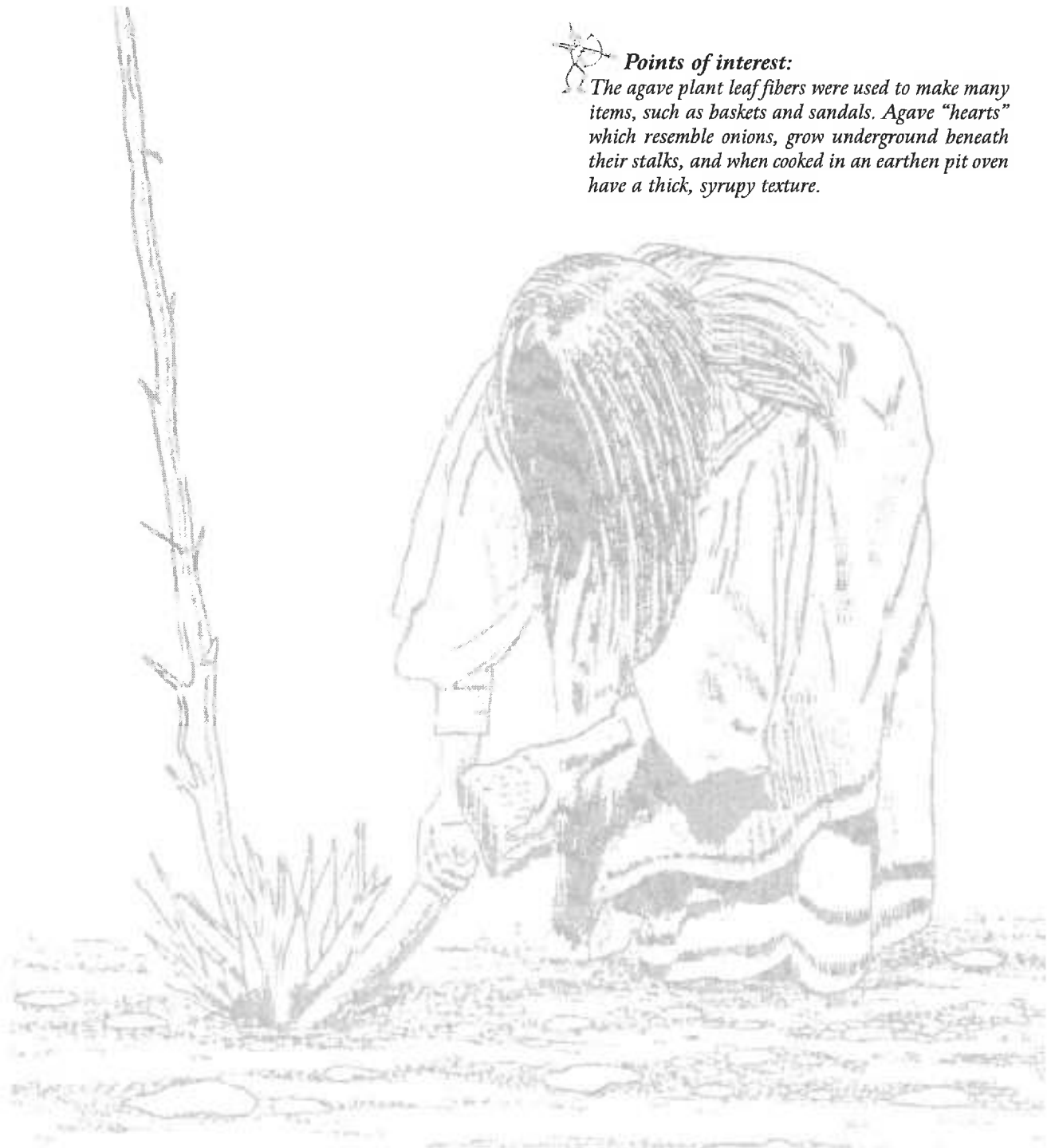


Figure 18. An Apache woman digs for the roots of an agave with a digging stick and stone hammer. (Drawing by Ken Brown, courtesy of the Southern Texas Archaeological Association.)



## The Archaeological Survey

The story of the people who lived in the area of Twin Buttes can be divided into two periods: Prehistoric and Historic. The Prehistoric period begins when the first humans entered the area some 11,000 years ago. The Prehistoric period ends with the arrival of the Spanish in the 1500s. The Historic period refers to the time of written records when the Concho and Colorado River valleys were settled by European colonists and subsequently became part of Spain, Mexico, the Republic of Texas, and finally the United States.

Archaeologists study the remains left behind by humans during their everyday lives. These remains consist of artifacts and features. Artifacts are objects made or modified by humans. Prehistoric artifacts include objects made of stone, bone, and shell. Historic artifacts include pieces of broken pottery, glass, and metal, as well as architectural fragments such as bricks, concrete, window glass, and nails. Knowledge of when such objects were made and used allows archaeologists to reconstruct the lives of the people who made these objects and estimate when they lived in the area.

Archaeological features are more permanent than artifacts. Features include hearths or mortar holes (for grinding) on prehistoric sites (Figures 19 through 21) and wells and foundations on historic sites. Archaeologists carefully study features to understand what

people did at a site. Features often reveal the approximate date of occupation as well.

Archaeological projects are undertaken for various reasons. As objects of scientific research, archaeological sites are excavated to obtain information about the people who lived in an area at various times and why their lives changed through time. Careful archaeological excavations can provide information about the lives of prehistoric people about whom little is known. Excavations also collect information about past living conditions such as how climate has changed, and what plants and animals were eaten for food. Even when historic records are available, historic site archaeology can tell us details that were never written down about the lives of people.

Public archaeology, along with protection of properties of historic, architectural, engineering and cultural significance, is part of Cultural Resource Management. Cultural Resource Management grew out of federal and state laws that protect archaeological sites on publicly owned property. Cultural resources include both historic and prehistoric evidence for how people of the past lived. The laws not only define the significance of archaeological sites, but also caution that it is against the law to collect artifacts or otherwise disturb archaeological sites on federal property, including Twin Buttes



Twin Buttes CAK collection

Figure 19. A cluster of fire-cracked and burned limestone, such as this one uncovered within reservoir property in a 1-x-1-meter test pit at one of the many sites, is called a feature.



Twin Buttes CAK collection

Figure 20. These burned sandstone slabs which formed the base of an ancient campfire pit were buried by floods, but are now eroding from a cutbank of the Middle Concho River.

## Archaeology

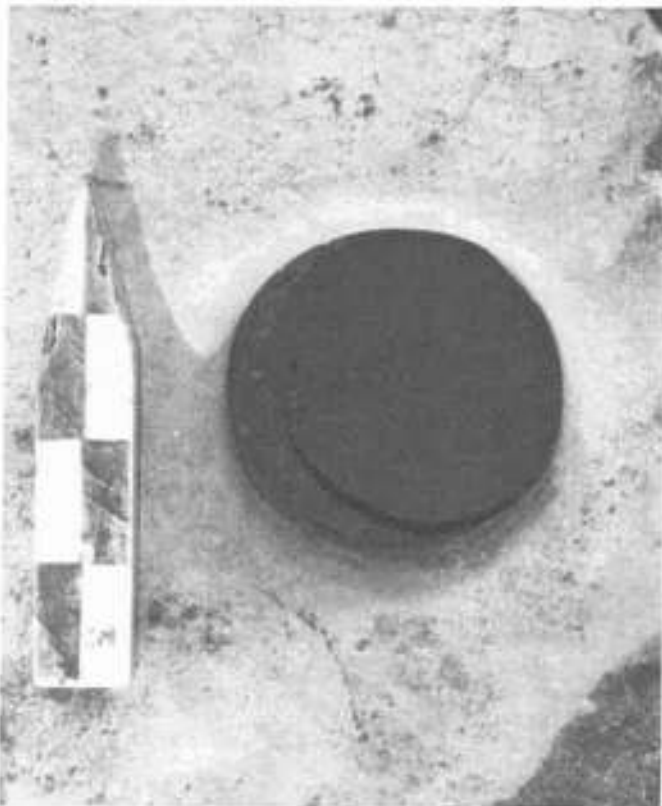
Reservoir. When a construction project is located on federal property or financed with federal funds, archaeological investigations are required by federal law to determine the impact the project will have on cultural resources such as archaeological sites. As a result of this federal concern, the Bureau of Reclamation has been required to inventory its cultural resources, and it is under this mandate that the survey of Twin Buttes Reservoir was conducted.

A great deal of archaeology is done to satisfy requirements of the National Historic Preservation Act of 1966, which states all federal agencies, such as the Department of the Interior's Bureau of Reclamation, must assume responsibility for all of the cultural

resources on properties they control or own. This means the Bureau is required to identify and inventory all historic and prehistoric archaeological sites on its property. These sites are also evaluated to determine which archaeological sites are significant.

The significance of a site is determined according to a list of criteria in the National Historic Preservation Act. The National Historic Preservation Act created a National Register that lists all sites judged to be significant in American history, architecture, archaeology, and culture. Among other considerations, significant sites can be associated with important events, or the lives of important people, or represent artistic values, or have information important in history or prehistory.

Figure 21. *These almost perfectly round holes found in limestone bedrock are the result of the grinding of fruit, nuts and seeds by Native Americans using a harder "pestle" or grinding stone. Over time the holes get deeper and deeper.*



Twin Buttes CAR collection

Not all sites of scientific interest to archaeologists meet the National Register criteria sufficiently to become listed on the Register. Those that are listed are intended to be protected from adverse impacts associated with federal projects. If an archaeological site will be unavoidably disturbed by the action of a public agency, such as dam construction or repair, steps must be taken to limit the disturbance and recover as much scientific and historical information as possible before the site is damaged or destroyed.

The responsible agency must also give the National Advisory Council on Historic Preservation a reasonable opportunity to comment on the project. The advisory council is an independent federal agency whose 20 members include a chairman and three other members of the public appointed by the President. Other members include federal agency heads, such as the Secretary of the Interior, governors, members of a Native American tribe or Native Hawaiian organization, and other experts in the various fields of historic preservation.

In meeting its responsibilities under the federal guidelines, the Bureau of Reclamation contracted with CAR to conduct a walking survey and limited testing of the Twin Buttes Reservoir area (Figure 22), an area of approximately 12,790 acres. In order to properly plan the survey and testing, it was necessary to search out all historic and archival information on the area involved. The research covered the history of, and previous archaeological work in, the San Angelo area, especially western Tom Green County. The archaeologists consulted maps and records of land transactions which related to the Twin Buttes Reservoir.

The prehistoric use of the area was determined by previous archaeological projects on nearby areas. Published and unpublished information on past climates and environments were also consulted. Other information resources included the Texas Archeological Research Laboratory at The University of Texas at Austin, the Texas A&M University Center for Ecological Archaeology, documents housed at the Center for Archaeological Research (UTSA), and the West Texas Collection housed at the Porter Henderson Library, Angelo State University Library. Consultations

were made with archaeologists from the Bureau of Reclamation and members of the Concho Valley Archaeological Society, a group of avocational archaeologists based in San Angelo, for their extensive knowledge of the survey area.

Only a few previous archaeological and literature surveys existed for the reservoir, but these were also collected and used. The historical research effort included identifying and acquiring maps from the 1800s and 1900s showing old roads, structure locations, and property boundaries. An effort was made to locate relevant archaeological studies of historic ranch houses in the region. Details on protohistoric and historic Native American, Spanish, Mexican, and Euro-American populations known to have inhabited the area were gleaned from countless other books and records.



Twin Buttes CAR collection

Figure 22. *UTSA archaeologists covered 10,195 acres around the Twin Buttes reservoir on a pedestrian or walking survey. Detailed observations are recorded for each site found.*



Figure 23. *The archaeologists scoured the creek banks and bluffs for evidence of Native American sites. Here they are looking along Spring Creek.*

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...by dividing the area into sections and walking across each section in a patterned manner...

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Figure 24. *Thick brush more suited for this roadrunner sometimes made surveying difficult for the archaeologists.*

## How Do We Find and Document Archaeological Sites?

### Fieldwork

Archaeological assessment is carried out in a series of phases. The first of these is the survey, which consists of a carefully planned examination of the surface of an area. Usually this is done by dividing the area into sections and walking across each section in a patterned manner, usually in transects placed a set distance apart. Archaeological crew members progress slowly, examining the ground surface, and recording on maps any indication of human activity such as projectile points, fragments of chipped stone, or pottery in the case of prehistoric sites; or fragments of glass, nails, ceramics, or architectural remains for historic sites.

The land managed by the Bureau of Reclamation is approximately 12,790 acres. Because of water levels between December 1998 and April 1999, the actual area surveyed was approximately 10,195 acres. During the survey of the Twin Buttes Reservoir area, as many as nine surveyors worked seven days a week.

After an initial survey has been completed and the locations of archaeological sites have been recorded, the next level of assessment is testing of the sites to evaluate their size, depth, and content in order to determine their importance. During the Twin Buttes survey, hundreds of artifact-bearing locations were found. Revisiting these locations and thoroughly inspecting them as potential sites took place during this second round of fieldwork. Site-recording crews of three to six members included a crew chief or the project archaeologist. Once a potential site was relocated, all crew members intensively examined the ground surface, flagged artifacts, and noted any high density concentrations. If the project archaeologist determined that the site was significant, its boundaries were established according to the distribution of artifacts on the ground. Filling out a field copy of the State of Texas Archeological Site Data Form was usually done at this point in the survey. These forms were submitted to the Texas Archeological Research Laboratory, The University of Texas at Austin, where they are kept permanently and are available to other researchers.

Being able to relocate archaeological sites after many years is often difficult because of changes in vegetation or changes in the landscape. Therefore, precise mapping is a critical part of documenting a site. A sketch map of each site was made in the field by using a compass and pacing out the boundaries. Landforms, roads, or streams that would be useful in relocating the site were shown on the sketch maps. In addition, a Global Positioning System (GPS) was used to record the boundaries and any feature that might have been observed (Figures 25 and 26). Upon returning to UTSA, the positional information recorded was downloaded to a computer and maps were created using special software. Digital copies of United States Geological Survey topographical survey maps were then obtained for the Twin Buttes/San Angelo area, and we were able to overlay our site maps onto the USGS maps to effectively pinpoint site locations. Another advantage of using GPS to record sites is that it can be used later to navigate back to the site via coordinates recorded at mapping time, even if an archaeological team returned several years from now.



Twin Buttes CAR collection

Figure 25. A Global Positioning System (GPS) makes mapping a site easier, and provides a high degree of accuracy.

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Revisiting these locations and inspecting them took place during the second round of fieldwork.

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Twin Buttes CAR collection

Figure 26. The CAR survey crew at an archaeological site along the Middle Concho River channel digging shovel tests, recording artifacts, and taking a Global Positioning System (GPS) reading as part of the mapping process. Even though the water may rise, or the landscape and vegetation may change, a satellite reading using GPS will ensure the site can be located again.

In any setting a picture is worth a thousand words. With that thought in mind, we always take many photographs of archaeological sites. During the Twin Buttes Reservoir survey we took 953 photographs using primarily color print and slide film.

### Testing

Testing was generally done by excavating at least one shovel test per site, each about 15 to 18 inches in diameter and extending in depth to the point where no further evidence of human activity could be found (see Figure 26). Careful recording of the location of these tests and their content was then used to compare the sites found and determine their relative importance with respect to the others in the survey, as well as in comparison with other archaeological sites in the area. As part of this comparison, the project archaeologists conducting the Twin Buttes survey considered each site with regard to possible inclusion in the National Register of Historic Places.

After shovel testing, archaeologists made an inventory of the assemblage of artifacts present on the surface of the site. Each artifact was measured and recorded on a specially designed worksheet. Counts were made of the different types of artifacts. Most of the artifacts were left where they were, but diagnostic artifacts—those which might help the archaeologist date the site—were collected. Samples of ceramic, brick, crockery, glass and metal items were collected from historic sites to assist in assigning an estimate for the age of occupation or use. In some cases, small test units (one meter square) were excavated to obtain more information about the layering of occupations within the site, or for dating the occupation of the site. As in the survey phase, careful written and photographic recording of all work done remains vital to the later interpretation of the project results.

Based on the results of the survey and testing, archaeologists draw conclusions about the effects that the proposed construction project or future use of the

area will have on the archaeological sites. For sites that cannot be avoided, a plan for reducing disturbance, either by avoiding critical parts of the site or by retrieving sufficient information through excavation, is developed. If it becomes clear that there is no way to avoid destruction of a significant archaeological site, it is necessary to conduct excavations. During this process, sufficient excavation is done to recover and preserve detailed information about the history and use of the site, whether historic or prehistoric. Determinations about how much excavation is necessary and what kinds of analysis should be done are made by the archaeologists on the staff of the lead federal agency involved, and the State Historic Preservation Officer, in consultation with the project archaeologists.

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If it becomes clear that there is no way to avoid destruction of a significant archaeological site, it is necessary to conduct excavations.

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### What We Did with the Artifacts and Other Samples

A temporary CAR laboratory was established in San Angelo where artifacts and samples collected were accounted for daily. Once they were delivered to San Antonio, they were then inventoried at the CAR-UTSA laboratory, and analyzed. Once analysis was complete the collection was curated in acid-free boxes. The UTSA laboratory is an accredited curation repository for artifacts. As such, the artifacts are stored in a controlled environment and fully accounted for. They are made available for further examination by other archaeologists, and quite frequently are loaned for study to researchers from around the state and country with interests in various subjects.

## Hunters & Gatherers

### Who Were the Ancient People at Twin Buttes and How Did They Live?

During the Twin Buttes survey, archaeologists located and documented 199 archaeological sites. Additionally, they found 393 isolated stone artifacts scattered across the landscape without association to a site. It is believed that these isolated finds represent discards, or items accidentally dropped by prehistoric hunters and gatherers (Figure 27). The sites and isolated artifacts do not appear to be concentrated in any particular part of the reservoir area, but are spread across the low-lying terraces along streams and on the surrounding ridges, bluffs, and hills of the entire landscape.

Prehistoric sites found at Twin Buttes include campsites, large food-processing areas, and quarries for the rocks used to make stone tools. The evidence gathered at Twin Buttes suggests that stone tool making was an important occupation at many of the sites.

The size of quarry sites ranges from small scatters of chipped and flaked cobbles to large outcrops of chert cobbles covering several acres. Wherever the fine-grained and easily workable flint gravels have cropped out along valley walls and hilltop edges, humans have picked them up and knocked off flakes in order to select only the best-quality materials. Archaeologists have recorded hundreds of cores at the quarry sites and at many of the campsites.

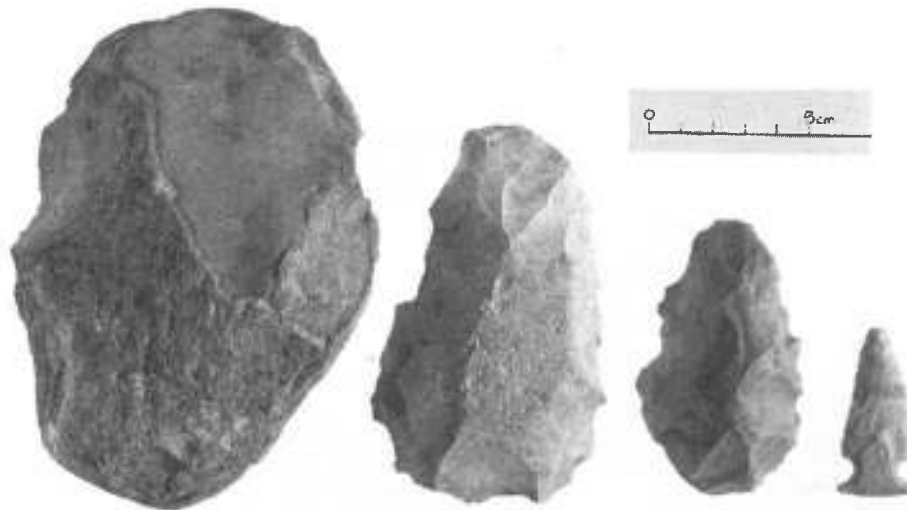


Figure 27. Native Americans would pick up a cobble and knock a few flakes off it (left). If it was a good flint, they would then continue to knock flakes off it, reducing it to what is known as a "quarry blank" and then a "preform." These would have been easier to carry back to campsites where they would continue to fashion it into a dart point (right).

## Hunters & Gatherers

A stone tool may be made either from the flake or the core of a cobble, depending on the flint knapper's purpose. A core is a piece of chert that began as a cobble or nodule from which flakes have been removed by chipping (see Figures 27 and 28). After several flakes have been removed from both sides of a core with blows from a hard rock called a hammerstone, the result is a

form that archaeologists call a quarry blank. The reduction sequence continues with smaller flakes being removed, resulting in what is known as a preform. The final stage of reduction, which completes the dart point, knife, or other tool, is executed by the application of controlled pressure, often accomplished with a deer antler, to a small area on the tool's edge.

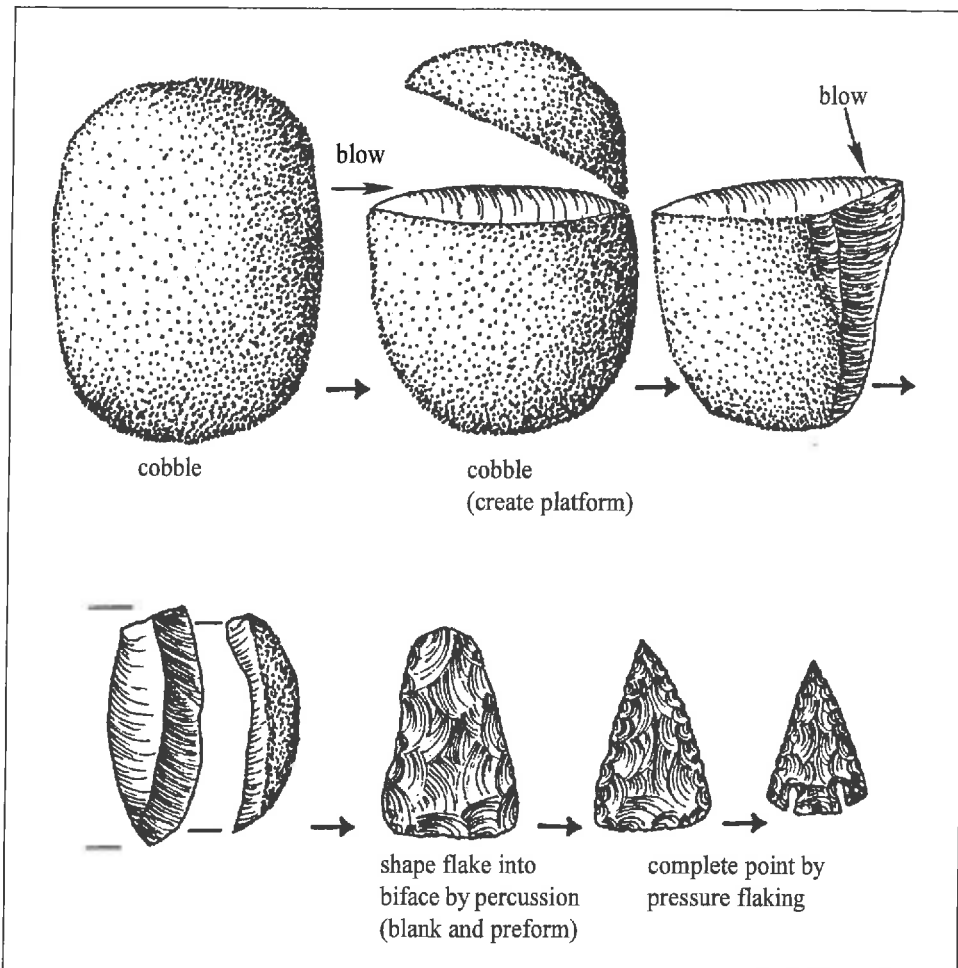


Figure 28. A stone tool manufacturing sequence from core to finished tool.  
(Reproduced from Turner and Hester 1993:20-21.)



Stone tools were commonly found on the reservoir area. Many of the tools were most likely used for chopping and breaking animal bones to extract protein-rich marrow. The sharp-edged choppers appear to have been versatile tools, and were also used as axes to chop trees and branches.

Scrapers are frequently found at campsites. Their sharpened edges would have been highly effective for scraping the fat from animal hides (Figure 29).

Some of the knives found around the reservoir attest to the technical abilities of prehistoric hunters and gatherers to fashion cutting and slicing tools (Figure 30).

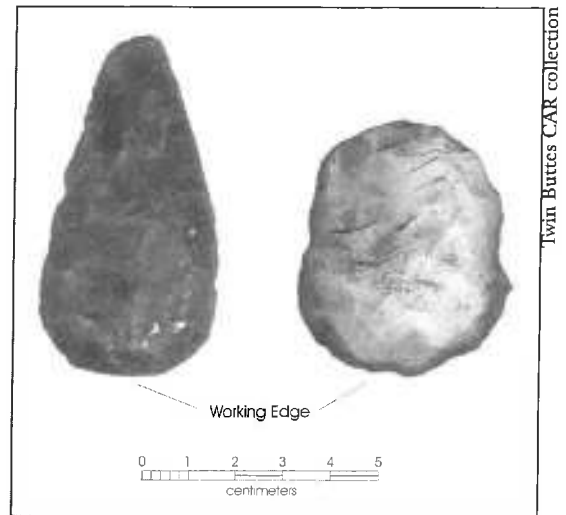


Figure 29. Scrapers may have been used for many tasks, such as preparing animal hides or shaping wooden implements.

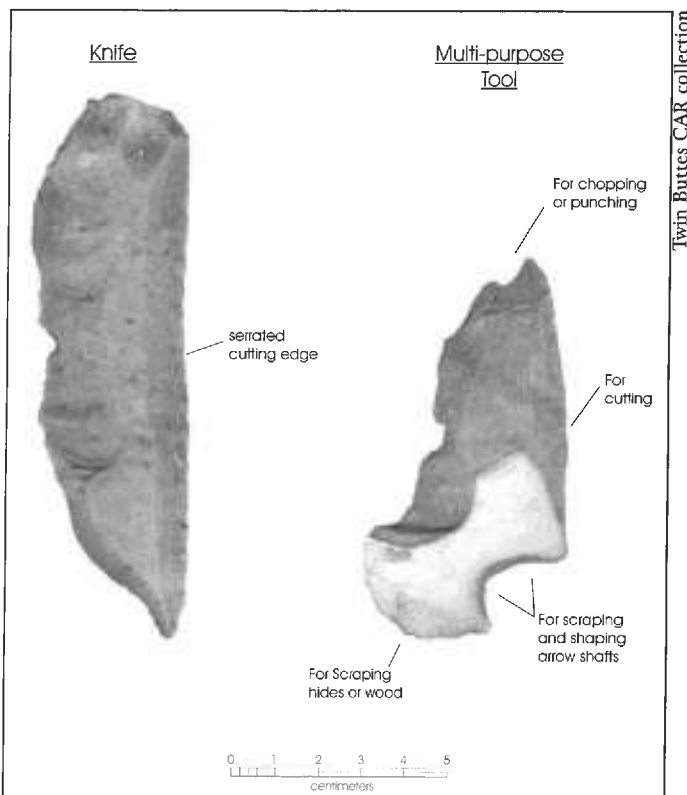


Figure 30. The knife and multi-purpose tool shown above were found on sites located within the Twin Buttes reservoir.



**Points of interest:**

Knives or bifaces were used to cut meat, fish, and plant foods. The slightly serrated knife shown here would have made a very effective cutting tool. The multi-purpose tool can be compared to a present-day Swiss Army® knife, as it would be useful for an assortment of tasks.



**Points of interest:**

*Mano means "hand" in Spanish. In Figure 31, the top photograph shows that the metate has been worn down in the middle by the use of the mano.*

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Although they might not be thought of as tools, occasionally we found rounded and smooth stones and stone slabs that had been used for grinding nuts or seeds. The rounded and smoothed stones are called *manos*, and the slabs are called *metates*. Here are some samples of the *manos* and *metates* we found at the Twin Buttes reservoir.

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Twin Buttes CAR collection

Figure 31. *The mano (rounded and smoothed stones) would have been held in one hand, and used to crush and grind seeds or nuts on the metate (slab).*

Many campsites were recorded at Twin Buttes and these were identified as such by the presence of fire-cracked rock, which indicates at least an overnight stay and a fire for warmth or cooking. Archaeologists recorded one site which contained 45 campfire or hearth features. Some hearths were visible aboveground, while others were found eroding out of the sides of gullies beneath

the modern-day surface. Some campsites were located on high bluffs overlooking valleys, with distinct vantage points from which to observe bison or other game animals as they grazed on the plains below (Figures 32 and 33). Other campsites were found closer to water sources with easy access to a cool drink and a meal of fish or turtle.



Twin Buttes CAR collection

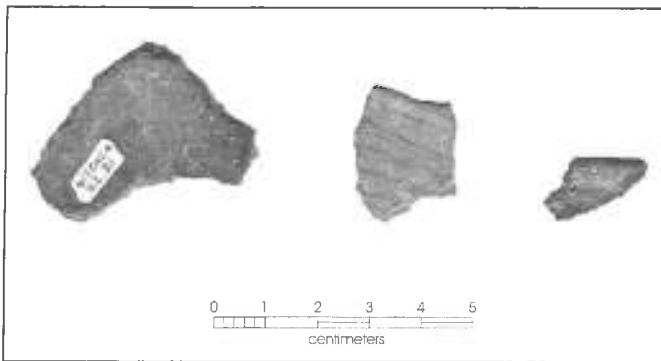
Figures 32 and 33. *Unknown artist's rendering of grassy plains along the streams and rivers of Twin Buttes prior to settlement. Photograph from a high vantage point depicts view of Twin Buttes today.*

Farther west and south of the Twin Buttes area, archaeologists often find pottery on Native American campsites. The technique of making clay pots, bowls and jars developed in those areas two to three thousand years ago. However, around San Angelo and in all of Central Texas, Native Americans did not begin making and using vessels of clay until about 1,200 years ago at the earliest, and more likely about 500 to 700 years ago. It is fairly rare to find clay pottery in this area, nevertheless, we did find pieces of broken pots on two sites around the reservoir (see Figure 34).



**Points of interest:**

Crushed animal bones were mixed with the clay to make it hold together better. The tiny light gray and white specks visible in the two outer pieces are crushed animal bone. The clay was then rolled into coiled "ropes." The coils were laid on top of each other and the sides smoothed and shaped to form either a plate, bowl, or jar. The coils are most visible in the middle piece of pottery. The left-most piece of pottery bears a label which was applied in the CAR laboratory, it signifies the archaeological site number, and a unique item number which identifies where it was found.



Twin Buttes CAR collection

Figure 34. These pieces of pottery are from a single pot made from clay.

This type of pottery, with its bone tempering, and plain, undecorated, unpainted style is called *Leon Plain*.

Many archaeologists believe pottery manufacture began when Native Americans became more permanent to the area. Therefore, fragile clay vessels didn't have to withstand the bumping and banging of frequent moves across vast stretches of the country. To make their vessels stronger, animal bones were crushed and mixed with clay before the vessels were baked over open fires. This type of Native American pottery, with its bone tempering, and plain, undecorated, unpainted style is called *Leon Plain*.



Twin Buttes CAR collection

Figure 35. A shovel test revealed the remains of a campfire and a stone tool, several hundred years old, buried by fine sand and silt carried in by wind and water. When exposed to fire soft limestone cracks and turns a red or darker gray color.

## Middens

One interesting site was identified only by a large scatter of chipped stone flakes and fire-cracked rock lying on the surface. When archaeologists tested below the surface to determine how much of the site had been buried, they found large quantities of fire-cracked rock mixed with stone artifacts and burned animal bones. They believe these are the remains of a large, stone cooking oven, otherwise known as a “burned rock midden.” There was only one of these ovens located in the reservoir area. Burned rock middens are often called “Indian mounds” because they have been built up above the surface after repeated usage.

Middle and Late Archaic burned rock middens are very common on the Edwards Plateau. Although archaeologists have been studying burned rock middens for the past 80 years, much needs to be learned about how and why they were formed. However, it seems most likely that they are a result of large-scale processing of plant foods such as acorns, or sotol, yucca, and other root plants. Figure 36 illustrates how we think the Native Americans built these large stone cooking ovens, and also details how we think they would have used them.

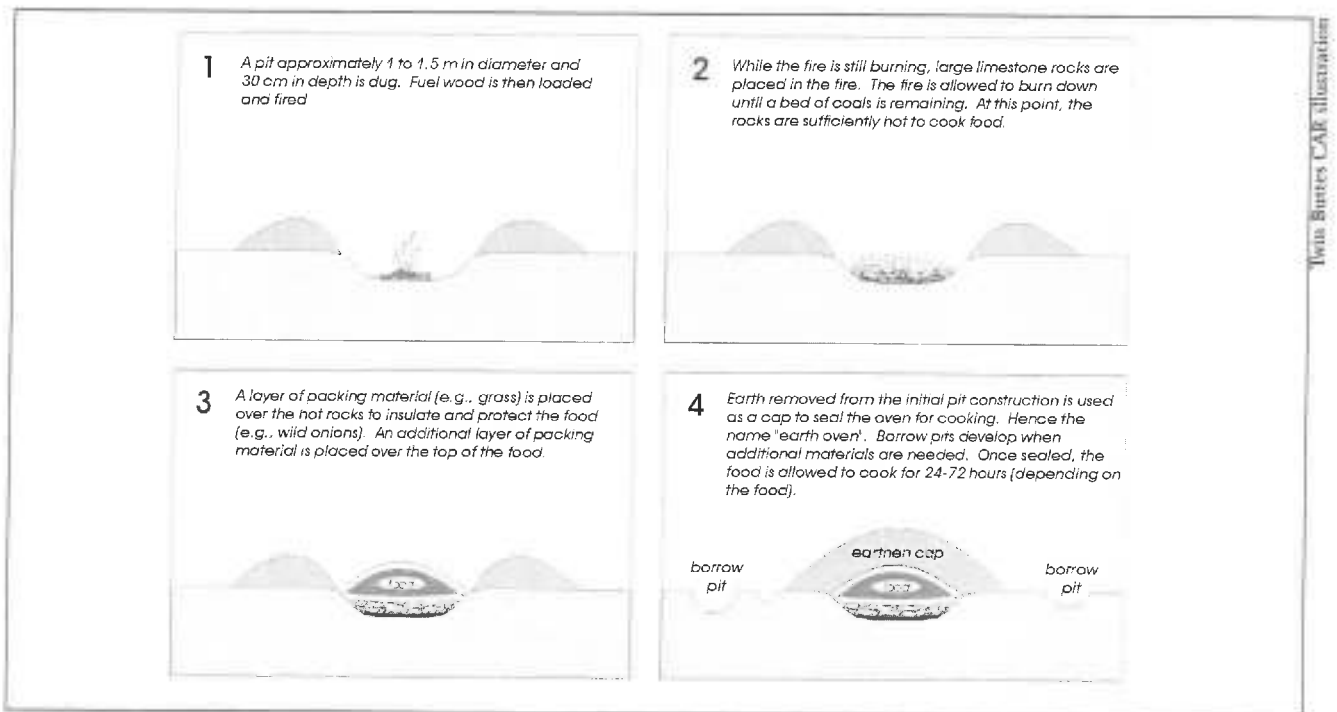


Figure 36. This shows how we think burned rock middens form.

- (1) Initially a pit is dug and the dirt from the excavated pit is piled on the edge. The pit is loaded with wood and set afire, and then stones are tossed on the fire;
- (2) Once the fire has died down, and the stones are sufficiently heated, the stones and coals are spread evenly over the bottom of the pit;
- (3) Packing material is added—then the food—then more packing material;
- (4) The earthen cap is added;

## Middens

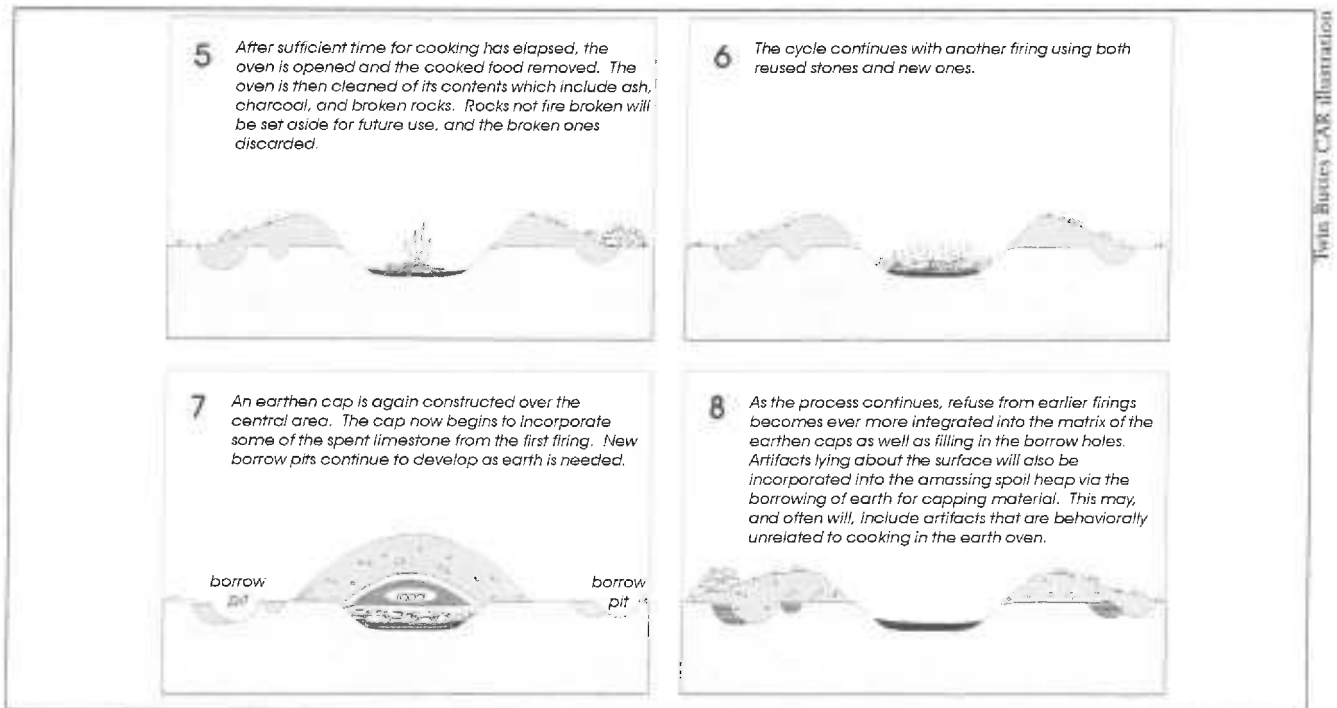


Figure 36. Continued...

(5) After the food has been cooked, the oven is dismantled and the food is removed.

The pits that were created around the oven as more dirt was needed are now unintentionally filled back in the as the oven is uncovered. The entire process as shown in (6) and (7) is repeated many times, and the waste of the repeated cooking events accumulates upwards –forming a ring around the original pit (8).

## The History

### Cultural History of West-Central Texas and the Twin Buttes Reservoir

Archaeologists divide prehistoric time in most of Texas into a number of periods. The dates below are approximate and given as years before present (B.P.). The term "before present" however, is misleading. Actually, archaeologists have arbitrarily established the "present" at the calendar year 1950. It was about this time when radiocarbon dating first became available to archaeologists. Radiocarbon dating measures the amount of radioactive carbon in charcoal, bone or other organic materials.

Archaeologists try to consider time periods in prehistory in much the same way, although they are thinking in terms of centuries or millennia, not decades.

Although the dates assigned to time periods are important, it is also important to understand how people were adjusting to their environment during those periods, to examine what type of tools they were using, what kinds of places they picked for their campsites, and what they hunted. Some of these factors changed from period to period. For example, when we speak of the Roaring 20s, we know exactly the time period we are referring to, but in reality we're talking about the way people lived during that time: what they ate, what they wore, and how they supported their families.

Archaeologists try to consider time periods in prehistory in much the same way, although they are thinking in terms of centuries or millennia, not decades. Therefore, terms like Paleoindian, Archaic or Late Prehistoric used in Figure 37 tell us something about how we think people lived during those times.

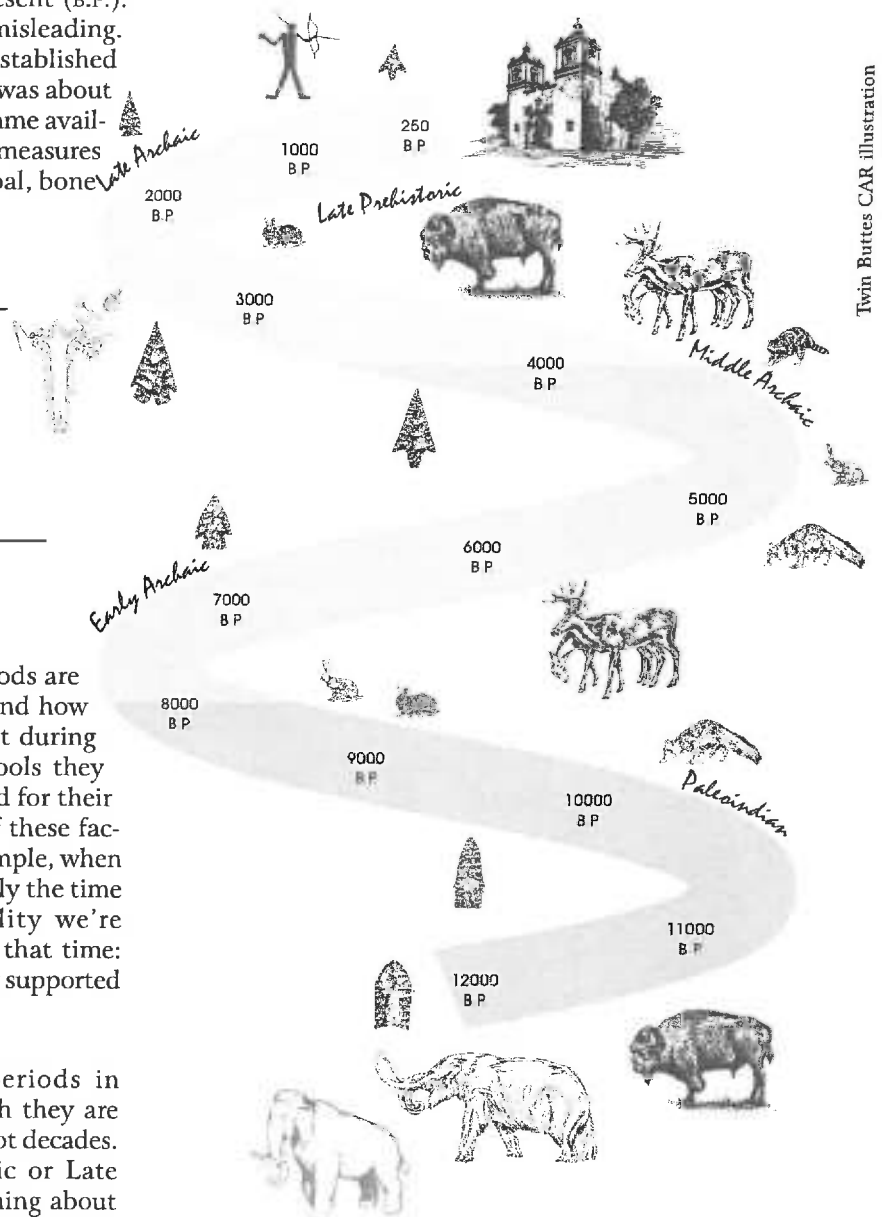


Figure 37. Archaeological timeline for south and central Texas.

## The History

## Paleoindian

Often the way that archaeologists assign a site to one of the time periods is by taking note of the differences in the projectile point forms or styles. Many projectile point styles can be used as time markers because they are common and have been well dated in absolute terms through the use of radiocarbon dating. These time-marker artifacts are very important to archaeologists in making estimates about how old a prehistoric site is or how long it was used. Because dating by diagnostic projectile points is quick and inexpensive compared to radiocarbon and other technical dating methods, it may often be the only technique used to date a particular site.

Archaeologists have spent several decades attempting to define and refine this cultural chronology. However, it is worth remembering that some groups of human beings are always ahead of the rest when it comes to making changes and adopting new ideas, while other groups can remain behind the times. Archaeologists are still debating what the real time boundaries of the culture periods were and what they tell us about how people lived.

### ***Paleoindian Period*** ***(12,000-8800 B.P.)***

Archaeological evidence tells us that the earliest people to occupy the Americas were big-game hunters who roamed over large areas in small bands, following

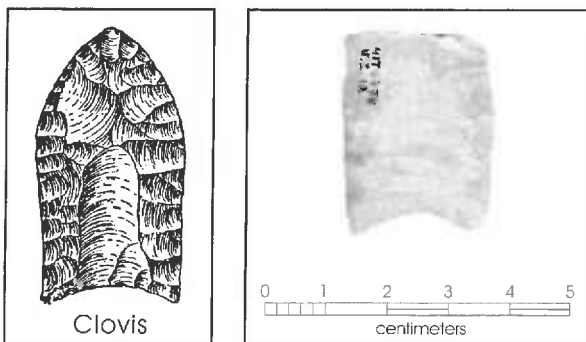
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...the earliest people to occupy the Americas were big-game hunters who roamed over large areas in small bands, following herds of now-extinct bison, camels, horses, and mammoths.

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herds of now-extinct bison, camels, horses, and mammoths. Sites across North America from the Paleoindian period are identified by the presence of distinctive Clovis and Folsom spear points (Figures 38 and 39).

This earliest period of occupation in south central Texas was a time of cool conditions when grasslands supported extensive herds of large animals. The earliest evidence of human occupation in the South Texas Plains shows the presence of highly mobile big-game



Twin Buttes CAR collection

Figure 38. On the left is a drawing of a complete Clovis spear point. On the right is the bottom portion of a Clovis point found on an archaeological site at Twin Buttes Reservoir. (Drawing reproduced from Turner and Hester 1993:91.)

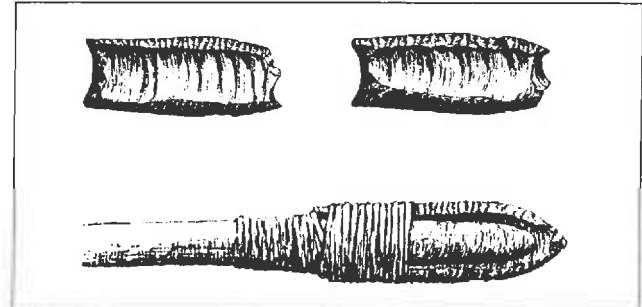


Figure 39. A Folsom spear point, as it may have been hafted. (Richard McReynolds, courtesy of the Southern Texas Archaeological Association.)

### ***Points of interest:***

Clovis points are lanceolate (shaped like a lance, narrow and gradually tapering), and have central channels called flutes on both sides. These characteristics permitted them to be attached to the ends of sticks and used at close range to jab game animals.



hunters. In south and central Texas these peoples hunted and gathered wild plant foods and large animals (megafauna) between 12,000 and 8,800 years ago. Only a few sites with Clovis, Folsom, and a point type known as Plainview, have been discovered in the region. One site, Bonfire Shelter, in the Lower Pecos region to the west of Twin Buttes had Folsom and Plainview points found with large numbers of butchered and heavily burned bones of extinct bison. At Bonfire Shelter, Paleoindian hunters drove herds of bison over the edge of a cliff and butchered them where they fell.

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At Bonfire Shelter, Paleoindian hunters drove herds of bison over the edge of a cliff and butchered them where they fell.

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During the middle of the Paleoindian period, at the end of the Pleistocene Epoch, many of the megafauna became extinct, and Paleoindian groups began intensively exploiting plant foods and smaller animals including deer, rabbits, mice, and snakes. Also Paleoindian populations were slowly increasing and they were using smaller and smaller territories. By the end of the Paleoindian period, the climate had become much warmer and drier, bison was the only remaining megafauna.

At Twin Buttes we found stone tools on seven sites that dated to the Paleoindian period. Most of the sites had remnants of ancient campfires, and they were generally located on the hills and slopes around the reservoir. In addition to the Clovis point shown in Figure 38, we also found stone scrapers and knives on these sites (Figure 40).

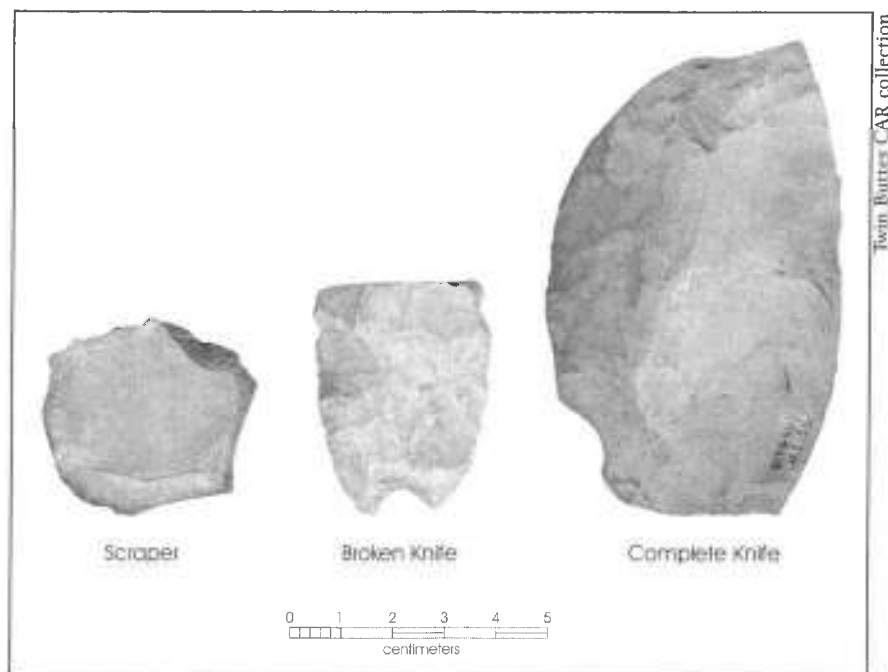


Figure 40. These are examples of cutting and scraping tools found on Paleoindian sites at Twin Buttes.

## Early Archaic

### *Early Archaic Period (8800-6000 B.P.)*

Between 8,800 and 6,000 years ago people were making a variety of different types of spear or dart points and tools characteristic of the time. During this period it appears people began relying even more on deer, smaller mammals, fish, and plants for food. They began constructing earth ovens lined with rocks in which they cooked various plant bulbs such as camass, an onion-like plant. Apparently, the bison all but disappeared from this part of Texas during the Early Archaic period, which certainly made a big difference in the way people lived. Many archaeologists think this happened because the climate was becoming significantly hotter and drier, causing a reduction in grasses

available for grazing. Archaeologists believe that these groups were small and still moved seasonally to exploit various food and material resources.

The large lanceolate spear points characteristic of the Paleoindian period were no longer being made. Instead, the dart and atlatl (spear thrower) had gradually come into use, as smaller stone tips with well-made stems were more efficient for the longer-range, harder-hitting projectiles (Figure 41).

During our survey around the reservoir we found fourteen sites with stone tools dating to the Early Archaic period. Normally, these sites were closer to water, and fire-cracked rocks from campfires were found at eleven of the fourteen sites.

During this period it appears people began relying even more on deer, smaller mammals, fish and plants for food.

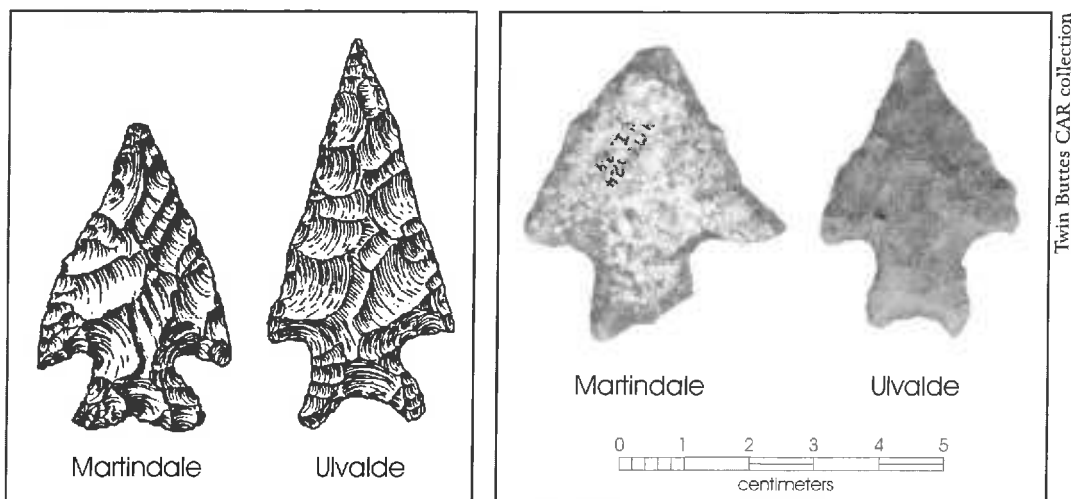


Figure 41. On the left are drawings of complete Early Archaic dart points. On the right are examples of the same type of dart points found on sites around the Twin Buttes Reservoir. (Drawing reproduced from Turner and Hester 1993:152, 191).

## Middle Archaic

### Middle Archaic Period (6000-4000 B.P.)

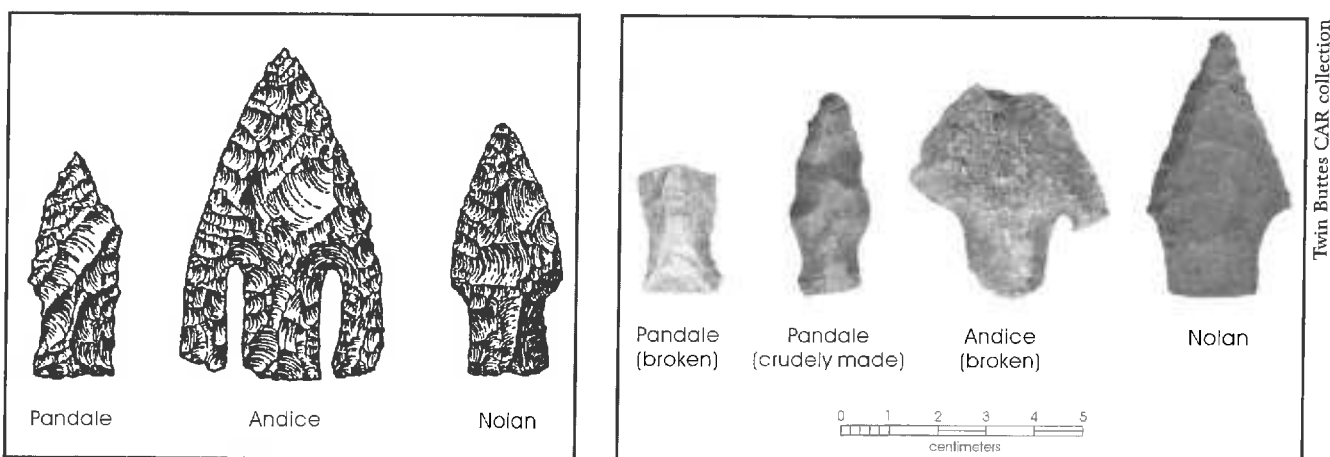
Archaeologists have recognized a distinct change in artifact style between 6,000 and 4,000 years ago, during the Middle Archaic period. In central Texas the use of large stone and earth ovens, called burned rock middens (see Figure 36) becomes common during this period, and it is clear that Middle Archaic groups were intensively cooking foods for larger groups of people. It is unclear if these larger groups came together for only a short period of time (a week or two), or if people maintained larger groups throughout the year.

Evidence does suggest that regional human populations were increasing. Supporting this evidence is the

first use of cemeteries for burial. Although bison returned to central Texas in the Middle Archaic period, it was only for a brief period. Bison again abandoned the area late in the period, probably because the climate was getting drier and the grasslands were dying. The people switched back to eating smaller animals for meat and making larger earth ovens for roasting bulbs and other plants.

During the survey we documented five sites with stone tools dating to the Middle Archaic period. Three of the five were judged to be campsites because we found fire-cracked and burned rocks from old campfires. Some of the dart points from this period are shown in Figure 42.

Evidence does suggest that regional human populations were increasing. Supporting this evidence is the first use of cemeteries for burial.



Twin Buttes CAR collection

Figure 42. On the left are drawings of complete dart points. On the right are Middle Archaic dart points found on sites around the Twin Buttes Reservoir.

(Drawing reproduced from Turner and Hester 1993:71, 164, 169.)

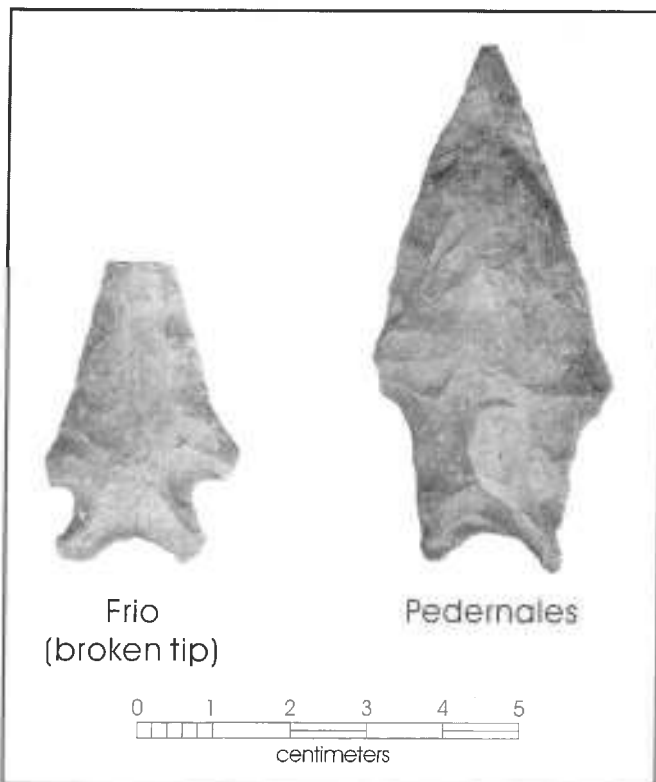
## Late Archaic

### Late Archaic Period (4000-1200 B.P.)

During this period, which archaeologists call the Late Archaic, reliance on deer, small animals, and plant foods continued. Except for occasional periods of increased rainfall, bison remained quite scarce. The number of sites increases and the Late Archaic reflects an increase in the use of large cemeteries. It seems apparent that human populations increased, and that they were staying within restricted territories to the degree that established cemeteries formed part of their death rituals. The climate was improving during this interval, and it appears that bison were slowly returning.

Archaeologists have noted an increase in the size of campsites during the Late Archaic period. Many of those campsites have artifacts of ritual or religious importance similar to those found farther east, suggesting that ideas were being exchanged with other groups in North America. The larger campsites tell us that people apparently began coming together to live in somewhat larger groups. Some archaeologists believe they did this to share scarce resources, while others believe that increasing populations and encroaching warlike groups from the north naturally forced them to band together.

There were more Late Archaic period sites found around the reservoir than sites from any of the other time periods. In all, diagnostic artifacts from the Late Archaic were found at thirty-four sites, and we found the remains of campfires at twenty-six of those sites. A few of the projectile points found that are characteristic of the last part of this period are shown here in Figure 43.



Twin Buttes CAR collection

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There were more Late Archaic period sites found around the reservoir than sites from any of the other time periods.

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Figure 43. These are examples of the Late Archaic period points found on sites around the Twin Buttes Reservoir.

## Late Prehistoric

### Late Prehistoric Period (1200-350 B.P.)

The period between 1,200 and 350 years ago is called the Late Prehistoric. The people of this period apparently experienced dramatic changes due to the introduction of pottery and the bow and arrow. The bow and arrow replaced the atlatl as the weapon of choice. Along with the introduction of bow and arrow technology was a reduction in the size of projectile points.

During the Late Prehistoric, bison began returning to the area as the climate began to get wetter and cooler. The Late Prehistoric period is divided into two shorter time intervals: Austin interval, and Toyah interval. Edwards and Scallorn projectile points occur in the earlier Austin interval and Perdiz projectile points along with Leon Plain pottery were made during the Toyah interval. The lifeways of prehistoric Native Americans were distinctly different during these two periods.

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The Late Prehistoric period is divided into two shorter time intervals:  
Austin interval, and  
Toyah interval.

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During the Austin interval deer, small animals, and edible plants were the most common foods exploited. Burned rock middens were still constructed and used. A number of sites have cemeteries and a number of individuals buried at these sites show evidence that they died violently. This appears to be a period of social stress. In the Toyah interval, bison are again hunted intensively although deer, small animals, and plants were certainly used for foods. Evidence of violent death is lacking and very few human remains have been found at Toyah sites. Toyah sites are very widespread over central Texas, south Texas and the Coastal Plains. Some archaeologists believe Toyah peoples replaced Austin peoples, while other archaeologists suggest that local Austin interval populations just adopted this new technology and hunting pattern.

A Perdiz arrow point representing the Late Prehistoric period was found at one of the Twin Buttes sites (Figure 44). Perdiz points were used extensively throughout Texas and eastern Louisiana between 1,000 and 700 years ago and are often associated with the use of pottery. Not surprisingly, we found broken pottery on the same site where we found a Perdiz point (see Figure 34). We found either pottery or arrow points on four of the Twin Buttes Reservoir sites.



#### Points of interest:

Perdiz arrow points are sometimes referred to by collectors as bird points because of their small size, this is probably based on the assumption that they would be a perfect size for shooting birds and nothing else. However in some central and south Texas sites, Perdiz points were used to kill bison proving that they could be lethal big-game weapons.

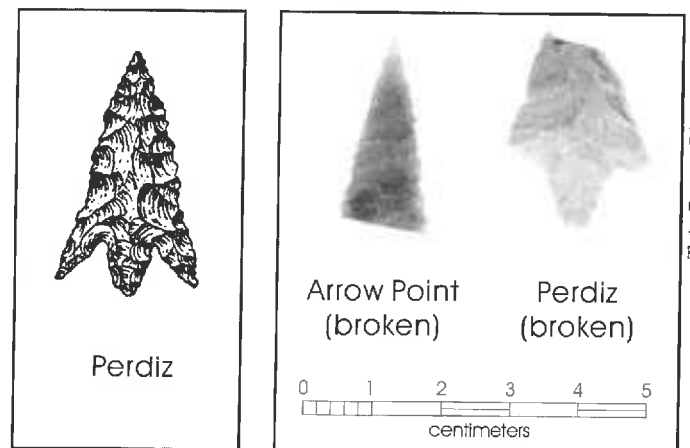


Figure 44. On the left is a drawing of a complete Perdiz point. On the right: an arrow point tip, and broken Perdiz point (found at the same site as the pottery pieces shown in Figure 34). Items are diagnostic to the Late Prehistoric period in central Texas. (Drawing reproduced from Turner and Hester 1993:227.)

## What Does it Mean?

From the locations of the sites we found during this survey, as well as sites recorded by others in the past, we know that Native Americans were living in and around the area of Twin Buttes, continuously and at times quite extensively, for 11,000 years before the Spanish arrived in Texas. Exactly how many people were here at any given time may never be known. Some archaeologists estimate there may have been as many as 150,000 in central Texas during the Late Prehistoric period, about 350 to 1,200 years ago. Therefore, you would think that most of the stone tools found around the reservoir would be from that period. However, that's not the case. Figure 45 shows that of the 67 sites we found with time-diagnostic tools, 36 date to the Late Archaic period, about 1,200 to 3,000 years ago; that's over 50 percent! Does this mean that there were more people in the area at this earlier period? We don't know for sure—maybe there were—and the climate changed just enough to make people want to leave the area.

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...artifacts left on the surface by people during the Late Prehistoric period have washed down slopes and into river channels where they likely will never be found.

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Another suggestion is that there were just as many or more people in the area during the later Late Prehistoric period, but we were unable to find the stone tools they left behind. After all, the arrow points used during the Late Prehistoric period are much smaller and harder to see than the larger dart points used during the Archaic period. Another alternative voiced by soil scientists is that the climate changes over the past thousand or so years, along with changes in the landscape caused by man have caused soils to erode; and the artifacts left on the surface by people during the Late Prehistoric period have washed down slopes and into river channels where they likely will never be found. A final alternative that we know has occurred is that artifacts have been picked up from around the reservoir for many years before archaeologists surveyed the area. Although they're nice to look at, and fun to collect and hold, in most cases information about where they came from and what other artifacts were found with them is then lost forever. We may never be able to predict with any degree of accuracy the patterns of campsites and kill sites that existed, before the Europeans arrived and began writing accounts of what they saw.

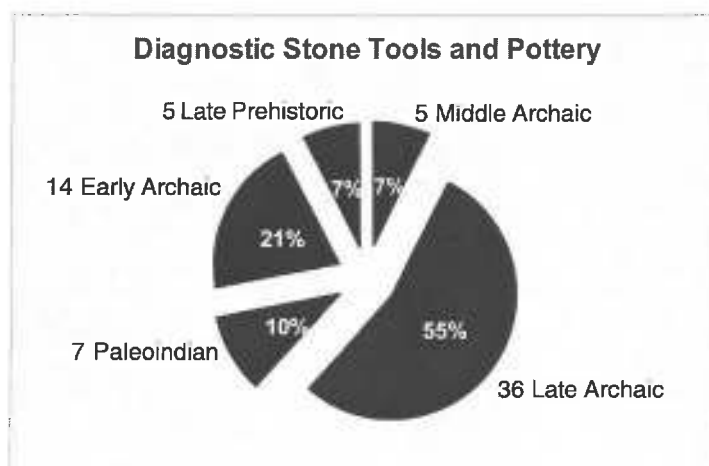


Figure 45. Over fifty percent of the sites that had datable stone tools or pottery were from the Late Archaic period.

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## Historic Period

### Early Native American Contact

The question of what Native American group(s) occupied the area around Twin Buttes over the past several millennia will probably never be fully answered. Even though several archaeological sites remain preserved and we are able to gather information about how the Native Americans lived in prehistory, we just don't know by what names they were called. However, the written and oral accounts of Native American groups encountered in the area in historic times are far more certain and clear. Admittedly biased toward a Eurocentric point of view, the earliest accounts of encounters with Native American groups are those of Spanish adventurers and priests on *entradas* (journeys or expeditions) into previously undocumented regions of Texas. Most *entradas* were sponsored by the Spanish Crown, and undertaken because of a desire to lay claim on cities or regions with rumored wealth of immense proportions. Catholic priests accompanied the explorers; they were devout and faithful missionaries encouraged by the Catholic church to seek out new converts among the indigenous tribes and bands that inhabited this land we now call Texas.

The first European adventurer to reach the unexplored wilderness of Texas and make an extensive written record of his adventures was Cabeza de Vaca, who landed on the shores of Texas on an island they named Malhado (Spanish for Doom) near Galveston in 1528. Interpretations of de Vaca's *Joint Report and Relation* given by him after his travels in Texas suggest that he may have reached the Twin Buttes, Concho River valley area. Researcher Carl Sauer interprets de Vaca's journey through west-central Texas as following the


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Most *entradas* were sponsored by the Spanish Crown, and undertaken because of a desire to lay claim on cities or regions with rumored wealth of immense proportions.

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Colorado upstream and then westward along the Concho, the Middle Concho, and then up Spring Creek before proceeding overland to the Pecos. Mr. Sauer interprets De Vaca's account of a major trading crossroads situated on a very broad river as most likely on the Concho River in close proximity of modern-day San Angelo, Texas. However, historian Cleve Hellenbeck suggests that the crossroads was probably on the Colorado near modern-day Big Spring, Texas, and that de Vaca traveled farther north than the San Angelo area. A third researcher, Nancy Hickerson tends to agree with Mr. Sauer, and says that "Cabeza de Vaca was probably in contact with ancestors of the seventeenth-century Jumano Indians..." near San Angelo, "...because it makes it possible to identify the site as a historically important crossroads, which was the location of a Jumano base in the seventeenth century. Cabeza de Vaca's narrative suggests that the situation in the mid-sixteenth century was much the same."

Passages in a book edited by Cyclone Covey about early travelers in North America, indicate that as de Vaca traveled west from the upper Concho toward the Pecos, the Native Americans he encountered appeared to be related to those whose villages he had recently passed through—the Jumanos near San Angelo. However, as depicted in Figure 46, historian Donald Chipman and others don't believe he traveled as far north as the Twin Buttes area. Regardless of whether he did or not, his influence and reputation as a healer and trader must have been communicated throughout Texas. More importantly, he obviously encountered a part of the large group of Native Americans known as the Jumanos.



#### Points of interest:

*In the 1540s, Francisco Vásquez de Coronado led a large expedition into New Mexico, northwestern Texas, Oklahoma, and Kansas. With its hundreds of horses and other livestock, Coronado's expedition could have left countless numbers of strays in Texas. It is also likely that cattle may have strayed into Texas in the latter 1500s, as herds numbering in the hundreds of thousands were being tended in northern Mexico after the mid- to late-sixteenth century. Thus, the early Spanish influence in Texas includes the introduction of livestock as well as people.*

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## Historic Period

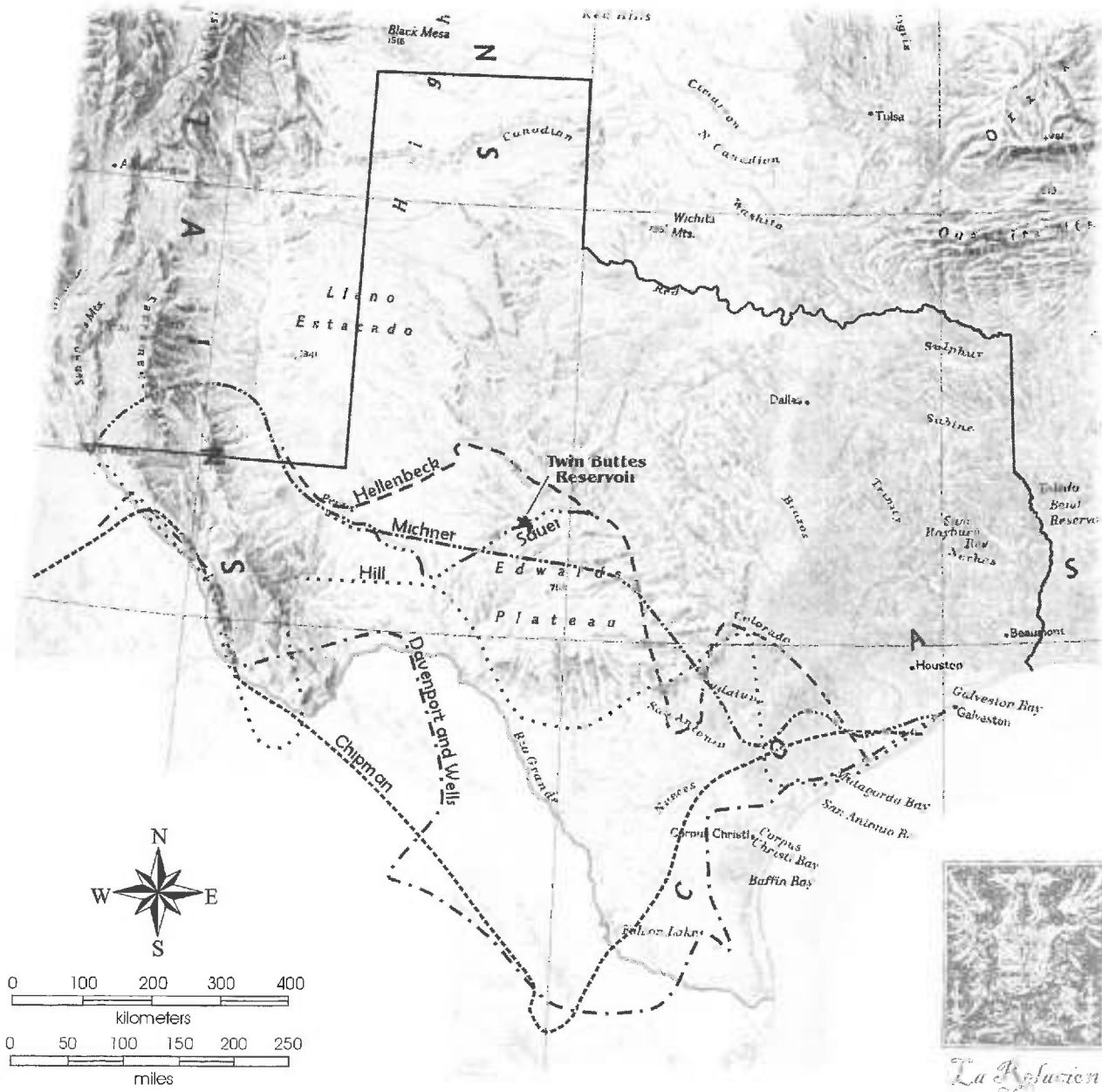


Figure 46. Various researchers have speculated on the routes that Cabeza de Vaca may have traveled through Texas from 1528 through 1533. This map shows routes overlain on a modern map of Texas.



## Early Entradas

The Spanish Catholic influence was felt in the Concho River valley early in the first half of the seventeenth century when Jumano Indians claimed to have been visited in spirit by Venerable Sister Maria Coronel de Agreda (Lady in Blue) who taught them in the ways of Christianity, and advised them to seek further instruction from the Franciscan missionaries in New Mexico. Jumano representatives journeyed from the San Angelo region to Old Isleta, New Mexico and asked that a mission be established among them. Subsequently, Father Juan de Salas led entradas to contact the Jumano Indians in 1629 and 1632. The second entrada resulted in the first of thirty-eight Spanish missions in Texas being established on the Concho River near San Angelo by Reverend Fray Juan de Ortega O.F.M. He served the Jumano Indians at the site for six months before returning to New Mexico. Noted historian Father Marion Habig refers to this mission as "San Angelo Mission."

As we said earlier, the pursuit of potential riches was paramount in the minds of the Spaniards pushing north from below the El Rio del Norte (the Rio Grande). Eighteen years after Father Salas established the brief Catholic presence at the San Angelo Mission, two Spanish entrepreneurs named Hernán Martín and Diego del Castillo ventured into the Twin Buttes/San Angelo region with the intent of establishing trade relations with the Jumanos in that part of Texas, eventually evolving into extended trade with the Caddoan Hasanaí Indians in northeast Texas, and beyond.

While in the Concho River valley, Martín and Castillo noted the large quantities of mussel shell clams in the Concho valley and even extracted some fine quality freshwater pearls from them. Reports back



**Points of interest:**

*By all accounts, only about one in every hundred mussel shell clams produced a pearl, and the effort to yield a profit was not fruitful.*

to New Mexico aroused the interest of other entrepreneurs, including Diego de Guadalajara. Guadalajara formed an exploration party and left Santa Fe, New Mexico for the Concho valley in 1654. Once there, he and his comrades scoured the banks and bottom of the Concho looking for oysters yielding illustrious freshwater pearls. At some point in the ensuing four years, the name of the Concho River was thus changed from Rio de las Nueces (river of pecans) to Rio de las Conchas (river of shells). Here the Jumano Indians were apparently still the predominant group in the region and had not as yet been displaced by invaders that would, eventually, sweep into the area from the north and west.

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At some point... the name of the Concho River was thus changed from Rio de las Nueces (river of pecans) to Rio de las Conchas (river of shells).

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Although limited trading continued with the Jumanos, by the 1680s the Apaches, who had infiltrated the Rio Concho area, created an ominous presence for potential settlers as well as indigenous Native American groups. In 1683 the Jumanos sent a delegation to El Paso seeking to reestablish trade relations with the Spanish. Such an alliance would also help fend off the warring Apaches. In response, Spanish military Captain Juan Dominguez de Mendoza, a squad of soldiers, and two Catholic priests set out from the El Paso area in December 1683. The two priests accompanying Mendoza were the Father Superior of New Mexico missions, Father Nicolás Lopez, and Father Juan de Zavaleta. Upon reaching what we now know today as the Colorado River, Mendoza initially named it the San Clemente River. Modern-day historian Carlos Casteñeda believed that they established a new mission, Mission San Clemente, for the Jumanos at the confluence of the Concho and Colorado Rivers. Historians Herbert Bolton and Donald Chipman suggest that Mendoza marched eastward from the Pecos, encountered the

## Early Entradas

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Middle Concho, and followed it downstream to the Main Concho, and eventually the Colorado. If that's the case, then Mendoza's route took him directly across the Twin Buttes survey area. However, others believe that San Clemente was located either on the San Saba River near present-day Menard, Texas, or on the Colorado River near present-day Ballinger, Texas, or on the South Llano River. Regardless of the exact location, the Spanish presence at San Clemente lasted only about two months before French encroachment in east Texas drew the attention of the Spanish away from west Texas.

Although short-lived, the San Clemente Mission established in Jumano country attracted several groups from the Rio Grande and Edwards Plateau

regions to the San Angelo area. Some of the groups who followed Mendoza may have spoken a dialect of *Coahuiltecan*. Coahuiltecan is a term coined by Mexican linguists in the 1800s, and the word *Coahuilteco* refers to the many small bands of Native Americans who lived in northeastern Coahuila, Mexico and south Texas. However, today's language researchers now believe that the term is too generic, and in fact there were probably dozens of different languages and dialects spoken by the hundreds of small groups in the region. Twenty groups followed the Mendoza expedition from the El Paso area, and thirty-seven others were expected to meet Mendoza upon arrival at San Clemente. Thus, a large aggregation site was established at San Clemente, resulting in a diverse mixture of bands and tribes from several different areas of Texas. Over 4,000 head of buffalo were killed during the approximately six weeks that Mendoza occupied San Clemente.

Near the end of the seventeenth century Lipan Apaches had moved into the area from the west and north, displacing through warfare the indigenous tribes and bands. However, by the end of the seventeenth century the Apache were forced to ally with both the Spanish and the indigenous groups in order to defend themselves against a much fiercer enemy—the Comanche. By 1705 the mounted Comanche warriors were dominating all other Indian groups in the region.

### Early Settlement in Texas

Settlement in east and south-central Texas began in earnest with the establishment of Spanish missions in those regions. However few landowners dared to live on their outlying lands, or even venture westward from San Antonio until about 1749, when a treaty with the Apaches brought peace for a period of time. Apaches continued to range over the area between San Antonio and Laredo until

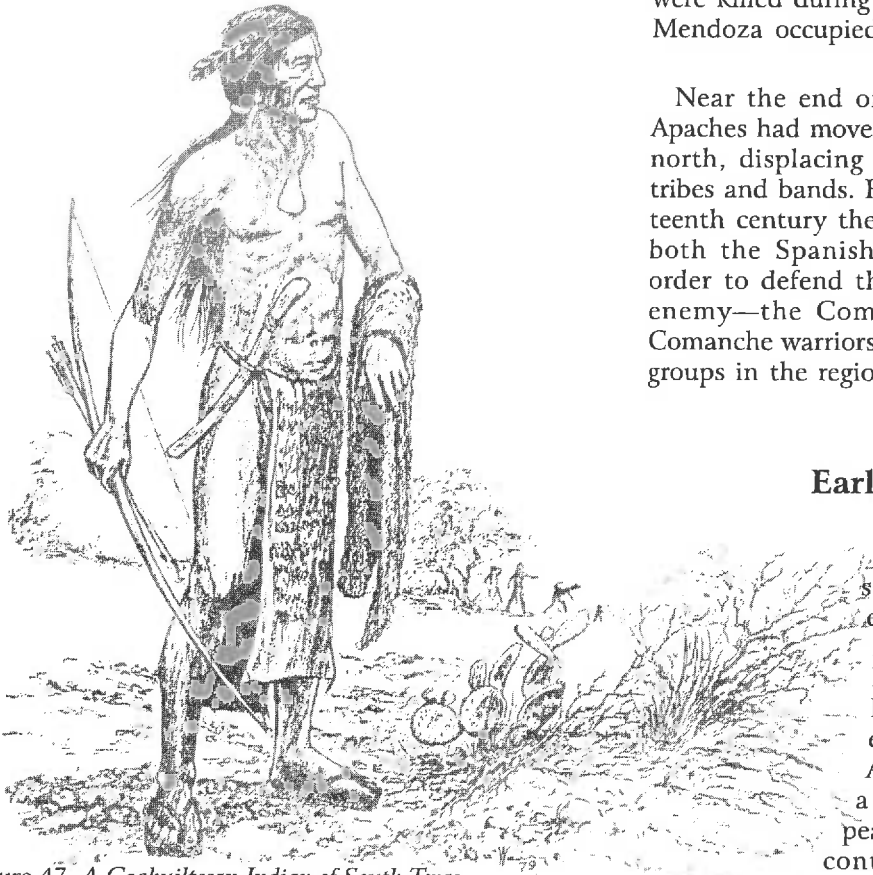


Figure 47. A Coahuiltecan Indian of South Texas.  
(Frank A. Weir; reproduced from Campbell and Campbell 1985)

the early 1800s, pushed southward by the invading Comanche who had moved into the Hill Country of central Texas. Weary of the continuing warfare with the Comanche, a few Apache began to seek asylum in the missions.

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Weary of the continuing warfare  
with the Comanche,  
a few Apache began to seek  
asylum in the missions.

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French encroachment into Texas caused considerable concern for the Spanish. Alliances were formed between early French traders and Native American tribes for economic reasons during the first half of the eighteenth century. In an attempt to extend their trade network from Louisiana to Santa Fe, French traders sought peaceful relations and trade agreements with Wichita villages in Oklahoma. The Wichitas provided valuable otter, mink, beaver, and muskrat furs, as well as buffalo robes in exchange for French guns, ammunition, knives, cloth, and other hardware. In 1747, the French were instrumental in helping the Wichitas form a trade alliance with the Comanches, who were encroaching on the western periphery of Wichita territory in modern-day western Oklahoma. The wide-ranging Comanche were able to provide more furs from territories they controlled to the west. The Wichitas acted as middlemen in the French-Comanche trade; the Wichitas accepted Comanche furs in exchange for French muskets and other goods.

The French/Wichita/Comanche alliance proved costly to both the French and Spanish. In 1758 the Comanche, Wichita, and Tawakoni Indians (a Wichita group) attacked Mission San Sabá on the San Saba River, near present-day Menard, Texas. This mission was established at the request of the Apaches, enemies of the Comanches. The massacre of the

mission inhabitants by the Comanches and Wichitas was carried out with French muskets.

Finally, after nearly a century of conflict, in the autumn of 1785, a peace treaty was agreed to in Santa Fe between the Don Juan Bautista de Anza representing the Spanish Crown, and Cuera (Leather Jacket) representing the Comanches. The treaty signaled the opening of a period of peaceful coexistence. However, the treaty agreement was certainly not adhered to by all Comanches, as certain groups continued to commit acts of depredations through the nineteenth century on anyone who dared challenge their range.

While Texas was not yet a free and independent republic, frontier naturalist Dr. Gideon Lincecum *may* have visited the Twin Buttes area in the Spring of 1835. While there he observed what he thought must have been 500,000 buffalo grazing on the open plains, along with plentiful deer and jackrabbits. And, although he was unsure of the name of the creek he visited, he noted it had a slate bottom...

*"amongst which I found numerous particles of gold. To the eye of the mineralist the rocks, clay, the slate, all in that immediate district, bear unmistakable indications of a pretty heavy auriferous deposit. I had no means of ascertaining what the name of the creek was then, but I think it will be found by some industrious miner on one of the source branches of what is now known as the Concho River, a tributary of the Colorado of Texas. At a distance of ten or twelve miles to the north I could see two mountain peaks. I wished to climb to their summits and examine them but feared exposing myself."*

## Struggling for Frontier Dominance

Upon winning its independence from Mexico in 1836, a struggling young Republic of Texas continued the empresario (colonization) system as a means of bringing new families to settle and develop the land. Earlier grants of huge tracts of land to empresarios such as Stephen F. Austin, Green DeWitt, Haden Edwards, Sterling Robertson, John McMullen, and others proved successful in establishing communities in south and east Texas. Around 1840 settlers from Germany and Alsace-Lorraine and from other regions of the United States began to flood into San Antonio. Many of the Germans moved into the Hill Country to the north, settling into communities, and raised cattle or sheep. As the cattle and sheep markets emerged in the 1880s ranchers and farmers settled in areas further away from San Antonio.

Under President Sam Houston's second term in 1842, Henry Fisher, Burchard Miller, and Joseph Baker petitioned the Republic of Texas for authorization to establish 1,000 families in an area consisting of over 3 million acres of land between the Colorado and Llano Rivers. Permission was granted to Fisher and Miller to begin recruiting 600 immigrant families who, provided they built a cabin and farmed 15 acres of fenced land, would be given 640 acres per family. However, settlement in the western portion of the grant, which included Twin Buttes, did not come easy. The objective of luring 600 families (later increased to 6,000 by the Republic of Texas) could not be accomplished for two main reasons:

- 1) The northwestern portion of the tract encompassed the hunting grounds of the Comanches who were not about to relinquish their domain without a fight; and
- 2) The area was well west of the main San Antonio – Mexico trade routes.

Following a chain of events that led to the Fisher-Miller Grant being acquired by the Adelsverein (the Society for the Protection of German Immigrants in Texas), John O. Muesebach as Commissioner-General

of the organization sent a survey party to the San Saba River area near Menard to investigate the possibilities of mineral wealth and tillable farmland available within the western portion of the Grant. Well aware that he would be encroaching upon Comanche territory, he met with a group of Comanche chiefs for three days in March 1847 and negotiated a treaty of peaceful coexistence with them. Speaking through an interpreter, Muesebach's treaty proposal to the Comanche chiefs was as follows:

1. "My countrymen have the permission to go and travel where they please, and no harm must be done to them, but you must protect them everywhere. On the other hand, your people can come to our wigwams and cities without fear and can go wherever they please and shall be protected."
2. "You the chiefs, and your people will assist us and report to us, when bad men and redfaces of other tribes steal our horses or intend other felonies, and we shall do the same, when you are attacked."
3. "I am going to send men with the thing that steals the land (compasses), as the red men call it, and will survey the whole country of the San Saba as far as the Concho and other waters, so that we may know the boundaries where we can go and till the soil. And if you are willing after consultation with your warriors, to make this treaty, then I will give you and your squaws many presents, that we call dollars, and give you as many as one thousand and more of them."

The following May the chiefs finalized the agreement by coming into Fredericksburg to sign the treaty and collect the money promised them.

By the 1840s new routes and trails were being established through the largely unsettled Twin Buttes area, due in part to the desire to reach the gold fields of California. One such group of fifteen prospectors from Austin, passed through the area in 1849 and left a written account of their adventures. They traveled to the head of Brady's Creek before heading west to the Concho River where they noted:

*April 29.*

*Pursued our way, traveling up the creek (author's note: Brady's Creek) to its source, thence across the country to the Concho River – a due west direction, the first eight miles over a beautiful mesquite country, the rest of the way poor and rocky. Made thirteen miles today. This stream abounds in fish, in which we had the pleasure of regaling ourselves.*

*April 30.*

*Traveled this day twenty-one miles, our way through a mountainous and barren country; no water to be procured on the road. Encamped on a branch of the upper Concho. We saw pleasant looking valleys to our right and left; nothing of interest to remark on. Our camp is in a pretty valley, studded with pecan trees; plenty of good water.*

*May 1.*

*Traveled west five miles to the second Concho and encamped on the west bank. This stream has several pretty valleys of land. The face of the country on each side of the stream is mountainous. This stream is very pretty, affording good mill sites.*

*May 2.*

*Pursued our journey a due west course. We passed over the most picturesque country seen so far. Towering peaks presented themselves in front of us; two in particular, known by the name of Twin Sisters (author's note: Twin Buttes), served as landmarks to guide us on our way. We ascended the top of one of these peaks and had the most extensive view I have ever seen. On one side seven other tall peaks appeared in sight, and on the other, vision was lost in the great expanse uninterrupted by the least elevation of land or [by] any other objects. On the third Concho we found some very good valleys of land. We traveled fifteen miles this day and pitched camp. At this place we found the skeleton of an Indian in the camp of some emigrants for California that were before us; supposed that he was killed by them.*

*May 3.*

*Left the third Concho this morning; passed through some very good land situated on this stream. Our course has been due west. Made fifteen miles and encamped on the fourth Concho. Timber scarce, but plenty of water.*

The unknown author of the journal extract mentions emigrants traveling to California. This infers that emigrants passing through the area had already entrenched an emigrant road. By 1849, westward expansion was foremost in the dreams of many citizens and politicians. As a result, the United States Army Topographical Engineers Corps was called upon to survey various routes to El Paso and beyond. Lieutenant Francis T. Bryan was ordered to conduct a survey to determine the best route for a permanent road from the Gulf of Mexico to El Paso. Lieutenant Bryan passed through the area, describing the South Concho as a large, but gently flowing stream. As he approached the South Concho from the east, the land had only a few live oaks and scattered mesquite trees, but along the banks of the river there were many

large pecan trees. His party was able to cross the South Concho and Dove Creek only after clearing thick brush from the water's edge. He describes the grasses in the area between the South Concho and Dove Creek as being "only tolerable, ...old and dry." He notes that the water in Good Spring Creek was "pure and very cold."

After crossing Lipan Creek his party encountered the Emigrant Road south of Green Mounds, "where the wagon road is deeply marked on the prairie." The Middle Concho afforded his men the opportunity to fish for good catfish and trout. John Russel Bartlett's expedition through the area the following year crossed the wagon trails of Lieutenant Bryan. After crossing the South Concho "...or Boiling

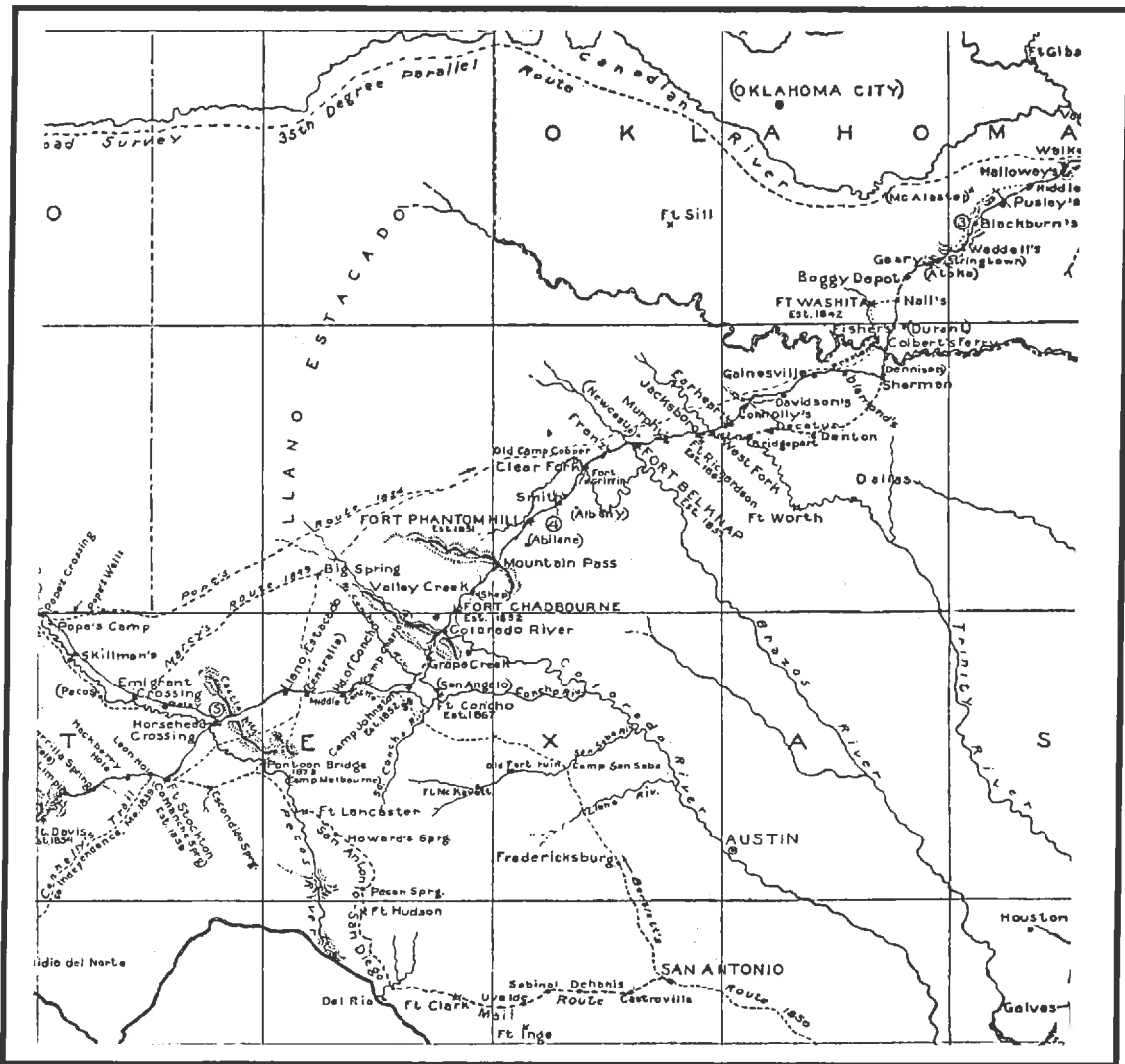


Figure 48. This map shows the Butterfield Overland Mail routes through Texas between 1857 and 1869. (Reproduced with permission from Flat 17, West Texas Collection, Porter Henderson Library, Angelo State University.)

Concho" as he called it, then Dove Creek, he camped on Good Spring Creek and could see the Twin Buttes to the north. After catching a few dozen catfish and black bass in Spring Creek he and his fellow travelers spent the night with five Lipan Apaches, including two chiefs, who had joined them. The next day Bartlett and his group found the Emigrant Road (California Road) west of San Angelo near Green

Mounds, and headed west toward El Paso. Bartlett's narrative of the area varies little from that of Lieutenant Bryan.

It is interesting to note that although Bryan's party traversed the area in the summer (June and July), and Bartlett's in the fall (October), neither of them mentioned large herds of bison that later travelers did.

## Early Settlement in the Area

The Twin Buttes/Concho River area was still an unsettled frontier by the 1850s. Remnants of the Kotsoteka and Penateka bands of Comanches still occupied the areas west and east of modern-day San Angelo respectively. The Butterfield Overland Mail stage line which ran through the area from 1857 to 1861, crossed the South Concho west of the current Twin Buttes Reservoir area before heading westward to El Paso.

There were few pioneer ranchers who dared venture into the Concho Valley in the 1860s. One, R. F. Tankersley arrived at the head of the South Concho in 1864 aboard an ox-drawn wagon with his wife Annie, six children, 700 head of cattle, and 45 horses. The area was brimming with wildlife such as turkeys, antelope, deer, wild mustangs, coyotes, panthers, beavers, fish, and buffalo in herds "like great swarms of flies." Richard Tankersley's choice of grazing land along the South Concho was a wise one; in 1869 he herded 1,700 head to San Bernadino, California. Although he lost 700 head along the way, he received \$25 per head for the 1,000 steers that made the hot, dry trip. Ben Ficklin came to the Concho valley a year after Tankersley, settling on the South Concho on 640 acres purchased from John Muesebach for \$1 an acre. He soon established the Concho Stage Station (later Ben Ficklin Station) which handled mules and coaches for the El Paso Mail Company service between El Paso and San Antonio. Passenger service on the line from San Antonio to Ben Ficklin Station took two days and cost \$25 in gold; the trip on to El Paso took four days and cost \$50 in gold.

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...from San Antonio to  
Ben Ficklin Station took  
two days and cost \$25 in gold;  
the trip on to El Paso took  
four days and cost \$50 in gold.

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At the end of the Civil War (1861–1865), the U.S. Army sought to construct and strengthen its chain of forts westward across Texas to protect immigrants and ranchers. Fort Concho (originally named Camp Hatch, also White City, later Camp Kelly) was established at the confluence of the Main and North Concho rivers in November 1867. The army hired several masons and journeymen from Fredericksburg to help build Fort Concho, at present-day San Angelo. To sustain operations, the fort then employed 123 civilians, including two blacksmiths and three wheelwrights in 1869. During its heyday in 1879 the fort housed eight companies of soldiers and consisted of forty stone structures. As with all military posts, camps, and stations there were camp followers, traders, and civilian workers which caused the community of San Angelo (originally named Over-the-River, later Santa Angela) to spring up across the river from the fort in 1870. Fresh vegetables were obtained from the fort's garden known as Bismarck Farm, "the first irrigated farm in West Texas," and the soldiers supplemented their army rations with buffalo and turkey.

At a cost of \$88 per mile, telegraph lines were strung between Fort Concho and Fort Griffin. The Fort Concho telegraph office became operational on October 19, 1876 and a signal corps unit at the fort managed the telegraph and weather services. The development of Fort Concho was a significant stimuli for development and settlement of the region as a whole.

*"Soldiers from Fort Concho scouted and mapped large portions of West Texas; built roads and telegraph lines; escorted stagecoaches, cattle drives, and railroad survey parties; and served generally as a police force."*

By 1889 civilian law enforcement and a growing, stable population precluded the need for a frontier fort and it was closed. Even though a flood cresting 40 feet above the river channel wiped out the then county seat of Ben Ficklin in 1882, the citizens refused to quit. And, although Ben Ficklin was basically abandoned, San Angelo and the rest of the county continued to grow.

The United States military also began to establish a chain of forts on the Indian frontier. Attempts to protect the western territories from Indians during the 1850s had been largely unsuccessful, and after the Civil War, the federal government decided not to reoccupy all the forts that had been part of the original 1850s defense. Instead, a new effort began farther west.

By the 1880s and 1890s, after having eliminated the threat of Indian attack, the U.S. Army gradually abandoned its Texas posts (Figure 49). Some have been excavated by archaeologists, and some have been partially restored. Fort Concho, in San Angelo, may well be the finest example in the state of a carefully restored frontier army post.

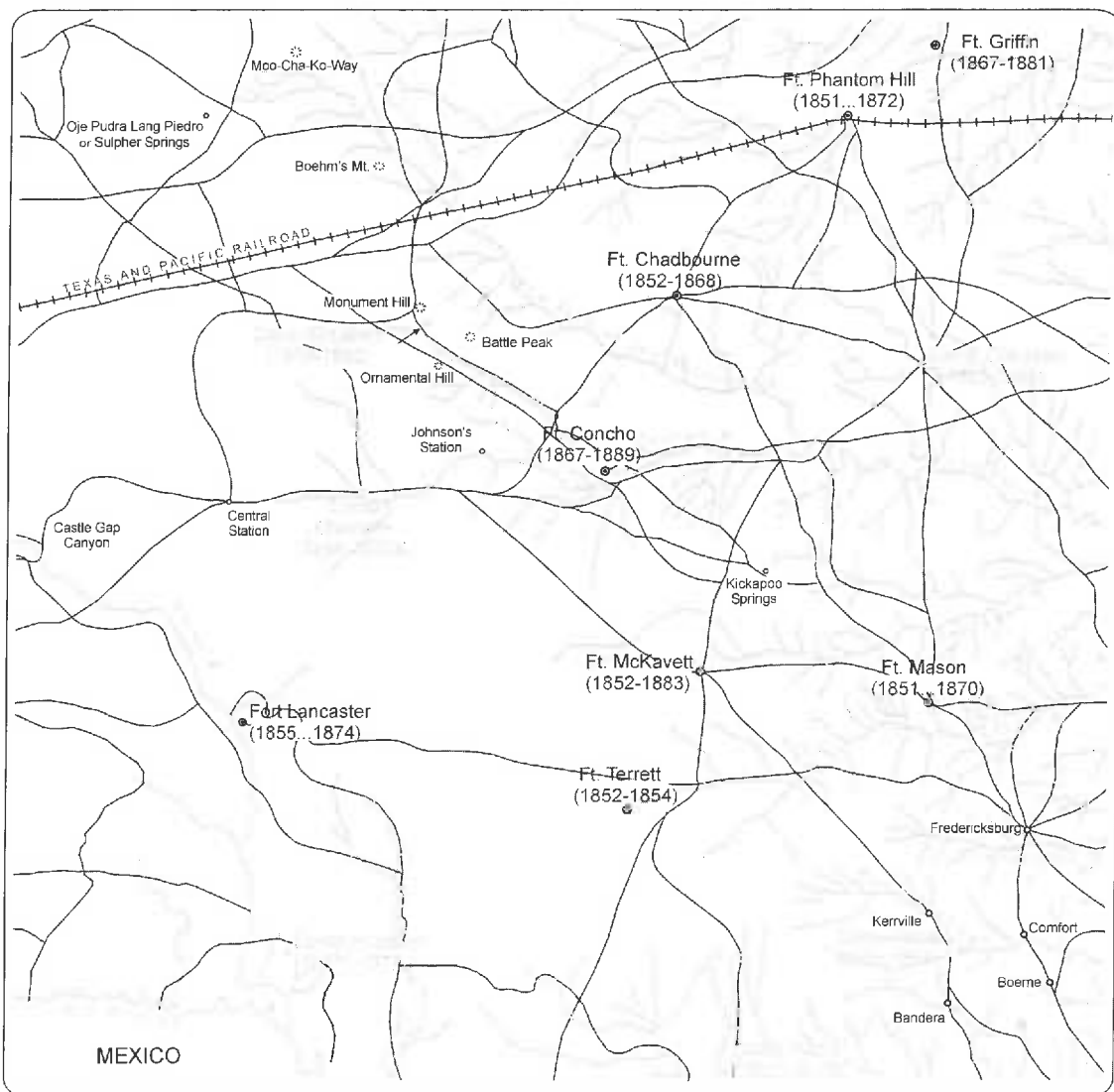


Figure 49. Frontier protection was demanded by settlers encroaching from the east. In response, the U.S. Army's chain of forts promoted westward expansion.



## Freighting

Even with the rapid development of San Angelo, and the establishment of Tom Green County in 1874, the freighting industry was essential to the continued development of the area. A good description comes from local historian, Barbara Barton, in her book about early Tom Green County rancher Richard Tankersley. In it she relates from Richard's wife, Mary, that life in San Angelo could, at times, be chaotic:

*"When there were supplies to haul, the streets were crowded with ox-driven rigs, as well as horse and mule driven. This caused lots of congestion, cussing drivers, popping whips, and braying mules."*

Texas pioneer and freighter August Santleben spoke of the Concho River region during the 1870s and 1880s as one in which "The plains and valleys that are traversed by the headwaters of the Concho River and its tributaries were then occupied by droves of buffalo whose numbers could not be computed with certainty." He further alluded that although a 30-mile wide corridor extended into the area around present-day San Angelo, the southern limit of the great herds extended to about 50 miles north of Fort Concho, where the Comanches hunted freely and white settlers did not safely roam.

Winters were (and still can be) severe in the region. Mr. Santleben recalled he and his mules seeking shelter in the cedar breaks at the head of the Concho River while enduring ten days of sleet and snow; the weather being so severe that the buffalo were forced to strip the trees' limbs because the grass was inaccessible. The mules of many freighters were less fortunate than the native buffalo; one related case concerned mules belonging to Captain Edgar, a San Antonio freighter, whose sixty mules froze to death en route, with their bones marking their final resting place for many years.

Despite glowing reports of abundant protein-rich grasses from early settlers and explorers in the area, freighting ventures into the Concho valley were not accomplished without personal hardships and severe financial losses. For example, after delivering fresh corn to Fort Concho from the farmers in and around

the Austin area, August Santleben lost 40 mules to starvation on his return trip.

Shipping buffalo hides and later bones from San Angelo by freight wagons was big business also, with an immense slaughter of buffalo occurring between 1874 and 1878. The local Veck mercantile in San Angelo was a large dealer in buffalo hides. In an interview conducted by J. Evetts Haley in 1931, Mrs. Veck related:

*"Joe Alderette, a Mexican, nearly seven feet tall, was one of the biggest buffalo hunters. He came from Mexico but practically grew up in Fort Concho. He hunted on the south side of the herd. Mr. Veck operated the general mercantile store here. At one time he had ten thousand buffalo hides stacked right here (where the Veck home now stands). They were stacked fifteen feet high, row on row, with just enough room for men to easily walk between them. I came to Fort Concho as Mr. Veck's bride in 1872. I had no floor in my house, and during the winter we floored it with good hides after cutting off their legs and tails. We used the untanned raw hides for this. But we used to tan some of the hides ourselves. We'd take the green hides, peg them to the ground, flesh side up, and rub salt and the buffalo brains into them. After they stayed there about a week, we'd take small, rough rocks and after trimming any fat and flesh off, we'd rub the hides with these rocks until the hides were soft. Then we rubbed in some more of the brains and arsenic - the brains to make the hide soft and the arsenic to keep out the moths."*

Bison hunting around San Angelo ceased during the winter of 1877 when particularly bad weather forced the bison from the area. However, even in the waning years of hunting bison on the open plains 100,000 hides were shipped through San Angelo. Heaps of buffalo bones stockpiled along railways were bought and sold for shipment to railheads in Kansas, to be used for everything from bone-china, to bone meal, to bone buttons. Texas led the world in bone production, and supplied approximately 500,000 tons of bones ranging between \$3 and \$23 per ton between 1870 and 1900.

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## Freighting



Figure 50. Buffalo numbering in the millions roamed from the Northern Great Plains of North Dakota to the Southern Great Plains around Twin Buttes. (Buffalo at Wind Cave National Park, Black Hills, South Dakota 1948. Fred Hultstrand History in Pictures Collection, NDIRS-NDSU, Fargo; Gift from Donna Jean Verwest, 1969)

Freighting unusual cargo through the area from Chihuahua to San Antonio was quite common in the late 1800s. Another story related by Mr. Santleben tells of hauling a meteorite from Mexico through Fort Concho, where the spectacle piqued the curiosity of the soldiers stationed there. It should be noted that the meteorite quite handily served as a diversion for the \$200,000 in silver stored underneath buffalo robes in the same wagon train. With the coming of the first automobile to San Angelo in 1910, the number of freight yards and wagons began to decline.



Figure 51. Warm winter coats are an example of one of the many uses for buffalo hides. (Fred Hultstrand History in Pictures Collection, NDIRS-NDSU, Fargo. Gift from Donna Jean Verwest, 1969.)

## Battle of Dove Creek

Although minor skirmishes and depredations occurred in the area between the encroaching whites and Indians throughout the nineteenth century, the Battle of Dove Creek had a long-lasting ill effect on the peace and stability of the region for many years to follow. In January 1865, Confederate and local militia forces under the command of Captain S. S. Totten and Captain N. M. Gillitine attacked a Kickapoo Indian camp on Dove Creek. Although there are conflicting reports on the number of Indian casualties, the Confederate and State Militia casualty lists indicate 22 killed and 19 wounded. At the end of the fight it was evident that the Kickapoos clearly had the advantage as they soundly defeated the Confederate and militia forces. The Kickapoos, who reportedly had been peaceful, were en route to Mexico to evade the chaos caused by the Civil War in the United States retaliated with vengeance after finally reaching Mexico. They continued to harass and raid ranches and settlers in south Texas until Colonel Ranald S. MacKenzie crossed the border and avenged their actions.

occasional thievery by Indians from south of the Rio Grande, and the tenacity of buffalo hunters still seeking the remaining herds roaming among the sheep. Early sheep ranchers in the Concho Valley were Joseph Tweedy, E. Morgan and Leslie Grinnell, and J. Barlow Reynolds, who moved sheep from the Fort Clark/Bracketville area in 1877. The first shipment of lambs from San Angelo is believed to have occurred in 1899, shipped by Sol Mayer of Fort McKavett. San Angelo became a major shipping point for markets to the east and is recognized as the Sheep and Wool Capital of the nation.

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## Ranching

Cattle ranchers in southwest Texas drove their herds to the railhead in Amarillo, which was constructed in 1877. The long trail drives which took them through Tom Green County, particularly the Middle Concho valley through the Twin Buttes area, began to decline in the 1880s when C. B. Metcalf fenced a portion of the valley. In the rest of Texas and across the Great Plains, the stretching of barbed wire over previously open rangeland ired the trail drivers, but served to protect the newly tilled farmlands.

Sheep ranching took hold in the San Angelo area in the late 1800s. The early ranchers who introduced sheep to the area had to face the wrath of cattlemen, the savagery of wolves and coyotes, the



Figure 52. Mesquite stump being grubbed out on land which will be used for truck farming, Tom Green County, near San Angelo, Texas. (<http://memory.loc.gov> from Farm Security Administration - Office of War Information Photograph Collection [Library of Congress], Lee Russell - photographer).

## Railroads

As with most of the American West and Texas in the boom of the late nineteenth century, the railroad's insurgency through west Texas and Tom Green County had a significant impact on the economy and populace. The State of Texas was eager for railway expansion and granted over 38 million acres of rights-of-way to the railroads between 1853 and 1882. The first steam engine tracks were laid in the area in 1885 when the Gulf, Colorado and Santa Fe began constructing a new line from Lampasas toward San Angelo. Taking a proactive stance, in 1888 the city of San Angelo raised \$50,000 to ensure the Kansas City, Mexico and Orient would bring their rails into the city, and that year the line was completed from Ballinger into San Angelo.

By 1909 the Concho, San Saba and Llano Valley Railroad completed a new line from San Angelo to Sterling City. The Kansas City, Mexico and Orient of Texas then pushed a new line through San Angelo from Wichita, Kansas to Alpine, Texas in the early 1900s, reaching Mertzon in 1911. The Atchison, Topeka and Santa Fe (after acquiring the Kansas City, Mexico and Orient of Texas) extended a new line from San Angelo to Sonora in 1930, however the line lost money and was later abandoned. As costs of operations increased, along with competition from the trucking and airline industries, the Gulf, Colorado and Santa Fe Railway was forced to abandon the rails between San Angelo and Sterling City in 1959. The South Orient Railroad Company, Ltd., acquired the rails from San Angelo to Presidio, Texas from the Santa Fe in 1992, and the tracks are still used occasionally to ship freight into Mexico. The South Orient is the only rail line in operation today and the only tracks being used consistently are those with a daily freight run between San Angelo and Coleman.

## Water

When Company B of the Texas Ranger Frontier Battalion was stationed in the San Angelo area in the late 1870s and early 1880s to ward off Indian attacks, one of their other missions was to provide maps of

waterholes, a valuable commodity in a generally vast, arid land. Irrigation projects in the Concho Valley were essential to farming activities, and began early on in the process of settlement. As mentioned previously, the Bismarck Farm established by Jake Marshall in 1868 near Fort Concho was the first irrigated farm in west Texas, obtaining its water from the South Concho, three miles south of the fort. A dam at the confluence of Antelope Creek and the South Concho diverted water into an irrigation ditch running approximately parallel to the South Concho, and eventually emptying into the Concho. The ditch system provided irrigation to over 800 acres between the ditch and the two rivers.

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Near the community of Knickerbocker the Baze brothers (Pete, Tom, and Polk) constructed the Baze irrigation ditch in 1875 to water their melon, vegetable, and hay fields. The abundant water supply from Dove Creek allowed them to produce enough to sell to the soldiers at Fort Concho. In 1878 Charley and William Lackey built a log and rock dam across Spring Creek northwest of the present community of Sherwood to divert water for vegetable farming. A farmers cooperative group, formed to participate in the irrigation project, was named the Upper Ditch Company. By 1906 the log and rock dam diverted enough water to irrigate 320 acres, and in 1912 the old dam was replaced with one of concrete construction for \$570. A dozen years after the Baze brothers began their irrigation operation Joseph Tweedy opened a second irrigation ditch along Dove Creek in 1887 and formed the San Jose

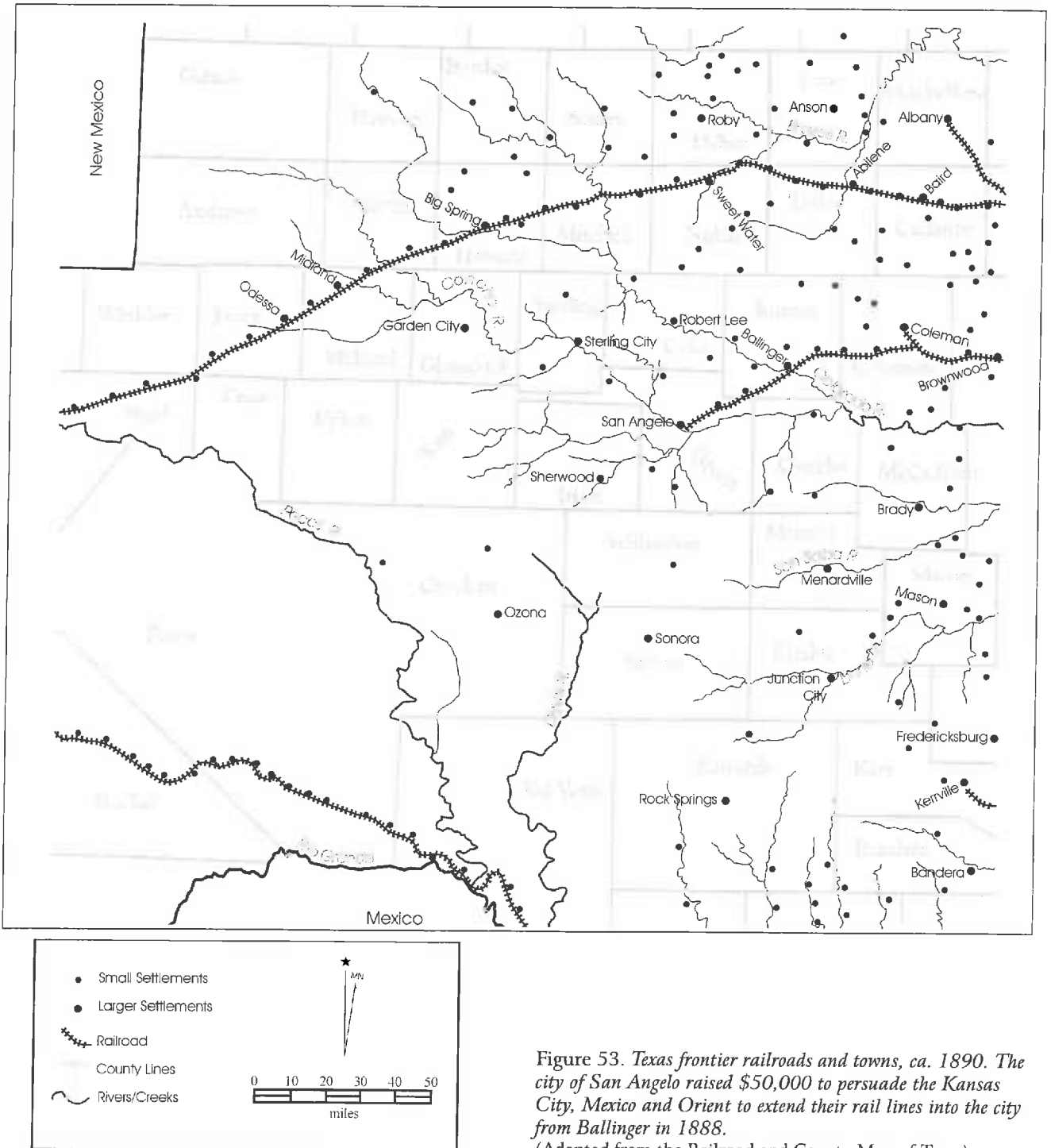


Figure 53. Texas frontier railroads and towns, ca. 1890. The city of San Angelo raised \$50,000 to persuade the Kansas City, Mexico and Orient to extend their rail lines into the city from Ballinger in 1888. (Adapted from the Railroad and County Map of Texas).

Irrigation and Power Company. By 1904 there were two power plants operating in the area; Thomas Vinson operated one on the Baze irrigation ditch a half-mile north of Knickerbocker, and the Payne & Jones plant, located ten miles south of San Angelo on the Bismarck ditch was powered by waters flowing out of the South Concho.

A series of irrigation and flood control projects on the Concho Rivers have substantially increased land values as well as the capability to better manage the resources available. The Lake Nasworthy dam on the South Concho was completed in 1930 by the West Texas Utilities Company to supply the city of San Angelo with water and to irrigate farmland in the immediate area. The O. C. Fisher dam on the North Concho was completed in 1952 by the United States Corps of Engineers. The dam holds back floodwaters from San Angelo downstream and the lake water serves as a secondary source of municipal water for the city. The Twin Buttes Dam completed in 1963, also provides a source of water for the city of San Angelo, and when full it is capable of supplying irrigation water to 10,000+ acres. The growing demand for water has increased with the population of the area.

## Know or Expect?

### How Would We *Know* Which Sites were Protohistoric or Historic Native American Sites?

As with most of central Texas, the area around Twin Buttes has felt many influences. It has been infiltrated by outside ethnic groups and divided by regional power struggles. Early residents were the numerous small bands or groups of Jumanos and Coahuiltecans who were encountered by Spanish explorers. Later, various intrusive groups, such as Apache, Tonkawa, Lipan Apache, and Comanche, entered the region. It may be here that the Historic period encompasses the period when the groups named Tonkawa, Apache, and Comanche infiltrated the area, the Tonkawa being the original inhabitants encountered by the Spanish in the Twin Buttes area.

Archaeologists really have very little information about the relationships between prehistoric and historic Indian populations. We **know** that sites from these periods include open campsites, lithic scatters and quarries, and burned rock middens. On these sites we have found mortar holes, possible stone structures, and burials. The items left behind include stone tools, manos and metates, Leon Plain pottery, mussel and snail shell, ocher, fire-cracked rock, and

animal bone. Unique items include polished bone, bone beads, and incised bone.

However, as yet, we really haven't been able to sort out the discrete differences in the artifacts and features left behind by the various groups, their specific territorial ranges, and define with certainty the occupational sites contained within the Twin Buttes area. Encampments were shared by different Native American groups, thus the tools and features they used have become mixed over time. Our attempts to sort out the differences in the mobility and settlement habits of groups such as the Jumano who lived in this area of Texas during initial Euro-American contact, or the Kickapoos and Pottowatomies who we think traveled through the area prior to the Battle of Dove Creek, haven't been very successful.

Archaeologists have studied the artifacts produced and used by mission Natives to provide a guide as to what we may **expect** to recover at historic Indian sites. For example, a site with bone tempered pottery and stone tools found with glass beads, metal knives, remnants of horse equipment, gun parts, and fragments of cast iron or copper cooking vessels can be confidently identified as the remains of a historic Indian site, because we **know** the Spanish explorers brought these beads and metal items with them and provided them to Native Americans initially.



#### **Points of interest:**

*We **know**, that sites from this period include open campsites, lithic scatters and quarries, and burned rock middens with unique items such as polished bone, bone beads and incised bone.*

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## *Know or Expect?*

## What Did We *Expect* to find from the Historic Period at Twin Buttes?

Although historic archaeologists deal with more recent events and have the advantage of using written documents, maps, and sometimes pictures to augment their research, their challenge is to fill in the missing gaps, and to confirm the written word with what is found in the dirt. We think of the Historic period, generally agreed to have occurred in this area about 350 years ago, as beginning at the time Europeans first came into contact with the Native Americans and wrote of their experiences. Archaeologists studying the Historic period are interested in verifying and adding their findings to the written accounts of Spanish explorers, European revolutionaries, homesteaders, farmers, ranchers, and businessmen who came to Texas and settled the area.

Published accounts of early ranching and farming in the area were many, and we **expected** at least ephemeral evidence of historic structures and industrial or ranching activities that occurred during the late 1800s and early 1900s. During this time period houses were likely built of wood. A wooden house which stood abandoned for a long duration would

have collapsed from decay, and then gradually disappear except for the pile of bricks or stone that comprised the chimney. Therefore, piles of rubble had to be assessed to determine what they represented. In addition, archaeologists working on the survey needed to be alert for scatters of nineteenth-century ceramics and glass. Given the early presence of the military at nearby Fort Concho, and the almost certain retreat route of Confederate and State Militia forces down Spring Creek after the Battle of Dove Creek, the possibility of discovering a short-term military encampment was possible.

The presence of old roads and railroad beds attested to the likelihood that homestead sites existed in the area to be surveyed. Archival research would be needed to determine the ownership of any homesteads that may have existed.

Cattle ranching dominated the economy in the area, and trails and terrain features would also have to be investigated. The distances between early farming/livestock-raising communities would give us some insight into a turn-of-the-century European-American settlement, but would also contribute to an understanding of the economic activities occurring during this particular era in this particular place.



### **Points of interest:**

*We expect, to verify and add our findings to the early written accounts of Spanish explorers, European revolutionaries, homesteaders, farmers, ranchers and others who came and settled the area.*



## Historic Artifacts

The following pages offer a general description of the historic sites and our analysis of the artifacts found at those sites. Written information is extremely helpful, but diagnostic artifacts recovered from historic sites often provides other information regarding the lifestyle, social and economic organization, and overall habits of the occupants that is not recorded in the available written documents. Although dated pieces such as coins or inscriptions are usually irrefutable evidence of when a site was occupied, glass, ceramics, and metal are probably the most commonly available historic artifacts that can be assigned a certain window in time.

### Historic Artifacts that are Helpful in Dating Sites

#### *Bottle and Jar Glass*

Finding a piece of bottle or jar glass with a maker's mark on it is always helpful in determining its approximate date and place of manufacture, as well as its likely contents. The shapes of bottles are usually used to imply what they may have held, and by knowing their contents we can then infer their possible uses. Even though a maker's mark may not be present or legible, the manufacturing technique, labeling process, and color of the glass can provide an approximation of when it was used.

Additives cause glass colors to change through time. Other temporal affiliations can be made based on their mold-seam marks. Prior to 1900, most bottles were formed in a hollow, bottle-shaped, two-piece, hinged container called a mold. Essentially, a glass blower would blow a molten mass of glass into the container. The molten glass would then expand against the walls of the mold, producing the desired form wanted. Then the mold would be opened and the process would begin all over again. It is estimated that an 1880s shop could put out approximately 1,500 bottles a day.

Two bottle molds commonly used during the nineteenth century were the *open* and the *closed* molds. The

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Although dated pieces such as coins or inscriptions are usually irrefutable evidence of when a site was occupied, glass, ceramics, and metal are probably the most commonly available historic artifacts that can be assigned a certain window in time.

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open mold was used during the earlier periods of manufacture. Because the molds were impossible to keep airtight during the bottle production, a seam would form on opposite sides of the bottle where the mold would open and close. The seam length serves as the basis for dating bottles. The open mold usually formed only the body of the bottle, thus leaving a seam on the shoulders, and the neck or lip would then be added by the glassblower, leaving no seam above the shoulders. This technique was common for bottles manufactured prior to 1860. Between 1860 and 1880, molds were enlarged to include the body and part of the neck. This newer style of mold left a seam that extended not only on the shoulders, but also partially up the neck. As with the earlier mold and technique, the upper portion of the neck and the lip were formed by the glassblower, leaving no seam. It was in the 1880s that the closed mold technique became more popular in bottle production.

Following the open mold technique, the closed mold was invented and used from the 1880s through about 1900. The greater encompassing closed mold formed the complete body, neck, and lip of the bottle, leaving a mold seam extending from the base to the lip. However, since the lip was often smoothed by hand during that time period, the seam stops just below the upper portion of the lip. A redesign of the bottle lip allowed it to accept a crown cork lid. The crown cork lid was invented in 1891 and it was with the invention of the Owens machine that this lid became the standard cap for beverage bottles.

## Historic Artifacts

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Sometimes bottle bases with a sand-tipped pontil surface are found. The common technique throughout the nineteenth century was to mold glass with a blow-pipe. A pontil is a metal rod that would be attached to the base of a bottle to hold it steady while it was still being shaped. After blowing molten glass into a mold to give it the partial shape the glassblower desired, a pontil rod was first dipped in molten glass and then sand. The sand tempered the molten glass on the end of the pontil so that it would not become welded to the base of the bottle. When the glassblower was satisfied with the final form of the bottle, he would then snap the pontil free from the bottle's base. When the pontil rod was removed, pebbles and bits of sand in the shape of a ring on the base called a pontil scar usually remained ingrained into the glass surface itself. The rough surface was then usually ground smooth. The use of this earlier technique may have decreased when the snap case type pontil became more popular with the glass makers in the 1870s



**Points of interest:**

Michael J. Owens patented the first automatic bottle making machine in 1903, and his Owens machine revolutionized the bottle making industry. The Owens bottle making machine also produced a distinctive off-center ring on the base of the bottle, which proved to be very useful for dating purposes.

The first bottle making machine was patented in 1903, and this machine revolutionized the bottle making industry. Before 1900 the bottle making industry, using glassblowing molds, had the capacity of producing 1,500 bottles on a given day. However, with the automatic bottle-making machine the output increased to 33,000 bottles on an average day, thus reducing costs and providing greater quantities for the consumer. Thus after 1900, the result was a bottle with two seams, one encircling the top of the mouth and the other seam around the neck. These are contact points from the plunger mechanism defining the bottle's inner throat diameter. This bottle making machine also produced a distinctive off-centered ring on the base of the bottle. In 1947 this early bottle making machine was replaced with the Hartford I.S. Machine. It was designed to leave no distinctive rings on the base.

Aqua, amber, olive green and brown are natural colors produced in glass manufacture. Before 1880, the predominate color of bottle glass was green. The standard, natural color of most cheap bottles produced since the beginning of making glass, until about 1900 (and even somewhat later for medicine bottles) was aqua, with varying hues of green and blue. Glass is a mixture of lime, soda, and sand with traces of iron oxides. When molten, the iron oxides in the sand causes a chemical change which produces the aqua color.

With the exception of "black" glass, glass color was not an important factor until around 1880 when food manufacturers began demanding clear glass containers for preserved foods. Beginning in the 1880s, American manufacturers added manganese to the glass as a decolorizer. After exposure to the sun's ultraviolet rays the manganese would change the color of the glass to purple. Manganese worked fine until the outbreak of World War I in 1915 caused another defining temporal characteristic to occur in bottles. Prior to 1915,

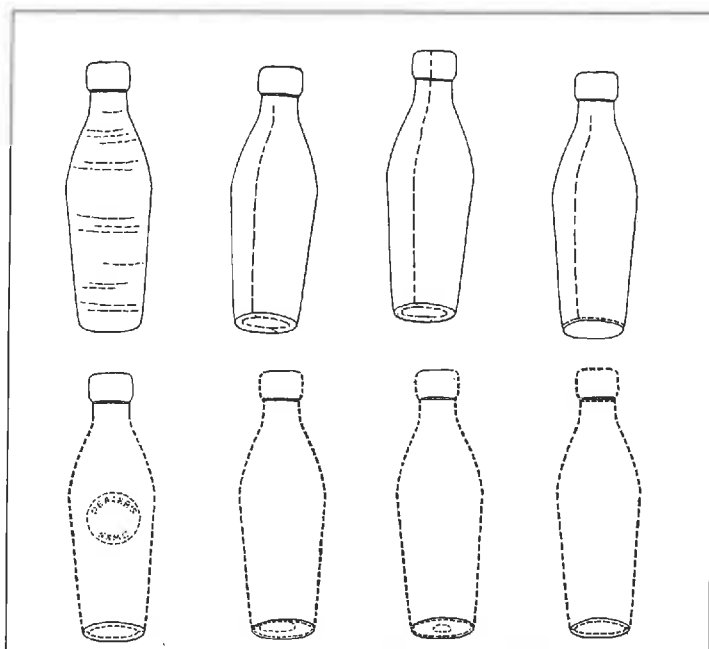


Figure 54. Archaeologists learn to look for bottles with distinctive mold seams along the sides, and rings on the bottom, which indicate generally when they were made. (Adapted from The Illustrated Guide to Collecting Bottles by Cecil Munsey.)

Germany was a main supplier of manganese. When war broke out, the supply of manganese was no longer available to the bottle makers and they resorted to using selenium as a decolorizing agent. Selenium causes the glass to turn an amber color when exposed to light.

Table 3. Approximate ages of glass based on color

Color	Age	Color	Age	Color	Age
Brown (thin)	Modern	Amber	Post-1915	Light Brown	Pre-1900
Clear	Modern	Purple	1880-1915	Aqua	Pre-1900
		White	Post-1900	Pink	Pre-1900
		Blue	Post-1900	Light Green	Pre-1900
				Dark Green (thick)	Pre-1880
				Dark Brown (thick)	Pre-1880

Techniques for labeling glass bottles also changed through time. Etching was common in the late nineteenth century, followed by Applied Color Labeling. Developed in the 1920s, Applied Color Labeling was a technique which used panels or lettering, embellished with enamel. The technique was used more commonly in the 1930s, primarily for bottles that were reused, such as soda and milk bottles, but is still in limited use today. After 1930, when manufacturers were finally able to produce inexpensive containers that would not change colors after long exposure to the sun, clear glass available for the general consumer made a comeback.

Many of the earlier bottles produced were distinctive, rectangular-shaped bottles containing “patented” medicines. The term patented medicine is misleading in the sense that in order for it to be patented, its contents must be disclosed to the United States Patent Office. Since the majority of the medicines in the nineteenth century contained alcohol or such, most medicine companies protected their secret ingredients by simply registering their brand name with the government. Thus patent medicine is really a generic term in the nineteenth century for “medicines sold without a prescription.”

Applied Color Labeling was a technique which used panels or lettering, embellished with enamel.

Figure 55. This Delaware Punch bottle is an example of applied color labeling, developed in the 1930s.



Twin Buttes CAR collection

Patent medicines were popular with American consumers due to their mistrust of doctors with questionable training. The greatest popularity of patent medicines probably occurred with the advent of traveling medicine shows between 1880 and 1900. Where the railroads had not yet reached, a medicine man would be ahead, hawking his wares from an ox cart. As mentioned previously, these medicine shows became extremely popular in the latter part of the nineteenth century. Often these shows took on more of a circus or carnival atmosphere with the purpose of not only providing entertainment, but to attract larger crowds of potential consumers.

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By 1906, patent medicines had reached their peak with over fifty thousand different types of medicines being sold in the United States.

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The arrival of the railroad was slow at first in Texas but by 1900, the state had about 10,000 rail lines built. In San Angelo, the Santa Fe Railroad line entered the city in 1888, which created an important "shipping center" for this western area. With the railroads came the mail order catalogs, containing even greater varieties of patent medicines for sale.

The 1897 Sears, Roebuck Catalogue listed such patented medicines as:

Extract Witch Hazel –promising to cure anything from sore eyes to sprains for twenty five cents a pint-bottle, and

Neutralizing Cordial –which listed brandy as one of its important ingredients. This medicine was touted to be useful in treating "dysentery, cholera morbus, and dyspepsia" at twenty eight cents for a four-ounce bottle.

By 1906, patent medicines had reached their peak with over fifty thousand different types of medicines being sold in the United States.

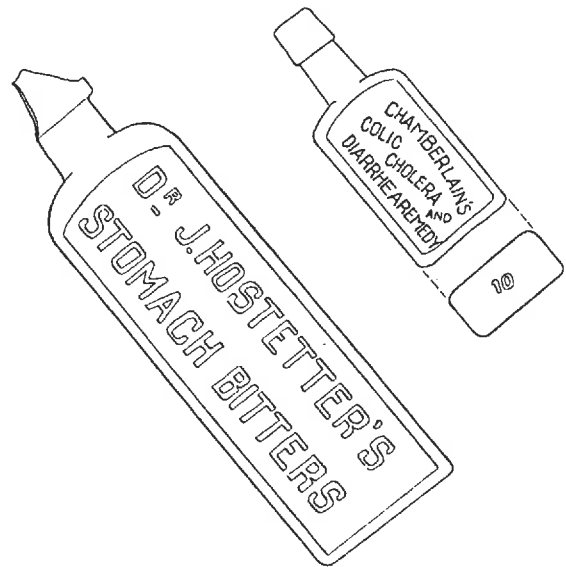
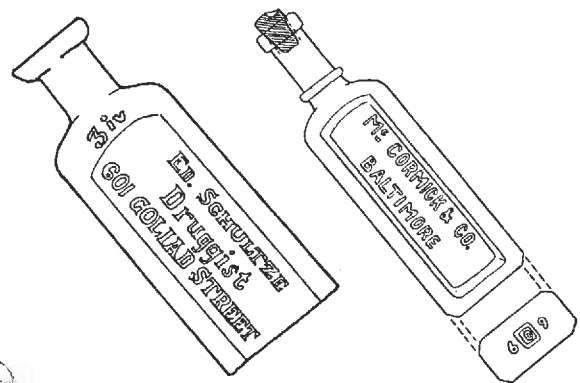


Figure 56. Examples of turn-of-the-century patent medicine bottles.



**Points of interest:**

During the nineteenth century, without government interference, the patent medicine industry had been able to blend whatever ingredients they wished, and sell their remedies to American consumers at huge profits. In 1905, magazine writer Samuel Hopkins Adams began an investigation of patent medicines. His articles exposed the harmful ingredients that were used in medicines being bought over the counter by American consumers. The resulting public outcry prompted the government to pass the Pure Food and Drug Act of 1907, allowing the government to regulate patent medicines which, in turn, put many companies out of business.

### ***Window Glass***

Even window glass has the capacity to provide dates. As a general rule, older window glass is thicker. An archaeologist named Randall Moir came up with a formula to date window glass (accurate to within a span of fourteen years). The equation uses the average thickness of window glass found at a site to provide an approximate date that the glass was manufactured  $\pm 7$  years. The date of manufacture does not necessarily represent the date the glass was brought to the site, but it does offer a reasonable time frame. By looking at variations in glass thickness, we sometimes are able to estimate not when a house or barn was built, but maybe when, and/or how many times it was renovated.

## **Ceramics**

Ceramics are usually found around old houses, and occasionally around old outbuildings. There are many kinds, and they have changed through the years. The following are some types found in the Twin Buttes area:

### ***Whiteware***

The presence of white-bodied wares is usually an indicator of nineteenth-century occupation. Whiteware was commonly imported to America from Britain during the 1800s, but the demand for the undecorated type increased significantly in America by 1860. This is the type that became known as a common tableware setting for middle-class families around San Antonio after the 1860s, replacing pewter and wooden wares.

### ***Transfer Ware***

This technique was developed in England in the late 1740s. By the late eighteenth century, it proved to be a low cost way to elaborate the design on a vessel as compared to hand painting. However, employing skilled engravers to etch the decorations on copper plating did not provide a cheaper product compared to other types of decorated ware during the late 1700s. When more reasonably priced white earthenware with an alkaline glaze was developed in England ca. 1810, transfer ware became more popular. And, after the War of 1812 this ware became popular in American markets through to

the mid-nineteenth century. Large numbers of these wares were exported to the coastal ports of Texas, and then redistributed to the major cities.

By the mid 1850s the demand for transfer-printed wares in the United States was declining. In Texas this trend is reflected by the increasing popularity of undecorated white granite ware between 1850 and 1870. The majority of transfer ware coming into Texas were imported from England and the naval blockades off Texas' coast during the Civil War disrupted the market. Even the post-civil war years (Reconstruction), it would have been difficult to expand the market for transfer-printed wares since cash was scarce. However there was a short popularity in American markets for the flow-blue transfer-printed pattern from 1880 to about 1890.

At the end of the nineteenth century, the increased use of decals as a decorating technique for ceramics probably caused the decline of transfer-printed wares. Transfer-printed wares with a central undecorated area usually surrounded by a floral pattern continued to flourish, and the 1902 Sears, Roebuck Catalogue offered them as a cheap, inexpensive table setting. They are still being produced today.

### ***Decalcomania***

The Decalcomania decoration technique was developed in 1850s by potters in England as a way to decorate less expensive tableware. This type of tableware became quite popular during the mid-nineteenth century and is still in use today.

### ***Porcelain***

A small amount of Chinese porcelain, imported to Mexico on the Manila galleons, is present on nearly every Spanish Colonial site in Texas. It can be differentiated from European and American porcelain by very careful examination of the very slight, blue gray tint of the body, and (when decoration is present) the grayish blue designs which lie beneath the glaze, or the delicately painted orange floral designs which lie over the glaze. Porcelain is rarely found on eighteenth and early nineteenth century sites because it had to be transported from Europe, but became more common after 1832 when it was manufactured in the United States.

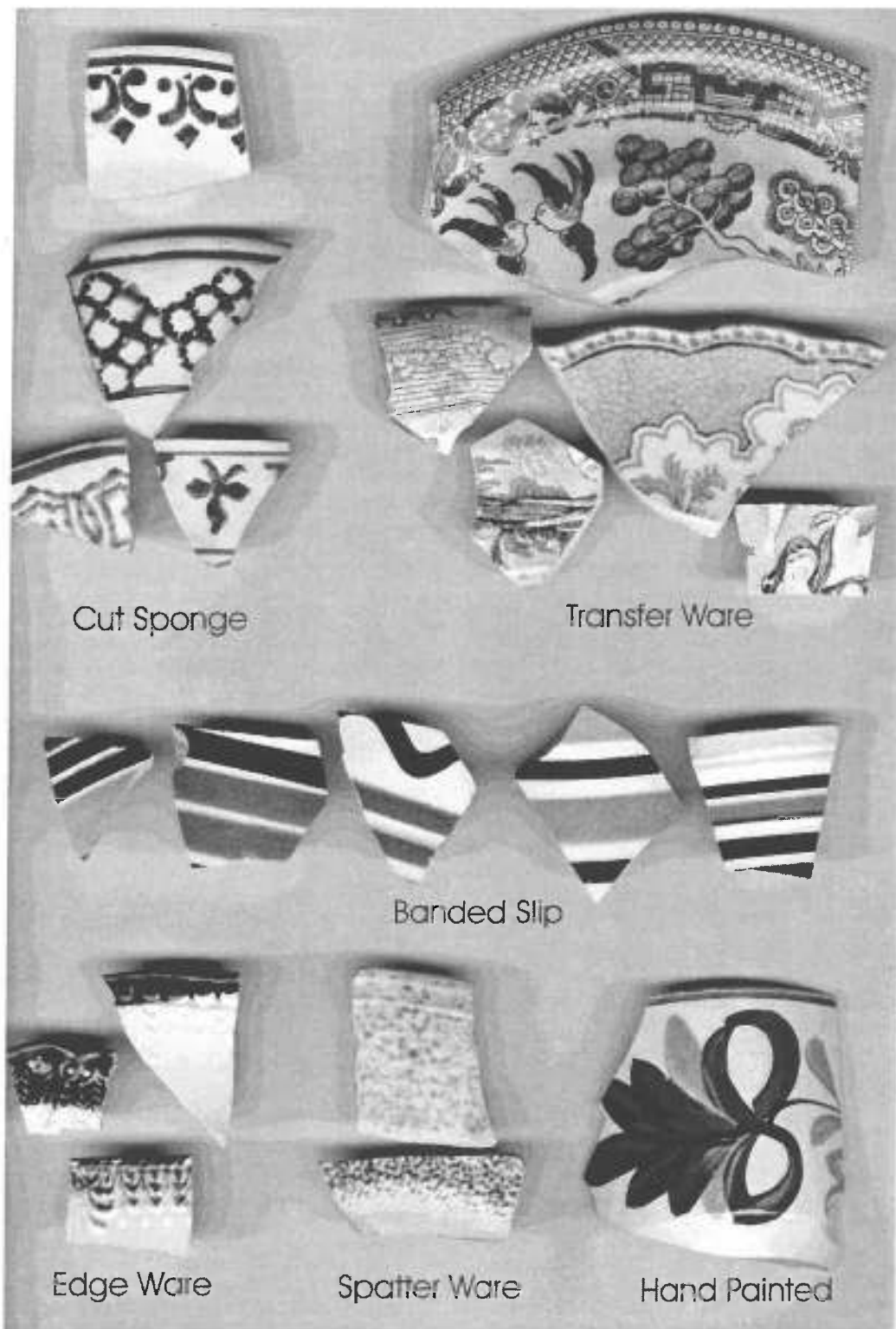


Figure 57. *Examples of turn-of-the-century ceramics.*

***Stoneware***

Popular stoneware found in the area includes Albany Slip/Bristol glaze and Bristol Glaze. The combination of Albany Slip (brown slip) and Bristol glaze (white) appeared in the first quarter of the twentieth century and was continuously used until about 1920. Bristol glaze then became the dominant type of stoneware used after 1920, and through about 1950.

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Bristol glaze then became the dominant type of stoneware used after 1920, and through about 1950.

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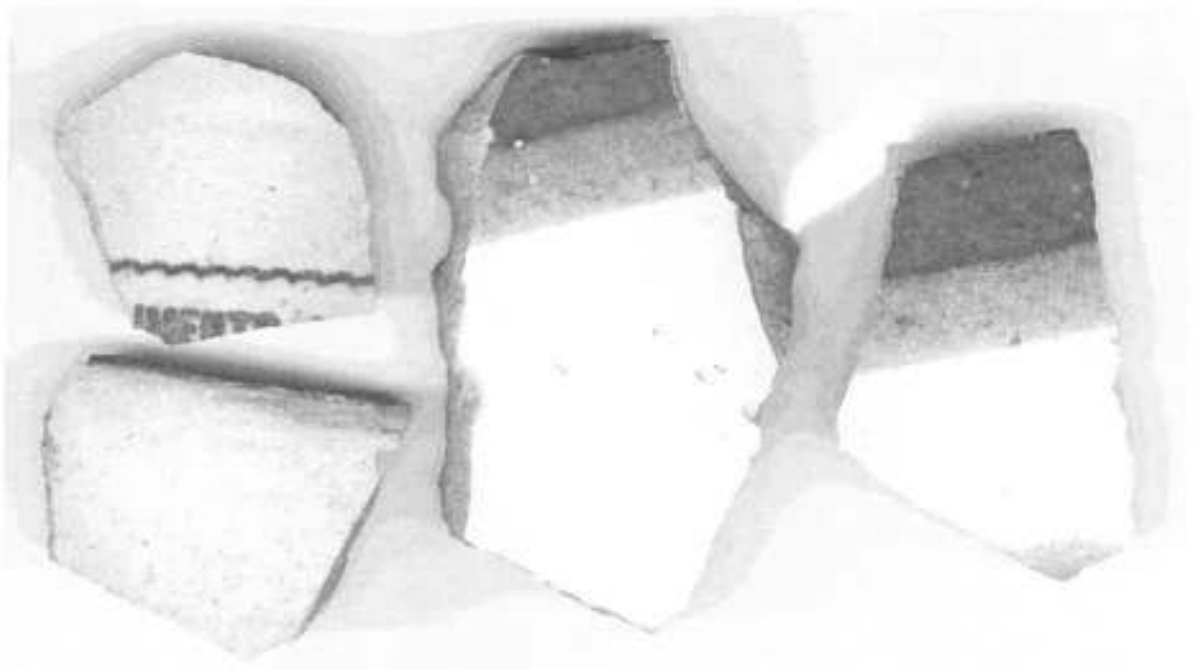


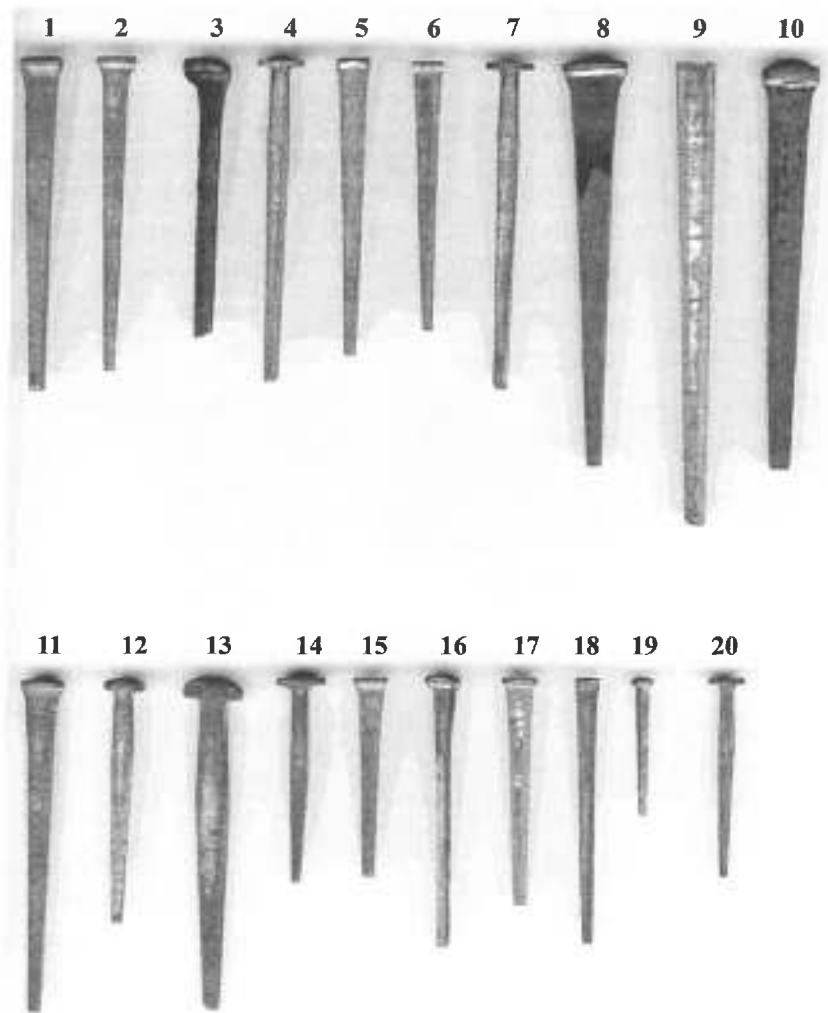
Figure 58. *These stoneware sherds were found at Twin Buttes Reservoir, Site #412.*

## Nails

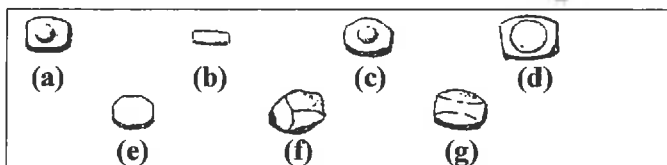
Nails can be classified into three main categories:

- 1) Hand wrought;
- 2) Cut with hand hammered heads or with machine made heads; or
- 3) Wire.

- 1 Spike
- 2 Headless Foundry
- 3 Sheathing
- 4 Firedoor Clinch
- 5 Finish
- 6 Floor
- 7 Clinch (Rosehead)
- 8 Wrought Head
- 9 Common Siding
- 10 Masonry
- 11 Brad
- 12 Fine Finish
- 13 Shingle
- 14 Box
- 15 Clout
- 16 Common
- 17 Slating
- 18 Boat
- 19 Common (Rosehead)
- 20 Hinge



## Nail Heads



- (a) Common Rosehead (b) Fine Finish (c) Clinch (Rosehead)  
 (d) Spike (e) Clout (f) Wrought Head (g) Hinge.

Figure 59. Examples of square nails and nail heads.  
 (From Tremont Nail Company, Wareham, MA.)

### Points of interest:

Hand wrought nails were commonly used until the 1800s, decreasing in popularity with the introduction of cut nails. Cut nails with hand hammered heads were popularly in use between ca. 1790 and 1825, followed by cut nails with machine made heads which were used from ca. 1825 to present. Though introduced prior to the 1850s, wire nails did not become the dominant type until the 1890s.



## Historic Sites

### What Historic Sites Did We Find?

The remains of nineteen sites around the reservoir dating from the 1800s–1900s were found (Table 4). Farmsteads are sites at which were found not only the possible remains of a farmhouse with outbuildings and a well or privy, but also household items, such as ceramics, clothing, cooking utensils, etc. Other sites were called Farm Operations because they contained old foundations of barns or sheds, along with items used in maintaining a farm, such as feeders, irrigation and/or farm machinery parts, etc., but no household items. One site was defined as a Cattle Operation because it contained few of the items we would associate with a farmstead or farm operation; but did have a concrete slab and liquid holding tanks, with some glass jug pieces.

The remains of the dairy farm we found were conclusively identified as Keyes Dairy. The remains of a schoolhouse and privy were found in the exact location where they were shown on a 1923 map. Although old railroad grades still run through the reservoir area, we were able to find only one site with bricks and stone, wagon parts, and a broken train oil bottle that we think is related to the railroad operation. A circular sandstone structure found near the dam is still a mystery to us. We are confident that the remains of a dugout were found, but the site needs further excavation. One site was simply a trash dump, but it contained many bottles and household items we believe are related to one of the farmsteads across the creek. Two dams built in the late 1800s or early 1900s were located and researched. And finally, the location of a substantial gravel quarry operation in the area was found.

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The remains of the dairy farm we found were conclusively identified...

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Table 4. Historic sites found around the reservoir

What Kind of Sites did we find?	How Many did We Find?
Farmsteads	7
Farm Operations	2
Cattle Operation	1
Dairy Farm	1
Schoolhouse and Privy	1
Railroad-related Structure(s)	1
Sandstone Structure	1
Dugout	1
Trash Dump	1
Dams	2
Gravel Quarry Operation	1

## *Historic Sites*

## These are the Sites:

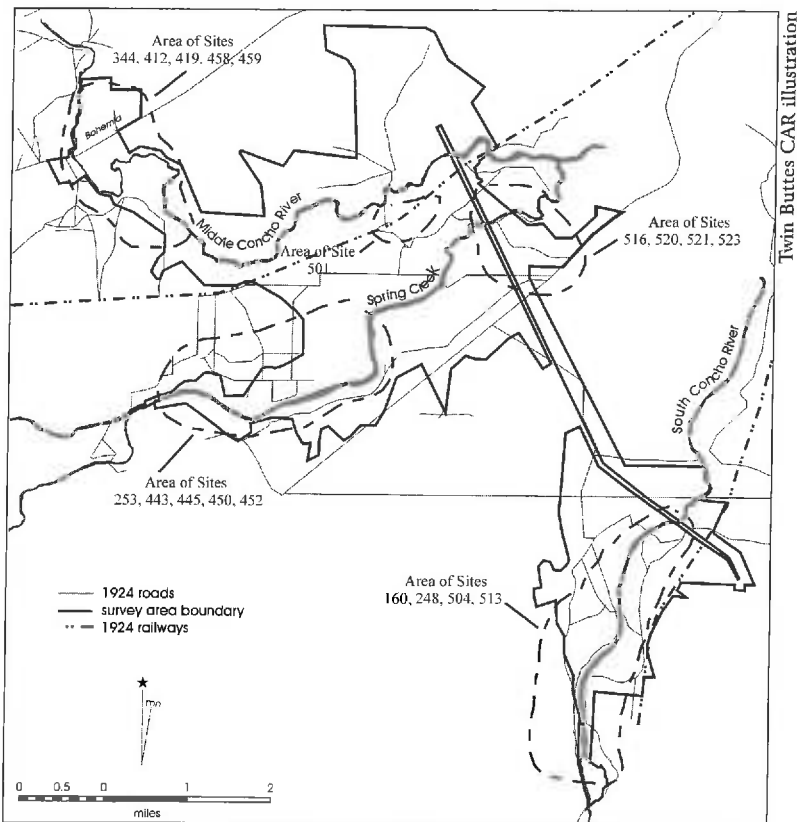


Figure 60. The locations where Historic period sites were found.

### ***The Russell, or Diedrich Farmstead on the South Concho (#160)***

This site overlooks the South Concho River channel, the concrete foundation and steps of the house still remain while a wooden barn is still being used today. Judging from the stone tools found, the farmstead was built on the location of a prehistoric campsite.

The trash dump contained undecorated and transfer ware ceramic sherds, brown glazed stoneware, pink, green, blue, aqua, and purple glass, a rusted metal wash-tub, and pieces of vitrified sewer pipe. Ceramic, stoneware, and porcelain sherds were collected, the porcelain sherds were hand painted and several of the ceramics were ironstone. One piece exhibited a maker's mark resembling that of Turner, Goddard and Company, Tunstall, Staffordshire, England (1867—1874). This

specimen could represent an heirloom passed from generation to generation. One transfer ware ceramic was most of a serving bowl, 11¼-x-6¾ inches, with four legs and two handles. The decorations of vines, leaves, and flowers are brown against a white body. This exquisite transfer design indicates that this piece dates before 1900 (possibly as early as the Civil War). The dump also contained the remains of a rusted tricycle.

Thus, the artifacts observed provide a span of time and suggest that people lived here between about 1880 and 1950. A 1923–1924 topographical survey map of the area indicates that this was the Russell Ranch. However, land ownership maps, do not list Russell, but indicate that the property surrounding the site was owned by H. Diedrich from as early as 1894, through to 1962. Prior to 1894 the property was surveyed as part of McDonald's District 11 in the Fisher-Miller Land Grant, later the German Emigration Company.

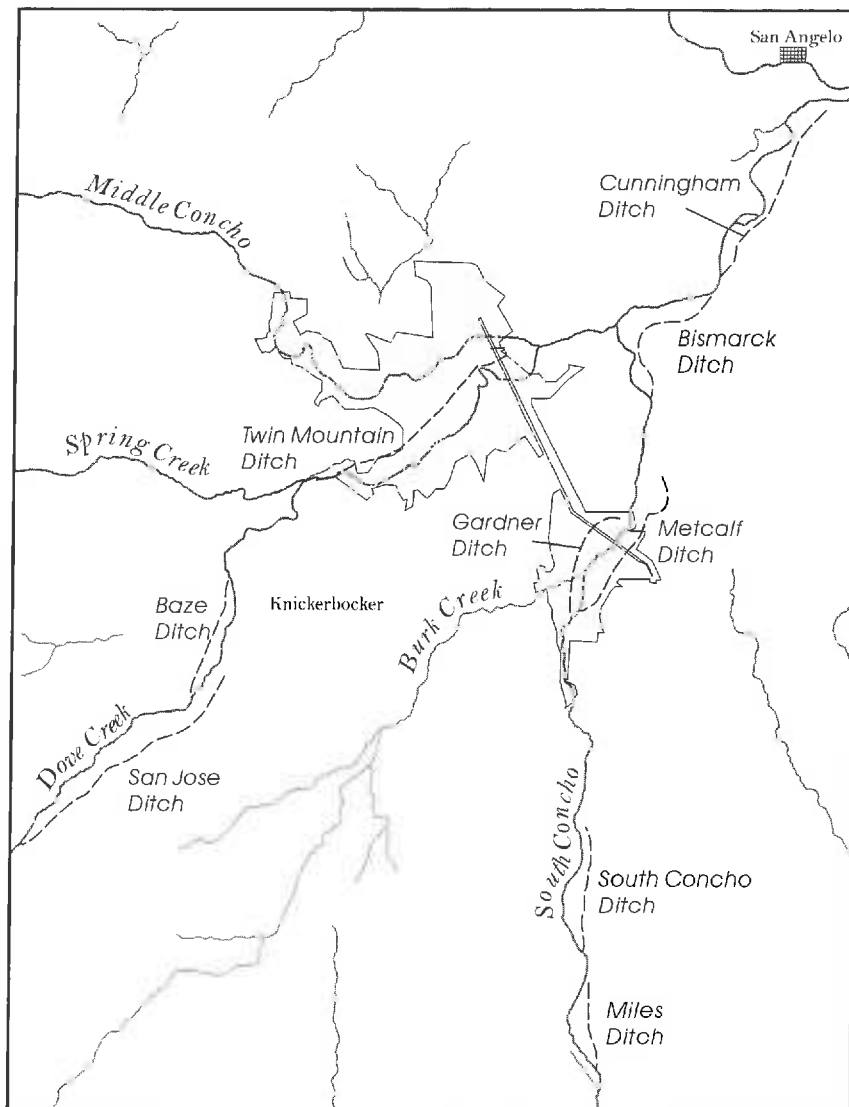


Figure 61. Even this rusted tricycle can provide a range of dates for occupation.

Twin Buttes CAR collection

## Dams for Irrigation

Essential to farming activities  
—land irrigation—was established  
early in the settlement process.



Twin Buttes CAR illustration

Figure 62. This map is based on a survey of irrigation systems in Texas in 1902. There were already many extensive irrigation ditches in this part of Texas.

## Irrigation

### White's Dam (#253)



Twin Buttes CAR collection

Figure 63. White's Dam across Spring Creek was originally constructed of wood in 1885. After this concrete dam was built around 1906, the opening on the right diverted water into the Twin Mountain Ditch.

White's Dam was originally constructed of wood in 1885 at a cost of \$2,000. It was apparently rebuilt with concrete, possibly after a severe flood in 1906. The dam diverted water into a 3-mile long ditch capable of providing irrigation to 300 acres of land between Spring Creek and the Middle Concho River. The ditch was also identified as the Twin Mountain Ditch, and likely provided water to the Mott farm area.

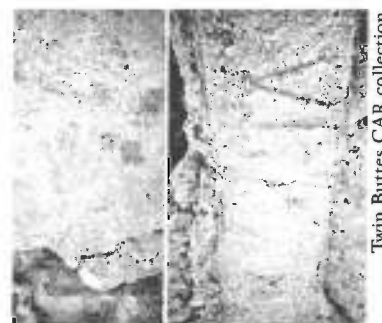
During our survey, we saw a purple glass bottle fragment embossed with incomplete words. The only clue to its antiquity was its purple color, suggesting it was likely manufactured between 1880 and 1915. The concrete ditch wall perpendicular to the dam is inscribed with an apparent brand or possibly initials, a date of 1908, and the impression of a hammer and a horse hoof clipper.

A 1923-1924 topographic survey map of the area shows a dam and ditch located at this site, and available land ownership maps indicate that the property on the north side of the dam was partially owned by H. C. White between 1947 and 1962. The dam is still in good condition, and patches of different textured concrete where repairs had been made to the top had small hand print impressions in them.



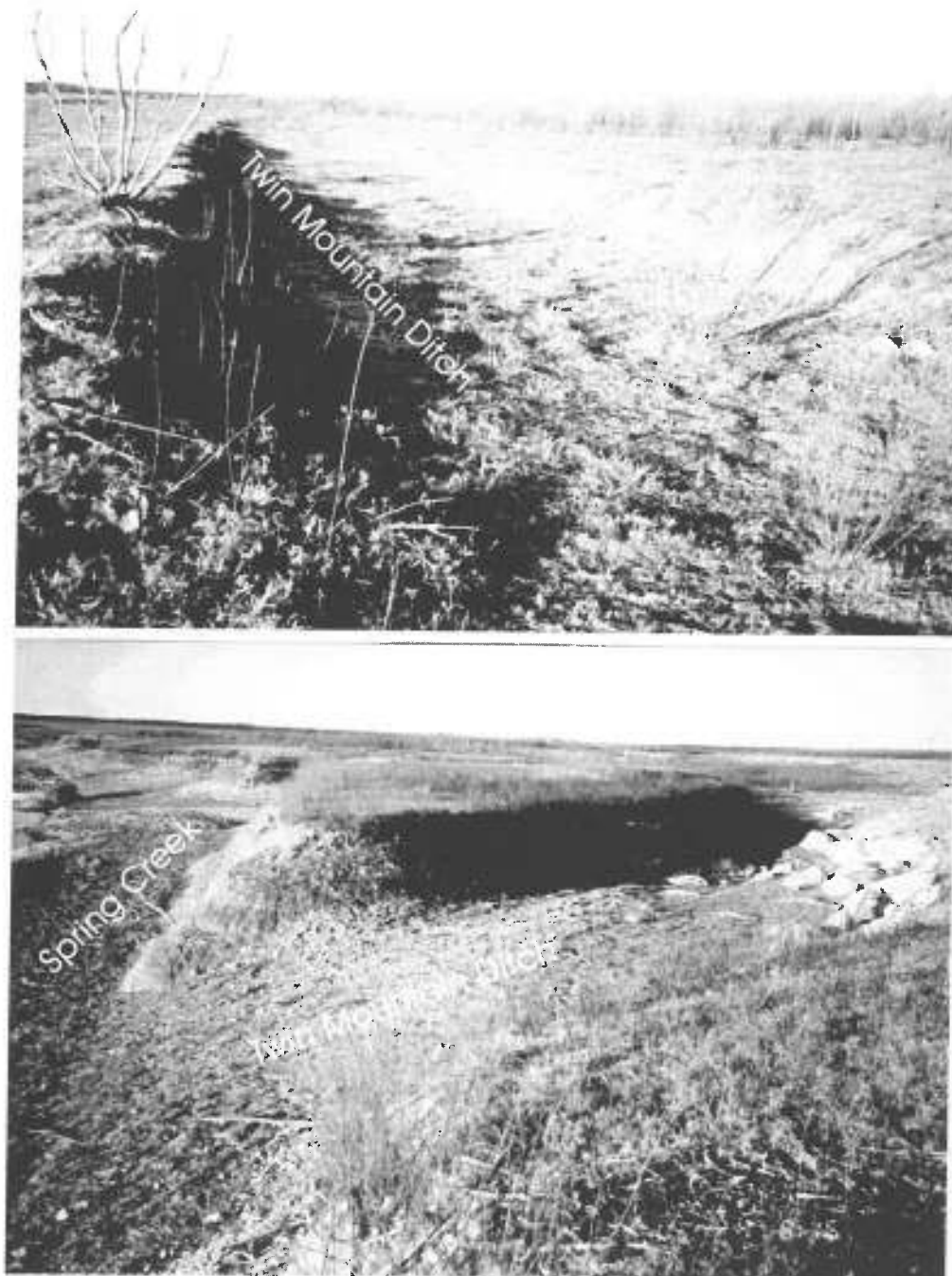
Twin Buttes CAR collection

Figure 64. This 5-foot opening in White's Dam provided the headwaters for the Twin Mountain Ditch. (Note the impressions in the concrete.)



Twin Buttes CAR collection

Figure 65. These close-ups show the impressions left in the concrete, presumably a 100 years ago.



Twin Buttes CAR collection

Figure 66. After being diverted by White's Dam, the waters from Spring Creek flowed through Twin Mountain Ditch (above), and then back into Spring Creek (below).

### ***A Farming Operation on the Middle Concho (#419)***

This site offers a panoramic view of the Middle Concho River valley and must have been a good place to camp during prehistoric times as well. In addition to historic artifacts, we discovered stone tools and the remains of prehistoric hearths here.

Today, a sagging and rusty barbed wire fence runs across the eastern portion of the site and a concrete slab is on the western portion. Around the concrete slab area is green glass, an Orange-Crush bottle, a clear glass jar base, an aqua glass bottle sherd, a rusty oil filter, a rusty hatchet head, a gray brick fragment, a rotted hydraulic hose, and a tubeless tire.

A brown Orange-Crush soda bottle with raised mold rings that begin at the base and extend up to the shoulder, and molded diamond-shaped panels on opposite sides was found (see Figure 67). The diamond-shaped panels are embellished with Applied Color Labeling, suggesting that it may have been manufactured in the 1920s but most likely after 1930.

The bottle's base contains a maker's mark and the word *Duraglass*, which helps in identifying the container's point of origin and its age. The maker's mark is that of the Owens-Illinois Glass Company. Owens-Illinois Glass was located in Toledo, Ohio, operating under that name from 1929 to 1966, when the company then changed its name to the present Owens-Illinois Inc. Under the former name, the firm used this particular bottle mark found on our Orange-Crush bottle from 1929-1954, and the *Duraglass* logo from 1940 to 1963. The maker's mark has numbers to the left, right, and bottom of it which provides more information about the bottle. The number "9" which appears to the left of the mark indicates it was manufactured by the Owens-Illinois, Streator plant (in Illinois). The number "2" to the right of the mark indicates the year it was made. The numeral below the bottle mark represents the mold detail of the bottle. Thus, we can reasonably assume that this particular Orange-Crush bottle was produced by the Owens-Illinois, Streator plant in Illinois in either 1942 or 1952.



Twin Buttes CAR collection

Figure 67. Brown "Orange-Crush" soda bottle found at Site #419.

The only other artifact recovered was a base fragment of a clear glass container, with the distinguishable Owens ring. It is inscribed with a very faint “Ball” in italics. Although the ring indicates it could have been manufactured as early as 1903, its non-colored glass indicates it wasn’t manufactured until after 1930. The trademark “Ball” is one used by the Muncie, Indiana-based Ball Brothers Glass Manufacturing Company, which was formed in 1888, and later became the Ball Brothers Company in 1919. The Ball brothers were some of the early producers of the Mason-type fruit jars after the Mason patent expired. Before the development of the 1903 Owens bottle machine, Ball had already developed their own form of semiautomatic machines for their glass making production, thus giving them an edge over their competitors. In 1910, the Ball Brothers installed the Owens bottle-making machine and continued using it until 1947, when it was replaced by the Hartford I.S. Machine.

The Orange-Crush bottle and Ball glass jar indicate that the site was most likely occupied after 1942, and abandoned in the 1950s. The oil filter, tubeless tire, and hydraulic hose suggest a similar occupation period. A green glass sherd observed on the surface would normally suggest an early 1900s occupation, however it is thin, and thus within the temporal affinities of the other artifacts found on the site.

A 1923–1924 topographical survey map of the area shows no structure at this location, but a two-track road runs along the south side of the concrete slab. A 1962 Land Ownership Map indicates that the cement slab is just inside the property line of O. D. Harrison, and it is presumed that the remnants of the barbed wire fence running north-south through the site represent the property line between O. D. Harrison and G. Plahoe.

The concrete slab, and a possible cut foundation stone indicates that at least one structure with a concrete floor measuring 11-x-14 feet was built on the site. A cut stone found on the northern portion of the site may be a remnant of a pier and beam temporary structure. The categories of artifacts found represent those generally associated with a farming operation. The

absence of general household artifacts such as tableware suggests that the site was not a farmstead, with living quarters. Further to the east, the land is gently sloping and may have been farmed. A 6-inch wellhead with a concrete base was observed along the two-track road that runs through an open field east of the site. The loam soils surrounding the site are suitable for dryland farming, but the large pipe in the open wellhead indicates an attempt at irrigation. If irrigated the soils here should have been capable of yielding good grasses for cattle grazing, and crops as well.

### *An 1800s Dugout (#443)*

While recording some flint that presumably prehistoric Native Americans had used to make tools, we noticed lots of historic artifacts, such as glass, heavy rusted iron scrap fragments, a rusty door latch, a metal axe head with a nail-puller notch, and a metal button-like disc. Then we noticed a rectangular depression with a rock alignment in front of it, which appeared as if someone had dug into the side of a slight rise. The area had been subject to inundation and exposure several times since the Twin Buttes Dam was constructed in the 1960s, so at first we were skeptical – erosion from the old shoreline may have caused the depression. In order to be sure, we dug a shovel test into the middle of the depression. What we found appeared to be either the wooden floor, or the roof of a dugout which had collapsed. Normally dugouts didn’t have wooden floors, so we believe the latter explanation. To further examine the structure we excavated a 3-foot by 3-foot unit near the shovel test, and exposed more of the roof.

---

...at first we were skeptical  
— erosion from the old  
shoreline may have caused  
the depression.

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We also found another rock alignment nearby which is likely the remnants of a pole and beam structure. Nearby were five ceramic pieces of whiteware from either a plate or saucer, with a transfer-printed light blue floral pattern. The flowing blue whiteware pattern dates their usage to around 1880–1900. Therefore, based on their context with other artifacts and the probable dugout at the site, but minus a maker's mark or more pattern on the sherds for additional clues, the time frame presented is only presumed.



Twin Buttes CAR collection

Figure 68. The tape measure in this shovel test shows the collapsed roof of a dugout is buried about 8 inches below the surface.

Twin Buttes CAR collection

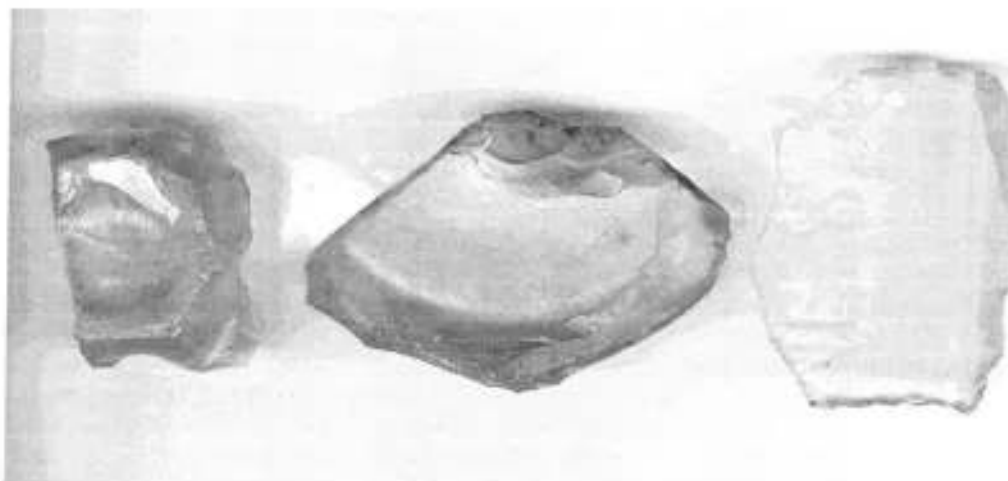


Figure 69. These pieces of ceramic and glass, and a copper metal disc were found around the pier and beam remnants.

A small copper metal disc with a semi-square hole in the center was also found. Its edge is serrated like that of a modern dime. The inscription “Pat MAR 10/68 & MAY 6/73” is on one side and the other side is plain. This artifact “could be” the back of a three piece construction-type button commonly used by the military in the latter half the nineteenth century, thus the latest patent date on this specimen would presumably be 1873.

A piece of purple glass was collected and taken back to the UTSA lab for examination under a microscope. To our surprise, we observed that it had been intentionally flaked to form a functional “scraper” with two working edges. One of the edges shows evidence of grinding, typically observed on stone specimens when preparing a platform for flake removal. Its purple color suggests a date of manufacture between 1880 and 1915. Finding flaked glass at any archaeological site is uncommon, but appears to be a recurring





Twin Buttes CAR collection

Figure 70. The edges of these pieces of glass have been altered by humans to make them more effective as cutting and scraping tools.

theme in the immediate area because it was also found at Site #445. As a substitute for metal, flaked glass would have made a sharp cutting or shaving tool; sometimes sheep herders used it for shearing sheep, and we've found it at an old mining camp from about the same time period as this dugout site. Could it be that the chipped and flaked flint at this site is *not* from pre-historic Native Americans, but rather—like the glass—the flint was used by persons in the late 1800s to fashion tools from stone?

This site may represent one of the earliest historic occupations in the San Angelo/Twin Buttes area. We reviewed maps of the area dating back to 1855, but couldn't find any evidence of a structure at this location. However, the site may be within either Plot #174 or #175 allotted by the German Emigration Company in the 1840s or 1850s. The presence of the whiteware/transfer ware with its flowing blue pattern, and purple and thick brown glass sherds at the site suggest a possible occupation as early as 1860, and the metal disc, if part of a button, indicates a probable earliest year of manufacture as 1873.



Twin Buttes CAR collection

Figure 71. This old axe head was found near the dugout.



Twin Buttes CAR collection

Figure 72. The rocks located at the entryway to the dugout were excavated and exposed.

### ***Spring Creek Farmstead (#445)***

Similar to Site #443 at Site #445, we found prehistoric stone flakes mixed with the historic artifacts on the surface. At this site we didn't find any structure remains, but the wide variety of household artifacts suggest there was probably one here at some period in time. Three large cut stones with a rusted metal portion of a garden rake were observed approximately 70 m east of the site in what is now an open, grassy field on a low terrace of Spring Creek. It is not known if they are related to the site. Also, a guy-wire support for an electrical pole or telephone pole was still visible on the site.

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...we found prehistoric  
stone flakes mixed with  
the historic artifacts on  
the surface.

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On the surface are a variety of artifacts such as corroded metal objects, stoneware pieces, glass container fragments, and broken window panes. Other artifacts observed on the surface include a porcelain cup sherd, and a whiteware sherd with a yellowish paste. Green, dark blue, aqua, and amber glass sherds scattered across the surface are mostly found near the center of the site. We found a badly rusted metal snap about four inches in length with the spring bolt missing. The same type of snap is listed as a cattle tie iron in the 1897 Sears, Roebuck Catalogue, and they are still being manufactured today. A metal hinge with a hammered plate, a center hole and four screw holes that were apparently hand punched was also found. Also what appears to be a cast-iron foot pedal from a sewing machine was noted. Its decorative pattern is similar to one found advertised in the 1897 edition of the Sears, Roebuck Catalogue and the 1895 Montgomery Ward & Company Catalogue.

Broken stoneware sherds from a churn and lid are scattered about. They have an Albany type slip on both the exterior and interior of the vessel, a style popular from about 1875 to roughly 1900. Five of the glass bottle sherds collected and examined had been intentionally flaked. Two of these were aqua colored, indicating they were most probably manufactured before 1900.

The aqua glass sherds were part of a base and side section of a medicine bottle. The partial base does not have any seams which could date it, but it does have a blowpipe pontil scar in its center, suggesting it likely was made before 1880. The base fragment has intentional flaking scars on its bottom and sides. The other aqua sherd is a section of a possible rectangular bottle that is partially embossed with "ME & S" on one side. This is probably a fragment of a patent medicine bottle, recognizable by its rectangular shape and aqua color, the norm for patent medicine bottles. The construction of the railroad into San Angelo in 1888, and the accompanying increase in mail order businesses being able to ship a greater variety of patent medicines into the area, suggests that this specimen was probably introduced to the site around that time or shortly thereafter.

One bottle sherd is a small portion of a green broken bottle mouth from which no attribute remains to objectively determine a date. However, because of its green color, subjectively it can be placed around the turn of the century or later. There were three purple broken glass fragments consisting of a partial base, a fragment that has a molded raised edge with a seam through it, and a small flat glass fragment with embossed letters. Overall, based on their purple color, the glass sherds can generally be dated to between 1880 and 1915.

Based on the thickness of the aqua-colored window pane sherds, there is a 95 percent probability that the window was manufactured between 1924 and 1938.

We dug two shovel tests at this site and found two machine-cut square nails which were probably brought to the site sometime between 1825 and 1900. One of the square nails is called a brad and the other is a sprig, both of which were commonly used in the trim and flooring of buildings. A wire common nail that dates from the turn of the century to present was also found, along with a fence staple.

In the shovel tests were two buttons were found. Both are machine-cut; one a two-hole shell, and the other a four-hole metal button. The shell button was most likely brought here between 1850 and 1950. The 1895 Montgomery Ward & Company Catalogue provides a guide which matches this particular specimen as an 18 line type, a type commonly used for men's shirts or women's dresses. Although the metal button is somewhat corroded, it was identified as a molded type, used for coats or cloaks.

A review of available maps from 1855 and onward indicates no structure on the site, and our survey did not identify any structural remains. However, the artifacts and guy-wire support suggest that possibly a temporary residence may have occupied the site. Window



Twin Buttes CAR collection

Figure 73. Two buttons found in the shovel tests are both machine-cut.

glass, wire and square nails, particularly the sprig nail normally used in trim or floor construction, provide further evidence that there likely was a liveable structure located here. Further clues of a household are the variety of colored glass bottles, buttons, and part of a sewing machine.

Notably, the technique of fashioning glass into functional scraping tools by flaking was evident at this site, as well as at Site #443.

Table 5. These artifacts indicate the likely period of occupation at Site #445

Artifacts	Probable Years	Artifacts	Probable Years
Square nails	1850-1900	Other colored glass	ca. 1900
Shell button	1850-1900	Wire nail	1900-Present
Pontil-scarred purple glass base	1880-1915	Window glass	1924-1938

### ***Railroad Shack (#501)***

This railroad-related site is set on a limestone conglomerate-based knoll high above the broad plain between the confluence of Spring Creek and the Middle Concho River. This site has one main cluster and three smaller clusters of cut limestone and red brick structural remains. An abandoned railroad grade is found at the southern edge of the site, and a two-track road runs along its eastern edge.

In addition to bottle glass, two iron retaining pins and iron hardware from a wagon were observed on the surface. A few of the red bricks were labeled "THURBER." The Thurber brick plant operated from 1897 through 1930. Three glass bottle bases were collected; one clear, one aqua, and one brown. The first glass base has a remnant of the distinctive Owens machine ring indicating it was made after 1904, however its lack of coloring implies it was made after the 1930s. The aqua-colored base is rectangular and embossed with the words "ACEITO MEXICANO" across its surface. It also displays an Owens machine ring from the early part of the twentieth century. Its rectangular shape and aqua color suggest it was likely a patent medicine bottle. The brown glass base has a maker's mark which indicates it was made by the Owens-Illinois Company between 1929 and 1954.

The structural remains and other items found at the site are probably related to the now abandoned Kansas City, Mexico and Orient Railroad bed which runs along the southern edge of the site. The Spanish translation for "Aceito Mexicano" can either be Mexican train oil, or Mexican tonic oil. The glass sherds could have been introduced to the site between 1904 and 1954, and the red brick could not have been used at the site before 1897. A structure is shown at this location on a 1923-1924 topographical survey map of the area.



Twin Buttes CAR collection

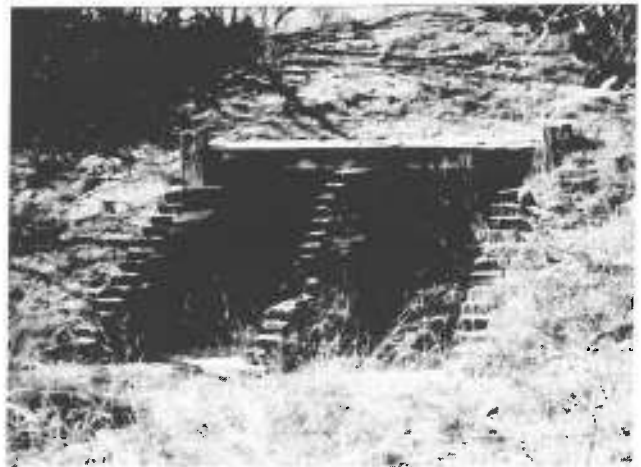


Figure 74. *Much of the bridgework of the old railroads that used to pass through the reservoir area still remain.*

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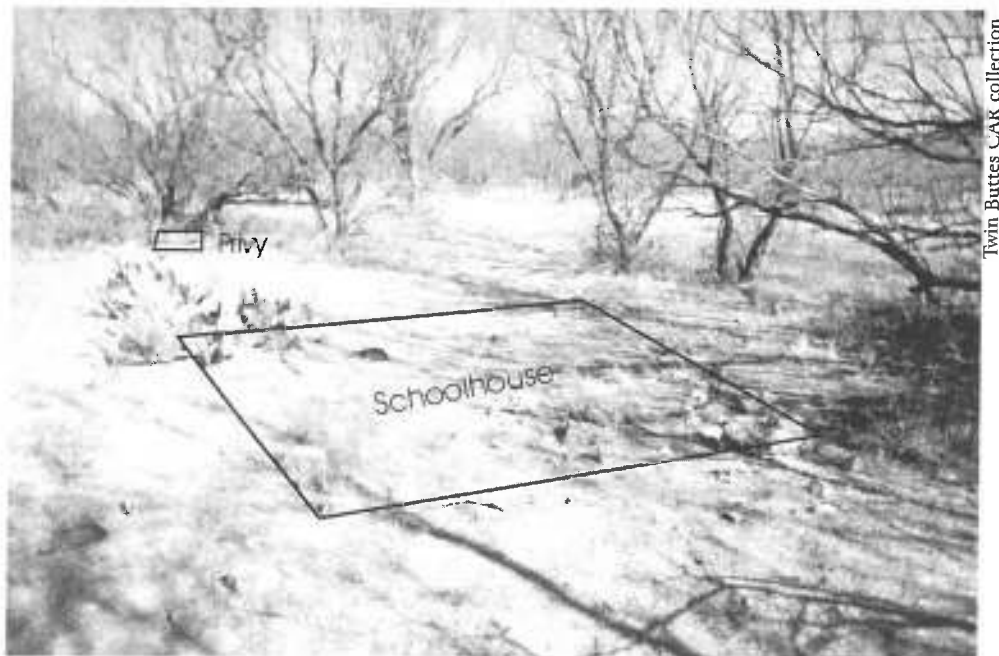
...probably related to the now-abandoned Kansas City, Mexico and Orient Railroad bed which runs along the southern edge of the site.

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### ***The Old Country Schoolhouse (#504)***

This site, on a rise overlooking the South Concho River valley, contains the remnants of an early 1900s schoolhouse and privy. It also has been used as a pre-historic Native campsite perhaps as early as 9,000 years ago. The immediate area around the schoolhouse is now overgrown with mature mesquite trees, prickly pear cactus, and moderately dense grasses. Range cattle were frequently seen around the site during the survey. The schoolhouse remains consist of scattered brick and cut stone, with a few pieces of wood and metal sheeting. Its estimated size is 12-feet x 16-feet. It is believed that the privy lies about 20 feet northwest of the schoolhouse, and it is defined by a 6-foot x 4-foot scatter of cut stones surrounding a slight depression, with an apparent doorway facing the northeast. Traces of a probable driveway extend from a two-track road and lead up to the south side of the schoolhouse.

In addition to the construction material, artifacts observed on the surface include undecorated whiteware plate and cup sherds, painted whiteware sherds, brown glaze stoneware sherds, purple and dark blue bottle glass, clear Mason jar sherds, clear glass bottle sherds, rusted tin cans, a metal wheel from a child's wagon, and a leather shoe sole. They are predominately scattered in close proximity to the schoolhouse. One of the clear glass bottles is a medicine bottle with no maker's mark, but its clarity suggests it was manufactured after 1930. A second bottle bears an Owens-Illinois Glass Company mark indicating it was manufactured between 1929 and 1966. The purple glass would likely have been brought to the site between 1880 and 1915, and the brown over white glazed stoneware is also likely of the same era. We took measurements of three pieces of windowpane glass and from these determined that there is a 95 percent probability the sherds date to between 1916 and 1930.



*Figure 75. Prickly pear cacti and mesquite trees are reclaiming the land and covering the few bricks and foundation stones of a country schoolhouse and yard that was once both a learning institution, as well as a community social center. The privy (upper left-hand corner) was located beyond the cacti, under the large mesquite trees.*



Twin Buttes CAR collection

Figure 76. *These large stones and slight depression are apparently the remains of the privy.*

The schoolhouse appears on a 1923-1924 topographic survey map of the area, and it was probably being used before that time. The artifact assemblage suggests a period of use from about 1900 to 1930. A review of available land ownership maps indicates that the property was originally surveyed as part of McDonald's District 11 in the Fisher-Miller Land Grant, later the German Emigration Company. By 1894 Joseph Jung had acquired the 160-acre parcel and he held title until it was transferred to the Department of the Interior.

### ***The David Lloyd Site (#513)***

This site along the South Concho River has been continuously inundated and exposed due to fluctuating reservoir levels since the construction of the dam in the 1960s. At survey time the site was overgrown with dense marshy grasses and young willows, but clearly visible was a circular, stacked sandstone structure with approximately 15-inch wide walls, a 5.5 foot interior diameter, and standing height of approximately 18 inches. It has an entry opening to the east, and a pile of sandstones adjacent. We found both prehistoric and historic artifacts here, so the age of the structure may be prehistoric—or, it may be from the 1800s; we can't be sure which.

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dense marshy grasses and young willows had overgrown the site, but clearly visible was a circular, stacked sandstone structure...

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Twin Buttes CAR collection

Figure 77. *This sandstone structure could be hundreds of years old and associated with the stone tools found at the site—or it might be associated with the 1800s artifacts—or it may not even be a decade or so old. The waves from the reservoir bury it with silt, or expose it, and modern trash gets deposited around it, thus distorting any estimate of its age.*

Thick glass fragments observed on the surface included the colors green, purple, dark brown, and aqua, along with whiteware sherds, brown glazed stoneware pieces, and etched purple glass. Six glass bottle fragments, two rifle cartridges, a horseshoe fragment and a copper tobacco tin case were collected for further examination. Four purple glass sherds collected were produced between 1880 and 1915, with engraving on two of them. Engraving was an inexpensive practice in the late 1900s. An aqua colored rectangular bottle base collected has the embossed letters "W" then "U S a." Any letters in between have been partially obliterated by a sand-tipped pontil scar indicating a probable period of manufacture prior to the 1870s. A dark amber bottle neck fragment, possibly part of a beer bottle was also collected. This particular specimen has no seam line running up the side of its lip, indicating that it was likely made before 1900.

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**Thick glass fragments observed on the surface included the colors –green, purple, dark brown and aqua.**

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The rifle cartridges cases have the marks "WRA CO 44 WCF" and "WRA CO 45-60 WCF" on the bottoms of the shell casings. The first rifle shell is a .44-40 caliber that was made by Winchester Repeating Arms for the Model 1873 Winchester rifle famous during the Old West. This caliber grew in popularity when the Colt single action revolver was chambered for it in 1878. This development meant that an individual had a bullet that could be used for both the rifle and pistol, which was a real advantage on the western frontier. The other shell casing is that of a .45-60 caliber made by Winchester Repeating Arms for their Model 1876 rifle. This rifle was developed for sportsmen who wanted a larger caliber than the .44-40 of the Model 1873. The copper tin hinge type container appears to be a cigarette tobacco container, and is in two pieces; one side has an engraved building with the words "G.W. GAIL & AX TOBACCO WORKS" below it, and the other side reads as follows;

—TED BY  
G.W. GAIL & AX  
BALTIMORE MD  
SAMPLE

THIS PACKAGE NOT FOR SALE  
REPACKED FROM STAMPED PACKAGE

The age of the tin tobacco container could not be traced through its distributor, G. W. Gail and Ax. However, with the exception of five major businesses, numerous small operators produced and distributed cigarette tobacco until 1893. In that year the major producers united under the American Tobacco Company and effectively squeezed out most of the smaller concerns.

The final artifact collected is a badly rusted, half section of a horseshoe with a sunken groove, an indication that it is of either British or American origin. It is probably the shoe that goes on the front rather than the rear since there is no projection bar on it. Because of the poor condition of the shoe only a relative period of either the nineteenth or twentieth century can be assigned to it.

This site contains some of the earliest evidence of occupation within the Twin Buttes survey area. The artifacts suggest its probable use as a residential site between ca. 1870 and 1915 (Table 6). Although a 1923-1924 topographic map of the area shows a road running through the site, it does not show any structure(s) at this location. It could be that any structure which existed at the turn of the century were destroyed before 1923. The age of the sandstone structure found at the site has not been determined. It is not large enough to have served as a residential dwelling, and may have been an outbuilding for a residential structure now under reservoir water. A review of available maps indicates that the surrounding property was owned by a Mr. David Lloyd from at least 1894 through to 1947, and prior to that it was platted in McDonald's District 11 of the Fisher-Miller Land Grant, and the subsequent German Emigration Company.

Table 6. Probable antiquity of artifacts documented at the David Lloyd site

Artifact	Probable Years	Artifact	Probable Years
Aqua Bottle Neck	Pre-1870	Tobacco Tin	Pre-1893
.44-40 Rifle Cartridge	Post-1873	Amber Bottle Neck	Pre-1900
.45-60 Rifle Cartridge	Post-1876	Purple Glass	1880-1915

***The Keyes Dairy  
(#521)***

Although a single structure appears at this location identified as the Leedale Ranch on a 1923-1924 topographic survey map of the area, the property known later as the Keyes Dairy has been managed by the city of San Angelo for the past few years, and a wetlands

area has now been developed nearby. The concrete remains from the main house, an outhouse, and another outbuilding still remain, along with a cistern, concrete cattle troughs, and a trash dump. An abandoned railroad grade spur lies about 150 feet west of the structures.



***Points of interest:***

*Cistern: a large receptacle for storing water, especially a tank in which rain water is collected for use.*



Twin Buttes CAR collection

Figure 78. This cistern at the Keyes Dairy is now partly filled in.