

*A Cultural Resources Survey for the San Antonio
Animal Care Spay and Neuter Adoption Facility
Project, Bexar County, Texas*

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Texas Antiquities Permit 6016



South Texas Archeological Research Services, LLC
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Abstract

In mid August, 2011, South Texas Archeological Research Services, LLC, performed a cultural resources survey for about 2.01 acres of land in central Bexar County, Texas—the project area for the proposed San Antonio Animal Care Spay and Neuter Adoption Facility. The survey was done according to a scope of work approved by the Texas Historical Commission and the staff of the City of San Antonio Historic Preservation Officer. Because the land was owned by the City, and due to the relatively high density of significant cultural resources known to be in the general vicinity, the survey was necessary to comply with requirements applicable City historic codes and the Antiquities Code of Texas, and was done under Texas Antiquities Permit 6016. Because there was no federal involvement in the project, compliance with Section 106 of the National Historic Preservation Act was not required.

A background search conducted prior to fieldwork revealed that apparently the project area contained no recorded archeological sites and had not been previously investigated. However, it also indicated that numerous archeological sites had been found in the general vicinity and registered with the State of Texas, including many sites landmarked or eligible for landmarking at the state and federal levels.

During fieldwork, systematic pedestrian visual inspection and subsurface probing revealed that the entire project area apparently was severely disturbed and contained either asphalt paving or a mantle of artificial fill averaging several meters in thickness. Most of the cultural evidence encountered was the remnants of modern improvements that obviously originated during the mid to late twentieth century, none of which appeared to be archeologically or historically significant. Exceptions were stone masonry walls or wall remnants and quarry marks on the face of a limestone bluff along one edge of the area. Those items and evidence of past disturbances were photographically documented. No artifacts that warranted collection or curation were found and therefore nothing was collected or curated. No areas worthy of site designation were distinguished and no sites were recorded.

Additional survey-level background research was briefly conducted in an attempt to determine the approximate age and historic or cultural associations of the quarry marks in the bluff face. However, nothing was found that firmly established when or by whom that particular quarrying was done. The types of marks, which apparently resulted from vertical drilling by mechanized means, and the information gathered about the history of stone quarrying in the general vicinity seemed to suggest that the marks originated sometime between about 1880 and 1917, during quarrying by the Alamo Portland and Roman Cement Company. However, additional information would be needed to firmly support that notion.

Based on those findings, the Principal Investigator believed that most of the project area contained nothing worthy of further investigation, preservation, or landmarking at the federal, state, or local levels. Therefore it was recommended to the Texas Historical Commission, the City of San Antonio Historic Preservation Officer, and project sponsors and consultants that the proposed animal care spay and neuter adoption facility as planned at the time of the survey should proceed without further archeological work, but that the afore-described masonry walls and the bluff face should not be disturbed until their landmark potential is clarified.

Per applicable historic preservation statutes, it was also recommended that construction work should be suspended in the vicinity of any finds of archeological evidence unearthed or exposed by construction activities until the finds are examined by the Texas Historical Commission, the City of San Antonio Historic Preservation Officer, and/or a qualified professional archeological consultant.



Acknowledgments

South Texas Archeological Research Services, LLC, was assisted in coordinating and performing its work by several persons whose help is gratefully acknowledged: Martha Seng, FAIA, of Jackson and Ryan Architects, Houston; San Antonio Capital Improvements Management Services Project Manager William A. Hensley and Economic Development Specialists Brenda Navarro and Fernando Hernandez; San Antonio Planning Department staff archeologist V. Kay Hinds; historic preservation specialist Imogen R. Cooper; archeological field assistant Jay McCracken; and Texas Historical Commission Archeology Division reviewer Mark H. Denton.

Introduction

On August 17, 2011, South Texas Archeological Research Services, LLC (STARS), conducted fieldwork for a cultural resources survey for the proposed San Antonio Animal Care Spay & Neuter Adoption Facility, Bexar County, Texas (Figure 1). The facility was to be built on about 2.01 acres—the former location for the City of San Antonio Animal Control Facility near the San Antonio Zoo and Brackenridge Park (Figure 2).

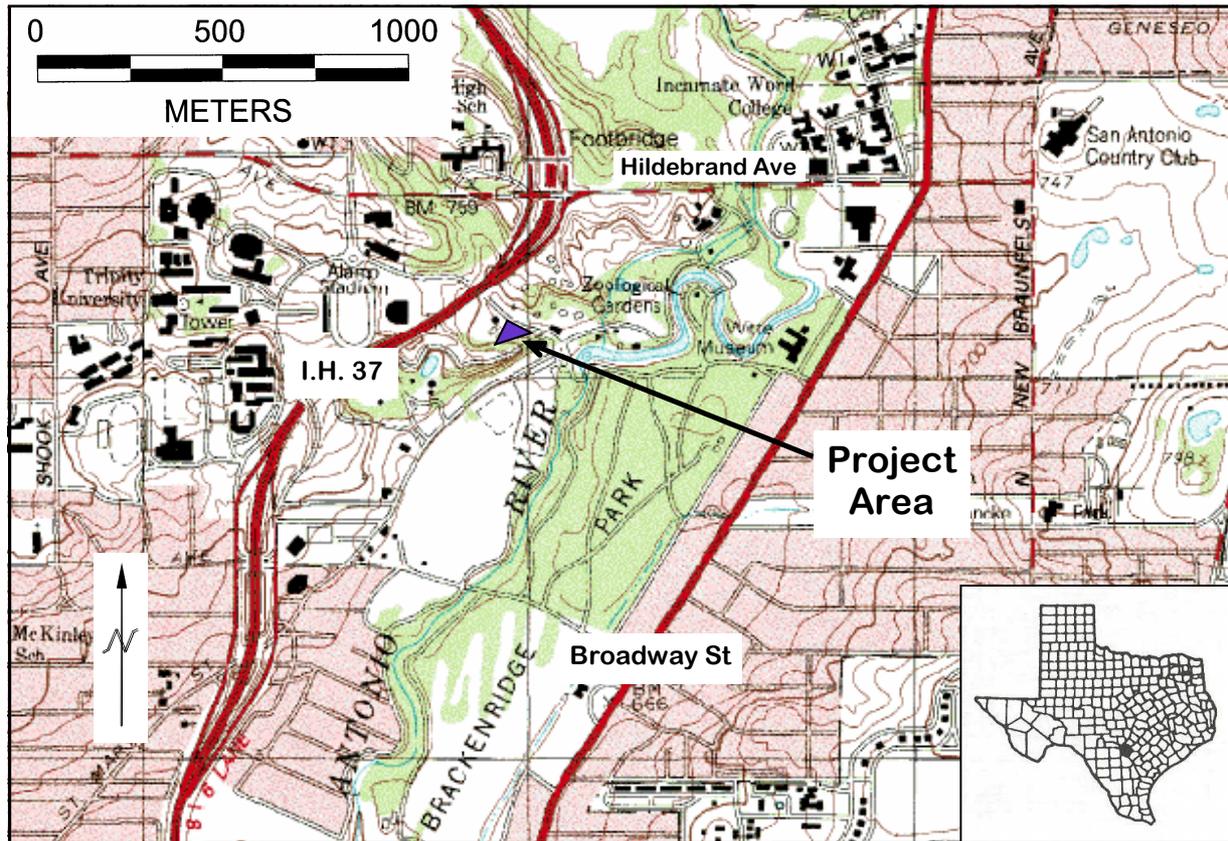


Figure 1. Project Area (at tip of black arrow) as plotted on section of *San Antonio East, Texas*, United States Geological Survey 7.5-minute topographic quadrangle map. Inset shows location of Bexar County in Texas.

Because the project area was owned by the City of San Antonio (COSA), the survey was necessary to comply with requirements of the Antiquities Code of Texas and was done under Texas Antiquities Permit 6016, issued by the Texas Historical Commission (THC). Because there was no federal-agency involvement or federal funding for the project, compliance with Section 106 of the National Historic Preservation Act was not required.

The area investigated was roughly triangular shaped. It was bordered on the north by Tuleta Street, on the east and south by a limestone bluff varying from about 3-5 meters in height above average 2011 ground level in the vicinity, and on the west by an existing paved parking lot. A relatively narrow, shallow drainage channel that was probably of artificial origins extended through the area near the west border fence.

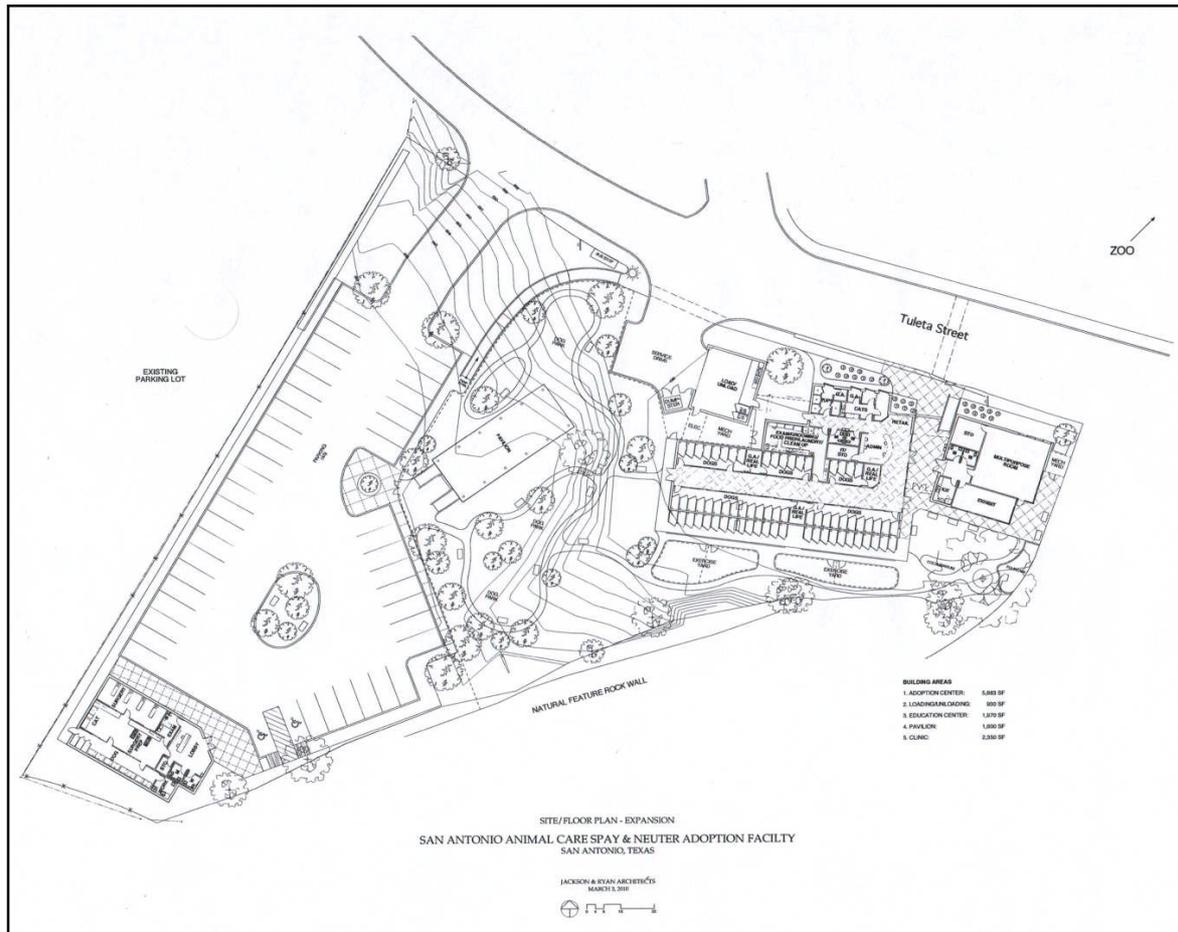


Figure 2. Plans for construction of proposed facility at the project area.
Copy provided courtesy of Jackson & Ryan Architects, Houston, Texas.

The survey included standard background research regarding prior cultural resource investigations and findings; targeted preliminary research on stone quarrying in the vicinity of the project area and related topics; photographic documentation of prior disturbances; pedestrian visual inspection of the ground surface; survey-level subsurface testing; and reporting. It was led by Principal Investigator Herbert G. Uecker, who was assisted during fieldwork by archeological technician Jay McCracken and during background research by historic preservation specialist Imogen R. Cooper, AICP. This report conforms to the Council of Texas Archeologists reporting guidelines for cases of negative or negligible findings.

General Background

Regional Natural Setting and Natural History

At the time of the investigation, the regional physiographic and geologic setting of the area investigated had already been described in considerable detail (cf. Abbott and Woodruff 1986; Black 1989a:5-16; Black and McGraw



1985:40-54). Briefly, the area is near the southern edge of the Balcones Escarpment and Fault Zone at an average elevation of about 200 meters above sea level. The fault and escarpment region is also known as the Balcones Canyonlands. Intermittent faulting began in the area during the Miocene geologic epoch about 15-21 million years ago and continued until about a million years ago.

The regional geomorphology consists of a series of northeast to southwest trending fault scarps and associated erosional features. The regional drainage pattern is dendritic and major drainages in the region include the Medina, Guadalupe, and San Antonio Rivers. Several prominent secondary drainages, such as Culebra, San Pedro, Salado, Mud, and Elm Creeks, also dissect the general area.

Base or parent rocks in the canyonlands zone include several members of the Lower Cretaceous series including the Del Rio shale formation and the Buda, Edwards, and Glenrose limestones. These formations collectively range up to as much as 10,000 meters thick over much of central and south Texas. They were formed during the Cretaceous geologic period between about 120 and 65 million years ago. During the last several million years, numerous karst features have formed within the limestone formations, which also house the Edwards aquifer (cf. Veni 1988:11-26; 1998). The aquifer is a regional-scale phenomenon composed of porous beds of limestone and shale sandwiched between less permeable calcareous strata and it is virtually the sole source of potable water for much of central Texas. Soils in the canyonlands region are derivatives of the local bedrock and are typically very thin, stony, and underdeveloped in the uplands.

Ecologically, the area has been a resource-refugium zone since the middle of the Holocene geologic epoch about 7,000 years before present (B.P. [present being arbitrarily defined by culture historians as A.D. 1950]). It was at that juncture in time that the onset of the Altithermal climatic episode (Nance 1972) began to substantially alter the climate of the North American southwest, including Texas. The Altithermal was a period of relatively intense heating and drying that lasted, with many short breaks, until the present time. As the lush tall-grass steppes and mixed-grass prairies of south and west Texas were reduced to thorn scrublands and semiarid deserts over several millennia, both animal and human populations congregated in such areas as the Rio Grande basin and the mountain forests of west Texas and northern Mexico, and also in the central Texas Hill Country. South and west of the Hill Country, riparian zones slowly evolved into isolated ribbons of resources, and many unique places along the area's rivers and streams became centers of human population.

The area investigated is situated within a broad ecotonal zone that exhibits characteristics of three major natural regions (cf. Blair 1950; Riskind and Diamond 1988): (1) the Balconian Biotic Province, a subtropical, subhumid mixed woodland or parkland that is geographically congruent with much of the Texas Hill Country and is dominated by juniper-oak scrub forests; (2) the Tamaulipan Biotic Province, a subtropical to megathermal desert steppe or thorn scrubland that ranges southward from central Texas into the coastal and Rio Grande plains and well into northern Mexico that is dominated by huisache and mesquite; and (3) the Blackland Prairie, a subtropical, subhumid area characterized by mixed savannah grassland or prairie and by post oak-blackjack oak woodlands that ranges northward and eastward to the Red River area near the Texas-Oklahoma border. The climate of these regions during the last several millennia has been typified by short mild winters and long hot summers. Modern annual precipitation in the area averages about 700-800 mm and follows a bimodal pattern with maxima in May and September. The Balcones tablelands have sometimes been the locus of world record precipitation events triggered by tropical waves of warm moist air from the Gulf of Mexico colliding with colder dryer air of arctic and subarctic origins surging southward from the high plains (Caran and Baker 1986).

In 2011, there were hundreds or even thousands of species of plants, animals, and insects thriving in central Texas. It is beyond the scope of this report to include a comprehensive listing or description of these species but the interested reader is referred to publications by Davis (1960), Enquist (1987), Everitt and Drawe (1993), Kutac and Caran (1994), Neck (1986), Riskind and Diamond (1986), Simpson (1988), and Vines (1984). Major terrestrial faunal species and avifaunal species of the area include the white-tailed deer, javalina, coyote, red fox, opossum,



raccoon, ringtailed cat, squirrel, striped skunk, armadillo, wild turkey, bobwhite quail, Inca dove, white-winged dove, box tortoise, and western diamondback rattlesnake. Prominent raptors of the region include turkey and black vultures and various species of owls; and red-tailed hawks, eagles, and peregrine falcons. Also, modest numbers of cougar and bobcat are present in the less populated areas.

Prominent plant species and communities of the San Antonio/Bexar County areas are typical of those found throughout much of central Texas. Live oak, mountain laurel, persimmon, and juniper are major tree varieties of the hill country scrub forests. Tree species such as mesquite, huisache, and blackbrush acacia; and many cacti and yuccas including prickly pear, Spanish dagger, and sotol are prevalent in lowland thorn shrub thickets. Stream courses and river bottoms of the region contain a broad spectrum of native deciduous trees including Spanish oak, cedar elm, hackberry, pecan, walnut, cherry, and ash. Whitebrush, giant ragweed, cockle burrs, snow-on-the-prairie, frost plant, and numerous other herbs and forbs cover the forest floors. Dozens of types of short and mid grasses carpet the region's prairies and savannas.

Regional Culture History and Cultural Ecology

Probably attracted by the abundance of pristine water, the steep ecological gradients, and the rich biotic microenvironments present, humans first occupied the central Texas area at least 11,000 years B.P. The local culture history contains four broad divisions (cf. Black 1989b:25-33, 1989c:48-57; Black and McGraw 1985:35-40; Hester 1980:27-37; Turner and Hester 1993:50-63): the Paleoindian period (ca. 11,000-8000 B.P.), the Archaic period (ca. 8000-1500 B.P.), the Late Prehistoric period (ca. 1500 B. P. to A.D. 1528), and the Historic period (ca. A.D. 1528 to present). During all but the Historic period, humans in the area were engaged in a nomadic to semi-sedentary hunting and foraging lifeway. Archeological evidence indicates that they were organized as small groups or bands that traveled much of the time in regular patterns, known as subsistence forays, in order to exploit a variety of seasonably available natural resources. This lifeway was practiced in most of North America for many thousands of years before the fifteenth century infusion of Europeans to the New World.

Such peoples were largely of Asiatic origin, but are variously referred to as aboriginals, native Americans, American Indians, ancient Americans, or early Americans. Apparently many of these pioneers entered North America from eastern Siberia via the Bering Strait, sometime prior to about 15,000 B.P., probably during a major episode of global cooling and glaciation, when an ice sheet or bridge connected Siberia to Alaska. They eventually spread throughout the Americas, and their cultures flourished and greatly diversified, especially during the last few thousand years. By the early eighteenth century when the Spanish established missions in Texas, several hundred Indian groups, each having a fairly distinct linguistic or socio-political identity, lived in the southwestern United States, Texas, and northern Mexico (cf. Campbell 1979:1, 1988:39; Schuetz 1976:1). The story of these peoples' prehistoric past encompasses the first three major periods in the culture history of the central Texas area.

The Paleoindian period includes the terminus of the Pleistocene geologic epoch and the beginning of the Holocene. The climate of the period was generally somewhat cooler and more humid than that of later periods. The natural landscape in much of central Texas during this period consisted mostly of forest parkland, i.e., savannah grasslands with numerous clusters of trees. The lush vegetation of the period provided a trophic base which supported many large ice-age herbivores and carnivores. Sea level along the Texas coast is estimated to have been about 120 m lower than at present; thus, a broad seaward expanse of land, which is now inundated, existed during those times. Paleoindians were typically organized as small, nomadic, stone-age, hunting and foraging bands that often pursued such large game as bison, mammoth, and mastodon. The fact that they supplemented their diets with wild plant foods has been documented only occasionally in much of Texas because of the poor preservation of pollen and plant fibers in most local soils. The relatively few Paleoindian sites documented in Texas consist primarily of isolated finds of chipped stone spear points that exhibit highly distinctive styles and workmanship, and rare kill and butchering sites of Pleistocene game animals.



The Archaic period is characterized by a shift to generally dryer and warmer conditions, sometimes referred to as the Altithermal climatic period (Nance 1972). The Altithermal of Texas apparently was punctuated by alternating mesic and xeric episodes that were sometimes of significant duration and magnitude. In spite of these erratic patterns, the landscape gradually evolved into a mosaic of alternately sparse and lush savannah grasslands with isolated stands of trees on the uplands and heavier arboreal growth in the riparian zones. This drying out of the land after the Pleistocene corresponds to broad changes in the lifeways and cultures of native peoples. The archeological record indicates that a substantial degree of diversification in human subsistence patterns occurred. Emphasis shifted from the hunting of large Pleistocene mammals, by then extinct, to a new focus on the hunting of smaller game and on plant food gathering, processing, and consumption. During most of the period the dominant lifeway continued to be nomadic hunting and foraging by small egalitarian bands who exploited scattered seasonal resources. As evinced principally by the appearance in the archeological record of large communal or clan cemeteries toward the end of the period, land and other resource scarcities occurred, larger groups were formed, and territorialism, sociopolitical complexity, and semi-permanent or permanent settlements formed.

The predominant type of central and south Texas archeological site of the period is the occupational refuse pile, or midden. Such midden sites are frequently large, open, seasonally occupied base camps located along rivers and streams. They were central places used for the accumulation, processing, cooking, and consumption of foods, and presumably for habitation as well. They were also occasionally used for burying the dead (Hester 1985). Burned rock middens are the most common type present at interior sites. At such sites, foods were often cooked in earthen pits lined with rock slabs or boiled in hide pouches filled with water, food, and hot stones. The rocks had to be routinely replaced as they disintegrated from continual exposure to the intense heat. This resulted in the gradual accumulation of large heaps of thermally fractured and discolored rocks mixed with food scraps, discarded tools, and tool manufacturing debris. Diagnostic projectile points, radiocarbon dates, and other archeological data from burned-rock-midden sites indicate that many of them were occupied intermittently for several hundreds or even thousands of years by peoples who normally wandered about in small bands, but who gathered into much larger bands for special seasonal activities and ceremonies. Other types of sites that are associated with the Archaic period include smaller, shorter-term occupancy or use sites such as upland hunting-butcherer camps, quarry-workshop sites for the procurement of raw stone for the manufacturing of chipped stone tools, cavern or rockshelter habitation sites, isolated hearths and stone chipping scatters, burial and cemetery sites, and isolated finds or caches of projectile points or other tools.

During the Late Prehistoric period, plant domestication and other agricultural practices were gradually adopted. Due to the poor preservation of plant remains in prehistoric archeological deposits of central and south Texas, the extent to which these new subsistence activities were used is not known. The bow and arrow and ceramic technology were introduced from neighboring regions. Permanent settlements arose and trade networks for the routine exchange of goods with neighboring regions were greatly expanded. Sociopolitical relationships were elaborated and the concepts of local group identity and coherence were undoubtedly strengthened.

The impact of these changes on the lifeways of the native peoples living in central and south Texas during the period is just beginning to be known. Apparently with few exceptions, the Archaic lifeways practiced in south and south-central Texas continued largely unmodified into the Late Prehistoric period. The modifications in the technological and cultural inventory that occurred there during the Late Prehistoric period and that manifest archeologically include the production and widespread distribution of smaller, lighter stone tips for arrows and the routine production and use of ceramics. The subsurface remains of prehistoric houses or village sites, and the attendant traces of nearby activity areas, fortification features, agricultural plots, and irrigation systems from the period are present in Texas, but are confined mostly to the northern, eastern, and western margins of the state. Ethnographic accounts from European explorers who ventured into the south Texas or Texas coastal areas during the sixteenth and seventeenth centuries also mention the existence of villages of crude structures, but at this writing there was little known archeological evidence for the existence of such structures (cf. Johnson 1997).



Many of the indigenous Texas Indian groups, including such long-term residents of the central Texas region as the Coahuiltecans and Tonkawas, continued to engage primarily in nomadic hunting and foraging well into historic times. This was the case in spite of the fact that some of their Late Prehistoric predecessors had begun the routine practice of horticulture or agriculture, and had apparently settled in permanent or nearly permanent villages by about A.D. 500. Archeological evidence has recently emerged that indicates that small permanent or semi-permanent villages were probably present in what is now central Texas as early as the Middle Archaic period (Johnson 1997). Shortly after the accidental introduction of horses into American Indian culture in the sixteenth century by the Spanish, bison-hunting became the way of life for many tribes on the Great Plains, where nomadism also continued. The Apaches and Comanches are the main southern plains tribes that invaded the central Texas area from the west and north during the 1600s and 1700s, displacing, absorbing, or exterminating many of the original inhabitants of the area (cf. Hester 1980; Newcomb 1961; Sjoberg 1953). They also frequently raided European-American settlements in or near the Texas Hill Country. During the eighteenth century, most of the surviving indigenous groups apparently fled to outlying regions or sought protection from invaders in the Spanish missions.

The Historic period in Texas began in the early sixteenth century (ca. 1528-1536). The first Spaniard, if not the first European, to set foot on Texas soil was probably Alvár Núñez Cabeza de Vaca. He was sailing the Caribbean with an exploratory Spanish expedition and was shipwrecked off the Florida coast in 1528. For about the next eight years, he allegedly wandered along the gulf coast, well into Texas, and finally arrived in Mexico in 1536. By that time, the Spanish had conquered and dominated many of the aboriginal cultures that occupied Mexico, Central America, and a sizeable portion of South America, and thus established a foothold of European-style civilization in those areas. During the period from roughly the second decade of the sixteenth century to the terminal seventeenth century, the Spanish colonized all of what is now Mexico to the Rio Grande. In 1691, an expedition of Spaniards from Mexico penetrated Texas to San Pedro Springs, now located in the northern portion of San Antonio's central business district. In an often-quoted report to the viceroy, explorer Domingo Terán de los Ríos related:

We marched five leagues over a fine country with broad plains---the most beautiful in New Spain. We camped on the banks of an arroyo, adorned by a great number of trees, cedars, willows, cypresses, osiers, oaks and many other kinds. This I called San Antonio de Padua, because we reached it on his day [Terán de los Ríos 1691 as quoted in Crook 1967:1-2].

Fray Damian Massanet, also with the 1691 Spanish expedition, is cited by Crook as attesting that they encountered a very large tribe of Payaya Indians at that same location.

Several more preliminary expeditions into Texas were conducted by the Spanish during the next few decades. The landing of the Frenchman René Robert Cavelier, Sieur de La Salle, on Matagorda Island in 1684 and the subsequent activities of the French in Texas appear to have consolidated the resolve of the Spanish to colonize the region north of the Rio Grande. Some Spanish families had permanently settled in the vicinity of San Antonio by 1715 (Chabot 1936:8), and by 1718 the Spanish officially established the first settlement north of the Rio Grande near San Pedro Park. Called San Antonio de Padua, it consisted of a mission and a presidio based on agriculture employing Indian labor and irrigation. This subsistence base was used by the Spanish for virtually the entire time that they controlled the area.

The Spanish soon expanded their colony southward along San Pedro Creek and the San Antonio River, and by 1726, citizens of the crown numbered about 200 in the San Antonio area. In 1731, a party of about 52 additional settlers arrived from the Canary Islands and joined the fledgling colony. The Bexar County missions south of the present Alamo were imported during the mid eighteenth century from what were originally satellite locations in east Texas, and the relocation constituted a final impetus for Spanish settlement in the vicinity. The missions continued active throughout much of the remainder of the eighteenth century. With the beginning of secularization of the missions in the early 1790s came the granting of what had previously been the mission-controlled lands in Texas to Spanish citizens. By the end of the mission era, the indigenous Indians who were, presumably, descendants of the



first human inhabitants of south and central Texas, had been virtually eradicated. Many of those who took refuge in the missions died of European-introduced diseases, and the hunting-gathering lifeways of the remnant populations radically disrupted by mission life and the trials of acculturation.

For many decades after the missions waned, the culture history of much of Texas continued to be dominated by their influences. Throughout the periods of Mexican and Texan independence, the U. S.-Mexican War, and until just prior to the Civil War, the subsistence base of the region was largely agricultural and local population growth was fairly benign. There were very few changes in land usage in the area throughout the reigns of several major imperial powers over almost a century and a half until the railroad and the Industrial Revolution came to the region (Fehrenbach 1978:114-117).

Due principally to the infusion of German culture into Texas, substantial changes in local land usage began to occur during the second quarter of the nineteenth century, and their affects lasted through virtually the remainder of the century. It is clear from the history of immigration in Texas that there were simultaneous appearances of significant numbers of several other ethnic groups, mostly of northern European origins, but German immigrants were remarkably talented and unusually tenacious settlers, organizers, builders, and commercializers in the Central Texas area. The Germans came early, quickly planted deep roots, and spurred much later development. As early as the 1830s, a few Germans had already migrated to Texas (Lich 1986:6). Substantial German colonization in Texas began in about 1845 with Prince Carl of Solms-Braunfel's founding of New Braunfels (Biesele 1930:119). During the next decade, the German settlements of Fredericksburg and Boerne developed in the Hill Country north of San Antonio. Contemporaneously, the Germanic population of San Antonio was on the increase and by 1876, according to the town assessor, totaled 5,630 Germans and Alsatians (Fehrenbach 1978:117).

The Germans settled principally along the Balcones Escarpment in central Texas. The Escarpment is the most prominent landform in the Central Texas region and has served as a transitional zone between broadly different lifeways throughout most of the Historic period: "Since earliest European settlement, the Balcones Escarpment stood as a cultural frontier, a dividing line between the farming economy of the coastal plain and the ranching economy of the Texas Hill Country. The Escarpment has greatly influenced the cultural development in the land which it transects [Palmer 1986:153]." Since about the beginning of the nineteenth century, and especially prior to the Civil War, the Escarpment has been the physical and cultural boundary between the Old South and the Old West. Before the coming of the Industrial Revolution to the area during the late-nineteenth century, the economy of the Old South was based primarily on the growing of cotton, while that of the Old West was based mainly on livestock production (Abbott and Woodruff 1986:Preface). Many German-American settlers were attracted to the escarpment region because of its general physiological similarities to certain portions of Germany, such as Bavaria.

Local Historical Context

By the time of the STARS survey, the culture history of the Bexar County and San Antonio areas were well documented in both popular and technical literature of the nineteenth, twentieth, and twenty-first centuries (cf. Corner 1890; Fehrenbach 1978; Rust 2006). A cogent summary of the history of the Brackenridge Park vicinity had been published by Houk (2002:17-20), and several similar summaries were prepared during about the first decade of the twenty-first century (cf. San Antonio Parks & Recreation 2011; Uecker et al. 2004:16-51). The nomination of Brackenridge Park to the National Register of Historic Places was in progress at the time of the survey. This section includes only brief summaries of the topics deemed most relevant for inclusion. Readers interested in additional information are encouraged to consult the references cited.



Upper Labor Farm and Acequia

During the Spanish Colonial Period (c. 1716-1821), irrigation in the area that later became the modern city of San Antonio was accomplished by construction and use of seven main ditches, called *acequias*, that were dug roughly parallel to San Pedro Creek and the San Antonio River (Cox 1999:317). Most *acequias* apparently were originally only a few meters wide and about one to one-and-a-half meters deep. Adjoining fields were routinely flooded by gravity flow through sluice gates, auxiliary ditches, and aqueducts. Some local grain mills, such as the one of twelfth-century Moorish design restored in recent years at Mission San Jose y San Miguel de Aguayo, were powered by *acequia* water, and the circuitous routes of several major San Antonio thoroughfares, such as North St. Mary's Street near project area, follow those of the *acequias* (cf. Cox 2005:1-9).

Archeological investigations and associated archival and historical background research conducted from about 1968 to 2004 revealed important information about construction and use of local *acequias*, and proved that buried traces of those *acequias* often survived along historically mapped routes beneath later improvements (cf. Cox 1993, 1995, 1999, 2005; Fox 1985; Fox and Cox 1991; Henderson and Clark 1984; Nickels et al. 1996; Schuetz 1970; Uecker 2004). Such research also revealed that segments of some *acequias* were lined with stone, clay, plaster, or wood, or were covered with wood or metal sheeting, and that regular use of several Spanish *acequias*, most of which were originally earthen lined, continued after the end of Spanish rule in 1821 until the early to mid twentieth century.

The level lands between the San Antonio River and North St. Mary's Street just a few hundred meters south of the project area were part of the Upper Labor Farm irrigated by the Upper Labor Acequia that extended through the area (COSA Public Works Department 2002). According to Cox (2005:71), the acequia was actively used in that vicinity from Spanish times until about 1880, when it was filled, but in 1935: "...during a Works Progress Administration rockwork project in Brackenridge Park and San Pedro Springs, the headgate and approximately 1,500 feet of the Upper Labor Acequia's discharge channel was reconstructed. A portion of the channel above the old Water Works waterway and a segment in the waterfowl area of the San Antonio Zoo were also rebuilt, though few zoo visitors realize their historical significance [Cox 1995:72]."

A fairly comprehensive and well-documented history of the area from late Spanish times until the formation of the San Antonio Zoo and Brackenridge Park appears in Uecker et al. (2004:17-22), the relevant highlights of which are:

In 1762, Governor Angel Martos y Navarete ordered selection of an access for a new acequia to be established west of the San Antonio River for the purpose of irrigating new farm land to be known as the Upper Farm. The site chosen for the weir was two-and-one-half miles upstream from the town near the springs of the San Antonio River. However, the project languished until 1776, when Governor Ripperda issued orders that participants share expenses to clear land and create a 1.75-mile-long acequia for the new fieldsThe participants were Canary Island descendants... .Most of the recipients had been brought from Los Adais in east Texas for re-settlement in the south-central Texas area. The families who did not return to east Texas with Gil Y'Barvo were awarded lands in the Upper Labor.

Distribution of land and water rights... . began in April, 1777... .The land was divided into 26 suertes [Figure 3], and each suerte included the right to one day of water, with the participants drawing numbers for the plots. Each suerte extended as a long and narrow tract from the acequia on the west to the San Antonio River on the east... .After distribution, each new owner cleared the land for field crops...

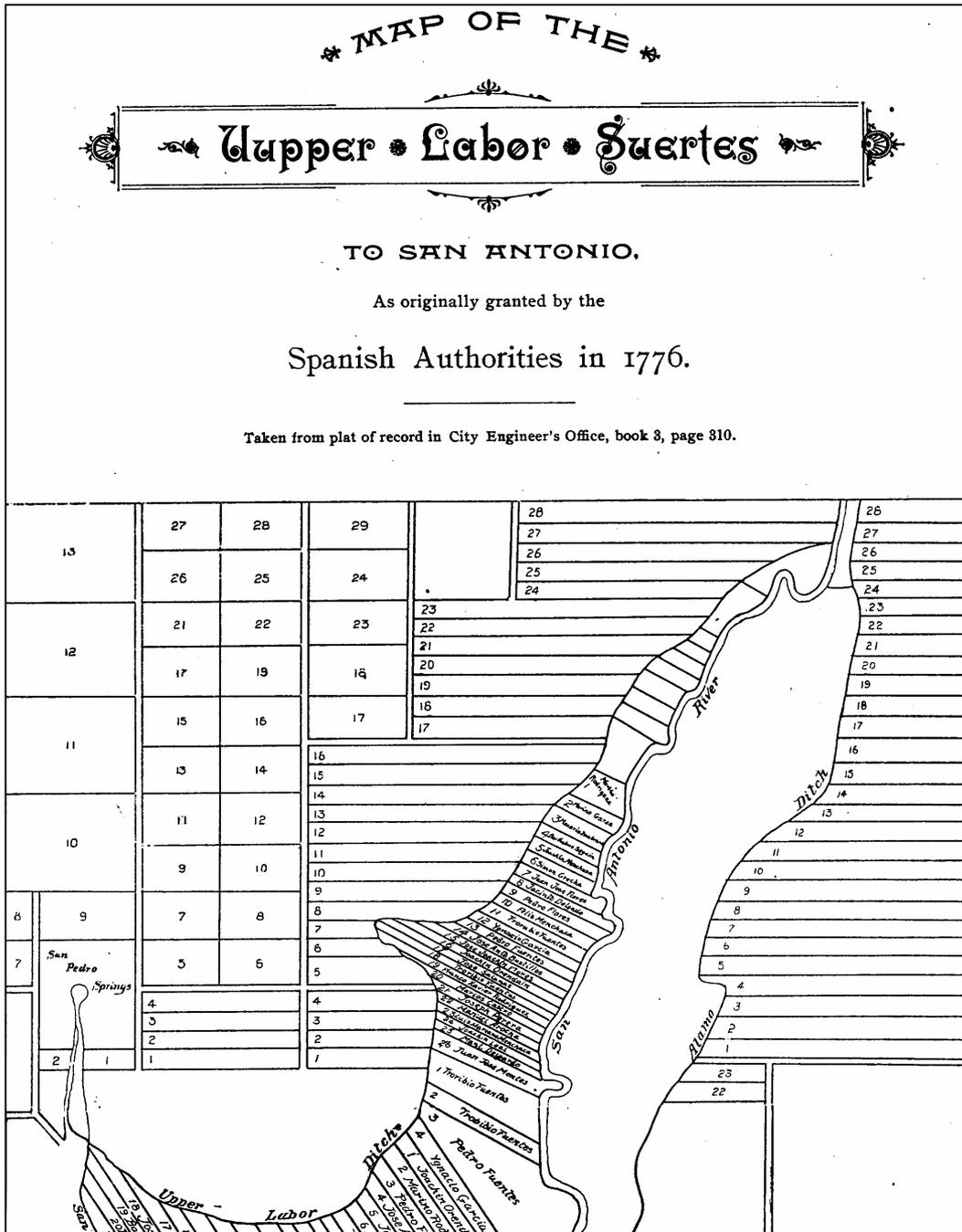


Figure 3. Suertes in the Upper Labor in 1776. On this map, the project area apparently is near Suertes 23 or 24. Note Upper Labor Ditch on the west, Alamo Ditch on the east, and the San Antonio River between the two ditches. Copy provided courtesy of the COSA Engineer's Office.



Because Mariano Rodriguez was granted the portion nearest to Alsbury Springs, where the San Antonio River met the Upper Labor Ditch, he claimed all the intervening land. He constructed and maintained a bridge on the river just below the dam that diverted water into the ditch, strengthening his claim on the commons area. In 1798, Pedro Flores acquired part of the Mariano Rodriguez land, the southern portion of which later became the Brackenridge Polo Field.

Pedro Flores' Acquisition of the Upper Labor Suertes

During the early to mid nineteenth century, Pedro Flores... continued to acquire adjoining suertes to the north and to the south, and the family held nine suertes by 1863. Between 1840 and 1860, Flores individually became administrator for several of the descendants of the initial owners of Upper Labor suertes. By gaining control of so many suertes of the Upper Labor area, Flores also acquired rights to much of the commons between the northernmost suerte and San Antonio Springs.

The commons included land on the north and south sides of today's East Mulberry Street where the street crossed the Upper Labor Ditch and the San Antonio River channel...

Confederate States of America Manufacturing Plan

In late 1862, the City of San Antonio and Pedro Flores had a dispute regarding the ownership of the land adjacent to and north of the original Mariano Rodriguez Suerte acquired in 1798 by Pedro Flores... In settlement of the issue, both the City of San Antonio and Pedro Flores deeded 75 acres... which included the acreage in dispute, to the Confederate States of America (CSA) for a manufacturing facility. From the springs southward, the portion west of the San Antonio River and east of the Upper Labor Ditch became part of a tannery operation.

CSA contractors constructed a manufacturing plant and tannery and began to alter the water system from the springs to the various acequias stemming from the water source. Since 1863 was a drought year, the citizens of San Antonio became concerned over the loss of water and the activities of the contractors. In 1864, the city filed an injunction to stop contractors Washington and Friesenhawn from working on the Alsbury Springs or Main Springs of the San Antonio River. The contractors responded that they had deepened and widened the river channel and created a new dam on the land then identified as 77 acres. They had channeled water from the principal springs into the west acequia, or Upper Labor Ditch, by building a new dam and diverting the water from the old channel into the new channel.

The contractors accused city authorities of previously closing the old channel of the San Antonio River by a dam or obstruction and preventing water from flowing from the main channel through the old ditch. The old river channel appears to have been closed by the city at an earlier date. Due to the drought, the Alamo Ditch had only a small amount of water. The contractors prevailed and developed the tannery so that 6,000 hides could be simultaneously processed. A mill for cotton and wool operated by water power also produced hats and cotton cards. Salt was also reported to be a byproduct of the enterprise. The close of the Civil War ended the dispute with the city and the enterprise. During Reconstruction, the city petitioned the Union authorities for a deed to the 77 acres previously sold to the CSA and received it by 1869.



Tannery Plat of Lots 1-10 in the Upper Labor

In 1874, the city ordered a survey by John Bobbin to divide the former CSA manufacturing land into ten tracts varying in size from three to seven acres and City Attorney George Brackenridge purchased the tracts. Brackenridge agreed to remove the dam constructed by the CSA contractors near the mouth of the spring in 1863, and to close a 20-vara-wide street on both sides of the San Antonio River in exchange for opening a street of the same width along the south line of the Water Works Company land. The new thoroughfare... ..was Josephine Street...

Within a few years, Brackenridge became a major stockholder in the Water Works Company, which conducted its operations just south of the former CSA manufacturing site. In 1899, Brackenridge donated about 199 acres to the city for Brackenridge Park... ..Immediately following his purchase of the tannery tract from the city in 1874, Brackenridge sold Lots 1-10.

Tannery Plat of Lots 8, 9, and 10

On June 27, 1883, Lots 8, 9, and 10 were sold by Brackenridge to Helen Madarasz...

By 1880, Helen Madarasz and her two sons had developed the Ilka Nursery on Lots 8, 9, and 10, and were selling cut flowers, potted plants, and trees. The property had a Rose Greenhouse, a Carnation House, a barn, and four or five rent houses for the help. Helen also lived on the property, renting part of her home to a railroad engineer from New York and his wife... Specific records indicate that in 1880, Helen Madarasz, age 44, and a native of Hungary, was living on Tannery Lots 8, 9 and 10, and was helping her two sons run the Ilka Nursery. Five rent houses on the property were occupied by employees who were from Kentucky, Virginia, Germany, and Mexico...

Helen Madarasz apparently signed a Bond for Title for the three Tannery Tract lots prior to 1880, and received her first deed in 1882, and a second deed in 1883, from previous owner George W. Brackenridge... ..Brackenridge had purchased the lots in 1881 from banker and steamship representative J. S. Lockwood. Lockwood and business partner James Manney had acquired the land from the city in 1875...

Within ten years after Helen's receipt of these deeds, her son William L. Madarasz became the proprietor of Ilka Nurseries, which advertised roses as a specialty. The expanding nursery was located on Rock Quarry Road at the San Antonio Springs and had a retail outlet at the City Stand and Depot at 309 East Houston Street. The Ilka Nursery also grew a limited supply of evergreens, as well as ornamental and flowering shrubs in pots... ..William also worked as a bookkeeper at George W. Brackenridge's San Antonio National Bank.

By 1894, William deeded his interest in the nursery business to his mother and moved to New York City to continue his banking career... ..Helen died in July, 1899, and her estate, including the nursery plants and land, was sold in 1901 to the owners of the San Antonio Brewing Association via S. G. Newton... ..The brewing association, headed by Otto Koehler, deeded the property to Emma Koehler in 1915, after which Emma created Koehler Park. In response to Brackenridge's 1899 and 1915 deed restrictions prohibiting the sale of alcoholic beverages in Brackenridge Park, the city agreed to allow beer to be sold within Koehler Park... [Uecker et al. 2004:17-22].



San Antonio Zoo

In 1910, San Pedro Park in San Antonio housed a private collection of small animals. In 1914, George W. Brackenridge donated a few elk and buffalo for public display in Brackenridge Park. In 1928, the San Antonio Zoological Society, a nonprofit organization, was established to purchase animals to be housed adjoining Brackenridge and Koehler parks on a 51-acre tract of land from a Spanish grant that belonged to the city. The site had been a rock quarry, and the resultant limestone cliffs provided a natural habitat for the animals. The San Antonio River flowed through the area, and an extensive canal system was developed using its water.

The zoo opened in 1929 with 344 specimens in the collection, including 72 white-tailed deer and 67 ring-necked doves. The collection now comprises more than 3,000 animals representing more than 700 species. The society oversees building, maintenance, and purchases of the animals; the city provides the land and continues support. The San Antonio Zoo is the only one in the world that exhibits the endangered whooping crane, the giant armadillo, and the shoebill.

The first white rhino born in the New World was born in the zoo in 1972. Many endangered species are exhibited and propagated at the zoo, including golden lion tamarins, black rhinos, Grevy's zebras, scimitar-horned oryx, and sable antelope. The zoo features an innovative children's zoo, in which a boat ride passes by islands representing different parts of the world and exhibiting animals native to each region, and an education center where programs are offered for visitors of all ages.

Work Projects Administration

Much of the stone masonry, including decorative landscaping elements, retaining walls, and several buildings within Brackenridge Park, the San Antonio Zoo, and immediate vicinity were constructed by the Works Progress Administration or Works Projects Administration (WPA). This summary of the history of the WPA closely follows *Handbook of Texas Online* (Texas State Historical Association 2011) and focuses on the activities of the WPA in Texas.

The WPA was originally named the Works Progress Administration when it was established as a national agency on May 6, 1935, by an executive order of President Franklin D. Roosevelt. Several of the HBSO studied were constructed by the WPA during the 1930s. Harry Hopkins, who had been chief of the Federal Emergency Relief Administration (FERA) and the Civil Works Administration (CWA) during 1933 and 1934, was appointed head of the new WPA, which succeeded these organizations. The name of the agency was changed to Work Projects Administration on July 1, 1939, when it was made a part of the Federal Works Agency, but its continuity was unbroken and the purposes of the WPA remained the same. It was established as a relief measure during the Great Depression and lasted until it was phased out in 1943, after it was rendered unnecessary by increased employment and reduced relief rolls.

Prior to the WPA, the problems of unemployment in Texas had been faced by Governor Miriam Amanda Ferguson, who issued an executive order establishing the Texas Relief Commission in March, 1933. The commission used FERA funds, enabling Texans to participate in various early New Deal programs such as construction and white-collar projects of the Civil Works Administration (CWA) and the camp programs of the Civilian Conservation Corps (CCC). One CWA program, the Public Works of Art Project (PWAP) of 1933-34, employed dozens of Texas artists in the decoration of public buildings, but the program was not administered by the Texas Relief Commission.



Due to the PWAP administrative procedures under the United States Treasury Department, payrolls were routed through federal customs officers in the 16 CWA regions, and expenditures were authorized by the federal government. The FERA, under which these projects had been organized, was discontinued in December, 1935. Prior to that, in July 1935, Texas had established an administration in San Antonio, directed by H. P. Drought, to coordinate WPA activities. The WPA functioned in Texas until after unemployment had begun to fall off sharply in 1942. The phase-out was completed in 1943, and Drought's final report was written in March of that year.

Under the WPA, 600,000 persons in Texas were helped to provide subsistence for themselves and their families. According to its regulations anyone employed by the WPA had to be the economic head of his family and had to be certified as destitute on the rolls of the Texas Relief Commission. People of both sexes and of all races were employed. WPA wages in Texas ranged from 45 to 75 dollars per month. Peak employment under the Texas WPA program was 120,000 persons in February, 1936. This figure perhaps reflects the level of administrative efficiency at that time rather than the need for employment, since the peak caseload of the relief commission came later, in February 1939, when 218,291 of the unemployed were on relief rolls.

Soon after that time, in September 1939, the name of the state relief organization was changed by legislative act to the State Department of Public Welfare. State WPA administrator Drought blamed the increase in caseload in 1939 on widespread crop failure in Texas in that year. The caseload remained high from 1939 through 1942, always staying between 120,000 and 150,000, while the number of workers employed by the WPA was never more than half of the caseload figure.

The biggest drop in caseload in Texas did not come until the period February-October 1942, when a reduction of 75 percent occurred, with a proportional drop in WPA employment. The major reason for a worker's leaving WPA relief employment was that he found other work, although some were forced off by lack of project funds. The 1942 drop in Texas WPA employment was undoubtedly due to the increase of business activity following United States entry into World War II.

The WPA activities in Texas were varied. As its art project, the state conducted an excellent survey of folk art objects for the Index of American Design. There were so few artists on relief rolls that better-than-average craftsmen had to be employed and trained on the jobs. The objects were listed and pictorial records were made of them. The original plates for this index are on deposit at the National Gallery of Art in Washington, D.C. The WPA Archeological Survey studied the Indians of Texas. This study entailed the finding, mapping, and excavation of 50 archeological sites, including Indian villages, camp sites, and burial mounds; collection of artifacts from these sites; and analysis of all data gathered. In the paleontologic-mineralogic survey, WPA workers, again under the supervision of professional scientists, worked many sites in Texas for fossils, mineral resources, and combinations of both. As war requirements increased, work focused on discovery and investigation of minerals, especially location of road materials and mineral resources designated as strategic.

The Federal Music Project in Texas consisted of the organization of groups of musicians into ensembles of various sizes, including dance bands, a Mexican folk group, and two Latin-style orchestras. The program also included teaching in CCC camps, in underprivileged parts of three metropolitan areas, and in public schools having no musical curriculum. A broad adult-education program was instituted to provide instruction in such basic areas as literacy and citizenship, in vocational training and home economics, and in foreign languages and other academic subjects. Programs designed primarily to answer the needs of unemployed women were a child protection program, for training in the care of preschool children; a clothing program, for the operation of shops that trained workers to make and repair garments and shoes for free distribution to the needy; a feeding program, which included storage and distribution of relief food, as well as the provision of school lunches, matron service, gardening, and food preservation; a housekeeping aid program, which trained women to fill positions as domestic workers and provided emergency aid in home services; and a health service program, which provided training and personnel for work in health agencies and institutions.



The American Imprints Inventory employed library workers and supervisors, first as a part of the Texas Historical Records Survey program and later in cooperation with the library service program. This inventory included books, pamphlets, broadsides, broadsheets, maps, newspapers, and periodicals in public, semipublic, and private collections in the state for the period from the beginning of printing into the nineteenth century; it calendared or transcribed three major manuscript collections. Copies of these materials were deposited at the University of Texas and other institutions. This program also included compilation of a list of all libraries in Texas. Other archival and literary programs were the research and records programs, which provided clerical labor to public agencies for the installation or improvement of records systems; the library training program, which covered every phase of library science; and the library service program, which gave support in labor, funds, or technical knowledge to all types of libraries in Texas. Perhaps the best known was the Texas Writers' Project, which conducted large-scale research into the state's cultural history and its geographical points of interest. This work resulted in many publications, including several state and local guides to Texas. All manuscript materials from the writers' project were deposited in the University of Texas at Austin archives.

The greatest single area of WPA public spending in Texas was construction. As in most of the other WPA projects in Texas, one-fourth of the construction costs had to be provided by sponsors. This was a regulation imposed by the Texas WPA administrators, there being no federal requirement for matching monies. Construction projects included parks, swimming pools, highways, bridges, stadiums, and other public buildings. Recreational facilities were increased, but recreational leadership and organizational help were also boosted under the WPA. An attempt was made to provide leisure-time activities for persons of all ages, races, and economic groups during all seasons of the year. The WPA in Texas built and organized pre-school play centers, playgrounds, community recreation centers, toy loan centers, athletic leagues, boys' clubs, girls' clubs, and, during the period of World War II, centers for all branches of armed forces personnel. All recreational programs were begun with the idea of establishing permanent facilities.

Soils

According to the *Soil Survey of Bexar County, Texas* (Taylor, et al. 1966:Sheet 45), the principal natural surface soils in the general vicinity of the project area are Lewisville silty clay (LvA) and Trinity and Frio soils (Tf). Lewisville silty clay generally occurs as nearly level, broad terraces along rivers and creeks. Trinity series soils are deep, dark, calcareous clays that range in texture from clay loam to gravelly clay and that typically occupy bottomlands that are frequently flooded. They are usually derivatives of the surrounding upland soils. Because they are ideal for cultivation, Trinity series soils were farmed intensively during the historic era wherever they were present in Bexar County and surrounding areas. They frequently contain pockets of Venus Clay Loam (Vcb) and Houston Black Clay (HtA).

Archeological Context

Texas culture history has generally been divided by archeologists into four broad periods (cf. Black 1989a:25-33, 1989b:48-57; Black and McGraw 1985:35-40; Hester 1980:27-37; Turner and Hester 1993:50-63): the Paleoindian (c. 11,000 B.P. to 8000 B.P.), the Archaic (c. 8000 B.P. to 1500 B.P.), the Late Prehistoric (c. 1500 B.P. to A.D. 1528), and the Historic (c. A.D. 1528 to present). Although there is evidence for several specialized subsistence adaptations, during all but the Historic period, apparently humans in the area were engaged primarily in a broad-spectrum nomadic to semi-sedentary hunting and foraging lifeway (Hester 1989:119-125). Archeological and ethnohistorical evidence indicates that they were organized as small groups or bands that traveled much of the time in regular patterns, known as subsistence forays, in order to exploit a variety of seasonably available natural resources (Collins 2004:123; Johnson 1994:282). Such a hunting-foraging lifeway apparently was practiced not just in what is now Texas, but in most of today's North America for many thousands of years before the fifteenth century infusion of historically modern Europeans to the New World.



In recent decades, several scholars have summarized the archeology of the region that includes the project area. Black (1989a:18, 1989b:5) named it the Central Texas Plateau-Prairie. Apparently following Turner and Hesters' (1993:67) Central Texas Region, Collins (1995:363, 2004:121) used the title Central Texas archeological area. For their purposes, Mercado-Allinger et al. (1996:12) called it the Central and Southern Planning Region. Interested readers are encouraged to consult those references for details.

As revealed by archeological work spanning many decades, the zone within about a kilometer of the project area is rich in archeological resources. It contains several dozen previously discovered and recorded sites, many of which are designated State Archeological Landmarks or Recorded Texas Historic Landmarks, are listed in the National Register of Historic Places, or are eligible for such designation or listing.

For example, in 2004 the remnants of prehistoric camping or cooking fires and associated chipped-stone artifacts were found within the floodplain deposits of the San Antonio River near the previously-recorded Brackenridge Polo Field archeological site (41BX264) just a few hundred meters south of the project area (Uecker et al. 2004). In one area of the site, 36 clusters of burned limestone fragments were archeologically investigated as spatially discrete, hot-rock activity features. Since they were found at the same level about a meter below the average 2004 ground surface and were similar in shape and contents, the features apparently were contemporaneous. Three similar features were documented at a second location, and two additional features were subjected to limited data-recovery excavations at a third location investigated. Associated temporally diagnostic artifacts facilitated dating of the features to the Middle Archaic period. Apparently the features were intact or were only slightly disturbed, having been very gradually buried by alluvium during repeated low-energy flood events.

During investigations at the Olmos Basin Site (41BX1) in 1980, the Principal Investigator helped excavate about a dozen prehistoric human burials in the Olmos Creek floodplain, just north of Olmos Dam near Interstate Highway 37 and only about a kilometer north of the project area (Lukowski 1988). Associated grave goods, burial morphology, and radiocarbon dating facilitated assignment of the interments to the Transitional Archaic period. The spatial distribution and density of the burials suggests that the site might be a traditional burial area where many more interments occurred during centuries or perhaps even millennia. Remnants of hot-rock features, possibly ceremonial fires, and an isolated chipped-stone projectile point of the Paleoindian period were also found at the site, which is deemed eligible as a State Archeological Landmark and for National Register listing.

State Archeological Landmark Site 41BX323, which is a few hundred meters from the subject project area along the San Antonio River margin, was tested in 2002 by SWCA, Inc., and found to contain prehistoric archeological deposits to depths of about two meters below the surface (Houk 2002). The oldest of those deposits originated during the late Paleoindian period.

Beginning April 1, 2006, and continuing to this writing, the Fools Rockshelter (41CM294) was archeologically investigated by members of the Southern Texas Archeological Association (2006). The small rockshelter is situated within a limestone bluff about four meters above a narrow alluvial terrace of Indian Creek near Bulverde in Comal County. Although it is many kilometers north of the subject project area, its setting is generally similar to that of the bluff along the east side of the area. The site has yielded well-preserved stratified cultural deposits several meters thick associated with Early Archaic- through Late Preshistoric-period artifacts, including numerous chipped chert projectile points and several intact hot-rock cooking features, or hearths.

Survey Rationale

At the time of the survey, the buildings and other substantive above-ground improvements of the former COSA animal control facility had been removed and virtually the entire surface of the project area was covered with imported, crushed limestone fill or remnants of asphalt parking areas (Figure 4). Much of the fill cap averaged several meters in thickness and at maximum was about 4-6 meters thick in a few places. Some capped utilities pipes



Figure 4. Four views of project area during fieldwork. Clockwise from top left: (1) sweeping view southward along east half of project area from near Tuleta Street on the north; (2) sweeping view northward towards vehicles parked along Tuleta Street from near mid point of bluff on east side; (3) sweeping view southward along narrow swale near west border from near north end; and (4) view westward from east border showing thickness of limestone rubble mound at left.

protruded from a concrete base, and a metal manhole cover and metal water meter box cover were visible at ground level amidst patches of asphalt paving toward the northeast corner of the property (Figure 5).

The project architects, Jackson & Ryan, estimated that the average depth of disturbance below the present surface for construction of the proposed new facility would be about seven feet. Since much of the central interior portion of the project area was obviously covered with fill greater than seven feet in thickness, the Principal Investigator believed the only areas of possible concern archeologically were towards the periphery of the area. As estimated during fieldwork based on the apparent distribution and thickness of the fill, those slightly higher probability zones included a strip about 4-6 meters in average width along the base of the limestone bluff at the east edge of the area and strip of similar width along the west edge in the vicinity of a small drainage swale. The presence of sizeable native trees in those areas implied that patches of relatively undisturbed ground within shovel testing range might also be present there.



Figure 5. Six views of existing features within project area at time of fieldwork. Clockwise from top left: (1) pipe stubs with concrete base near Tuleta Street on north end; (2) sewer manhole cover in same vicinity; (3) water meter box, also in same vicinity; (4) stone masonry fence remnant near south end at bluff face; (5) stone masonry retaining walls along Tuleta Street at north end; and (6) section of bluff face with typical vertical quarry drill marks (at tips of black arrows) averaging about 6.5 cm in diameter.



When first seen from a distance, the bluff along the west edge of the project area appeared to be entirely of natural origins, but upon closer inspection during fieldwork it proved to have been altered substantially by historic stone quarrying. The bluff obviously contained no crevices or cavities suitable for human occupation, but its presence raised the possibility that people might have camped along its base during prehistory or during the early Historic period (c. A.D. 1400 to 1800), or that it might have been a focus for hunting or butchering of larger game animals such as white tailed deer, antelope, or bison, by such people.

Thus, it was important to try to accurately estimate, to the extent feasible at the survey level of effort, whether or not well preserved original soils were present anywhere within the project area. If such deposits were found within normal shovel testing range (c. 1.0-1.5 meters below surface), then either backhoe trenching prior to construction ground disturbances or monitoring of such disturbances in selected high probability areas might have been appropriate for a future phase of work. Conversely, if shovel testing during the initial survey established with reasonable certainty that it was unlikely that the project as planned would impact any intact deposits, and if the results of all tests were negative or negligible in terms of encountering cultural resources, then neither further archeological work prior to construction nor monitoring during construction would be warranted. In the latter case, photographic documentation of disturbances would be appropriate.

Methods and Results

A search of the Texas Historical Commission's (2011) *Texas Archeological Sites Atlas* conducted prior to fieldwork revealed that apparently the project area contained no previously recorded archeological sites and had not been investigated. However, the Atlas also showed that numerous archeological sites had been found in the general vicinity and registered with the State of Texas, including the three previously described.

During fieldwork, a careful pedestrian visual inspection of virtually the entire project area revealed that apparently only artificial fill was exposed at the surface throughout the area. In hopes that the fill was relatively thin along the periphery where massive deposits of it weren't obvious and native trees were standing, excavation of eight archeological shovel tests was planned there and was attempted (Figures 6 and 7). Most encountered impenetrable patches of asphalt or limestone rubble just beneath the ground surface. The rubble apparently resulted from past quarrying in the vicinity of the bluff. Only two tests were able to penetrate to any appreciable depth below the surface and the same rubble was encountered throughout those excavations.

Except for the remnants of modern improvements previously described, chain link fencing, stone masonry retaining wall remnants at the north and south borders, quarry chisel and platform marks in the face of the bluff, scattered modern trash on the ground, and the limestone rubble in shovel test excavations, no cultural evidence was found. Those items and other surface evidence of disturbance were photographically documented. Nothing was collected or curated.

Survey-level background research was briefly conducted in local institutional and internet sources and in relevant books and articles in an attempt to determine the approximate age and historic or cultural associations of the quarry marks in the bluff face. However, nothing was found that would firmly establish when and by whom that particular quarrying was done. Results of the search are summarized in the Appendix.

Interpretations and Recommendations

The survey revealed that apparently the entire project area had been severely disturbed and buried in limestone rubble or similar modern fill in years past. Based on its findings, the Principal Investigator believed that most of the project area contained nothing worthy of further investigation, preservation, or landmarking at the federal, state, or local levels. The only possible exceptions are the limestone masonry walls at the north and south ends of the property and the bluff face along the east side that has quarry marks.

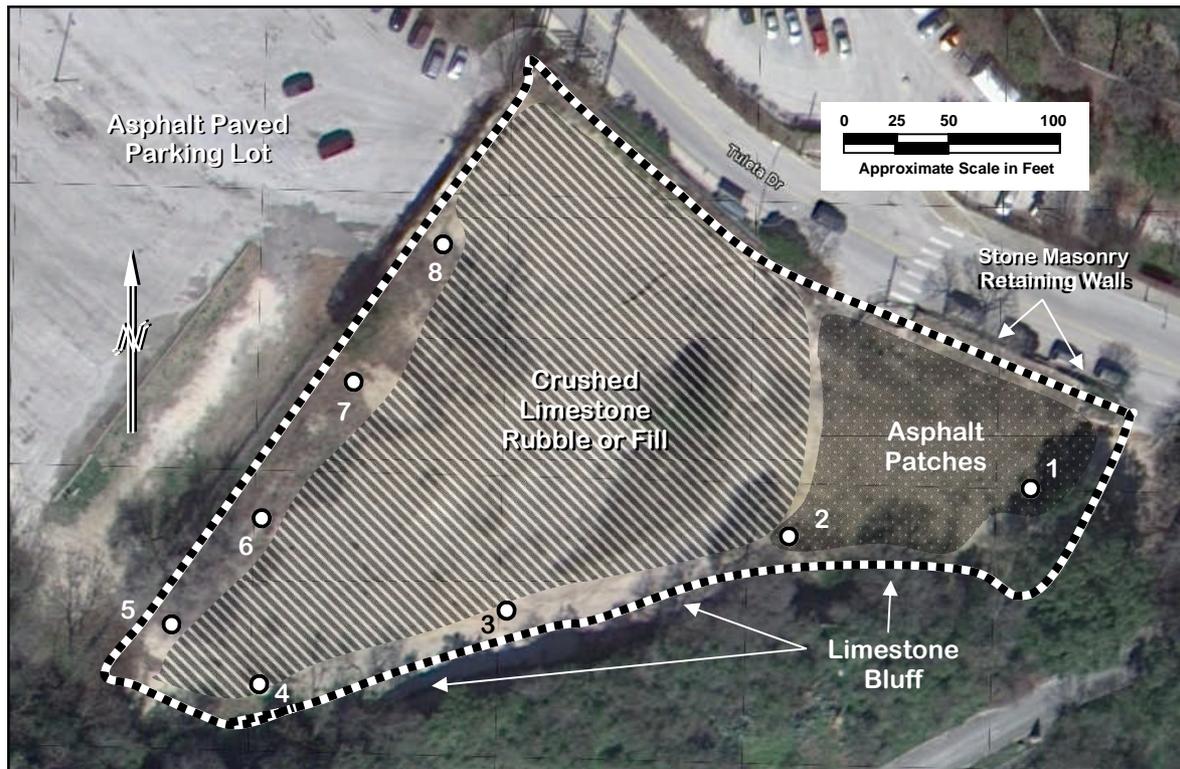


Figure 6. Aerial overlay of project area (within checkered border) showing natural and artificial features in the vicinity, and STARS shovel test plan (white dots with numbers).

Therefore it was recommended to the THC, the COSA Historic Preservation Officer (HPO), and project sponsors that the proposed animal care spay and neuter adoption facility as planned at the time of the survey should proceed without further archeological work, but that the afore-described masonry walls and the bluff face should not be disturbed until their landmark potential is clarified. Although the style, materials, and locations of the rock walls suggests they probably originated after the WPA era, it's possible they were built more than 50 years ago, and their historical context was not able to be precisely established during the survey. Likewise, the attempt by STARS to establish the probable date of origin and specific historical context of the afore-described quarry marks proved inconclusive. Apparently quarrying of both building stone and raw stone for making cement was active in the vicinity from Spanish Colonial times, possibly until recent decades. The types of marks, which apparently resulted from vertical drilling by mechanized means, and the information gathered about the history of stone quarrying in the general vicinity seemed to suggest that the marks originated sometime between about 1880 and 1917, during quarrying by the Alamo Portland and Roman Cement Company. However, additional informaton would be needed to firmly support that notion.

Per applicable historic preservation statutes, it was also recommended that construction work should be suspended in the vicinity of any finds of archeological evidence unearthed or exposed by construction activities until the finds are examined by the THC, the HPO, and/or a qualified professional archeological consultant.



Figure 7. Four views of subsurface within project area. Clockwise from top left: (1) profile trimmed near Shovel Test 3 location at foot of bluff; (2) eroded profile near Tuleta Street on the north end; (3) Shovel Test 4, one of only two able to be dug deeper than about 5-10 centimeters below the surface; and (4) Shovel Test 6, which, like the remaining tests was terminated at shallow depth due to the density of limestone rubble or packed fill present. See Figure 6 for planned shovel test locations.



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Appendix

Limited Archival and Historical

Research Findings

Limited Archival and Historical Background Research on the History of Stone Quarrying in Brackenridge Park and Vicinity

Imogen R. Cooper, AICP

This report presents data gathered during preliminary archival and historical background research, and interpretations of the research findings, made by South Texas Archeological Research Services, LLC (STARS), as part of a cultural resources survey for the proposed San Antonio Animal Care Spay and Neuter Adoption Facility project. A broad target of the research was the history of stone quarrying in the vicinities of Brackenridge Park, the Japanese Sunken Gardens, and the San Antonio Zoological Gardens just north of the park. The research also targeted discovery of more specific information about the temporal and historical contexts of the quarry marks found on the bluff face along the east side of the project area during the survey. A total of eight person hours was expended searching secondary sources on those topics.

The search revealed that quarrying within the main target areas occurred during two general time periods and involved two basic uses. Quarries in those areas were apparently used for procurement of sizeable quantities of building stone starting in the Spanish Colonial period and continuing until about the early 1880s. Beginning in 1879, the City of San Antonio, which by then owned those quarries, leased them to Alamo Portland and Roman Cement Company for the purpose of extracting rock for cement production. From then until about 1907, the company produced increasing amounts of cement by burning limestone in large kilns built near the Sunken Gardens. The quarries were then relocated to a new site with good railroad service later known as Cementville, near Alamo Heights, the location of the Quarry Market Shopping Center at the time of the STARS survey.

Apparently all quarrying ceased in the vicinity of Brackenridge Park after 1908. The San Antonio Zoo was founded in about 1914 just south of Brackenridge Park. Ray Lambert is credited with the idea of creating the zoo using the terraces of the old quarries. For Lambert, this was not just frugal. It was also a humanitarian gesture because both he and George Brackenridge were advocates of “cageless zoos.”^{1,2} Using prison labor at a cost of only about \$7,000.00³, Lambert also created the stunningly beautiful Japanese Sunken Gardens in 1917 within the quarry just vacated by the Alamo Portland and Roman Cement Company.

No direct association of any quarries in the vicinity with stone procurement during the Spanish Colonial period was discovered during the research reported here. However, in 1996, an archaeological team led by I. Wayne Cox investigated a diversionary dam in Brackenridge Park apparently linked to San Antonio’s acequias beginning in that era. In the introduction to the report of findings, Cox mentions old quarries: “The Upper Labor Acequia (Acequia de Labores de Arriba), last of the Spanish Colonial irrigation systems, was begun in July, 1776, to provide irrigation for 600 acres of land between the old quarries and the San Antonio River”⁴.

Two other secondary sources consulted also reference use of the area by the Spaniards as quarries, perhaps to obtain the limestone used to build the missions and other major structures of the time.⁵ In his 1989 *History of the San Antonio Zoo*, Wilber L. Matthews states that the limestone terraces of the zoo are the rock faces of ancient quarries from which “the settlers of San Antonio built the Alamo, San Fernando Cathedral, the Governor’s Palace,

1 “Zoo from Quarry,” *San Antonio Light*, January 21, 1917

2 National Register Nomination for Brackenridge Park, “Zoological Garden, 1914,” (February, 2011), 44.

3 National Register Nomination for Alamo Portland and Roman Cement Company/Japanese Sunken Gardens (1976).

4 I. Wayne Cox, Excavations for the Upper Labor Dam Site, Brackenridge Park, San Antonio, Bexar County, Texas, Archaeological survey report No. 268. Texas Antiquities Permit No. 1755, Archaeological Survey Report (UTSA Center for Archaeological Research, 1999), 7

5 It is well known that many houses of the Spanish Colonial period (and even later) were jacales not made of stone.

the City Hall, many old business buildings, and early homes.”⁶ Also, in *San Antonio: A Historical and Pictorial Guide*, author Charles Ramsdell notes that “as one of the most delightful zoos in the country, it is built on the ancient quarries from which the Spaniards hauled the stone for their houses.”⁷

Maria Pfeiffer’s recent nomination of Brackenridge Park to the National Register of Historic Places asserts that the City of San Antonio owned the area west of the San Antonio River and Upper Labor ditch, which was a source of high quality limestone. The nomination narrative also reveals that the City leased the area to private interests who did stone quarrying there at a small scale until 1880 when Alamo Portland and Roman Cement Company leased the area for a major plant.⁸

As appears on a Texas Historical Commission marker at the foot of the old kiln near the Japanese Sunken Gardens (Figure 1) as well as in a 1976 National Register nomination for the gardens, the quarries in this area not only contained high quality limestone for building purposes, they also contained a blue argillaceous limestone that is a natural cement rock. In 1879, a local druggist and chemist, George H. Kalteyer, confirmed that the rock contained the proper proportions of lime and clay to produce Portland cement. William Loyd, an English investor who discovered the special limestone, went into partnership with Kalteyer and others to organize the Alamo Portland and Roman Cement Company at the quarry site.

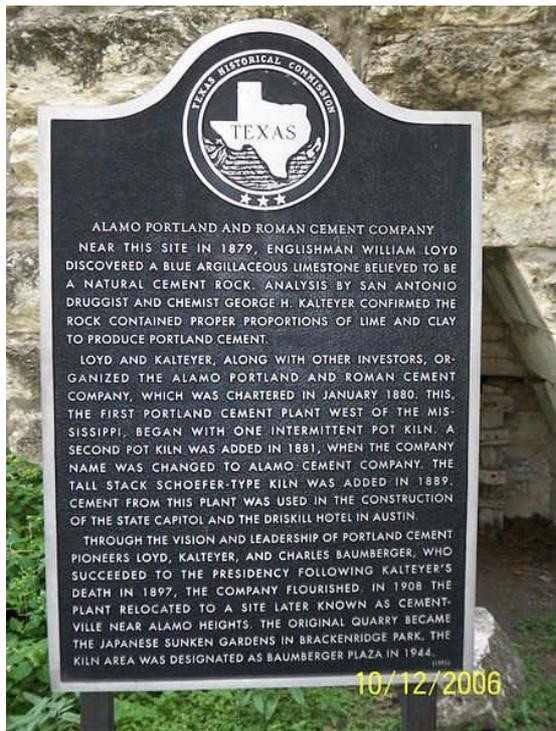


Figure 1. Photograph of Texas Historical Commission marker near San Antonio’s Japanese Sunken Gardens, next to historic lime kiln of the former Alamo Portland and Roman Cement Company.

The company was chartered in 1880 and began to manufacture Portland cement there using pot kilns. At first, the quarries produced both stone and cement for the company, but as the success of the Alamo Cement Company continued and more and more cement was manufactured at the kilns, the production of stone decreased. By 1908, it was necessary to move the entire plant away from Brackenridge Park to a new location at Cementville where there was better railroad service. In 1917, the original quarry site was transformed into the Japanese Sunken Gardens in Brackenridge Park. The kiln area in front of it was designated Baumberger Plaza in 1944. Besides the historical marker, a bronze plaque on the rock chimney of the old kiln states that it was “the first cement factory west of the Mississippi established in 1880 and provided cement for construction of the Texas State Capitol in 1888.”⁹

Although the quarries in the Brackenridge Park vicinity apparently were abandoned many decades ago, history continued to repeat itself as newer quarries were abandoned in San Antonio well into the twentieth century and adaptively reused as sites for colleges like Trinity University, shopping centers such as the Quarry Market, and entertainment parks like Fiesta Texas.

6 Wilber L. Matthews, *History of the San Antonio Zoo* (San Antonio: Maverick Press, 1989), 6. Matthews was attending an annual meeting when appointed to a committee to write this history with the assistance of then-Zoo Director Louis DiSabato, Ex. Secretary Julie Langwell, and illustrator Mark Mayfield. It appears that he went to all the right sources (Institute of Texan Cultures, archives of COSA and newspapers as well as zoo office records).

7 Charles Ramsdell, *San Antonio: A Historical and Pictorial Guide* (Austin: University of Texas Press, 1959), 176.

8 National Register nomination for Brackenridge Park, 44.

9 Matthews, 6.