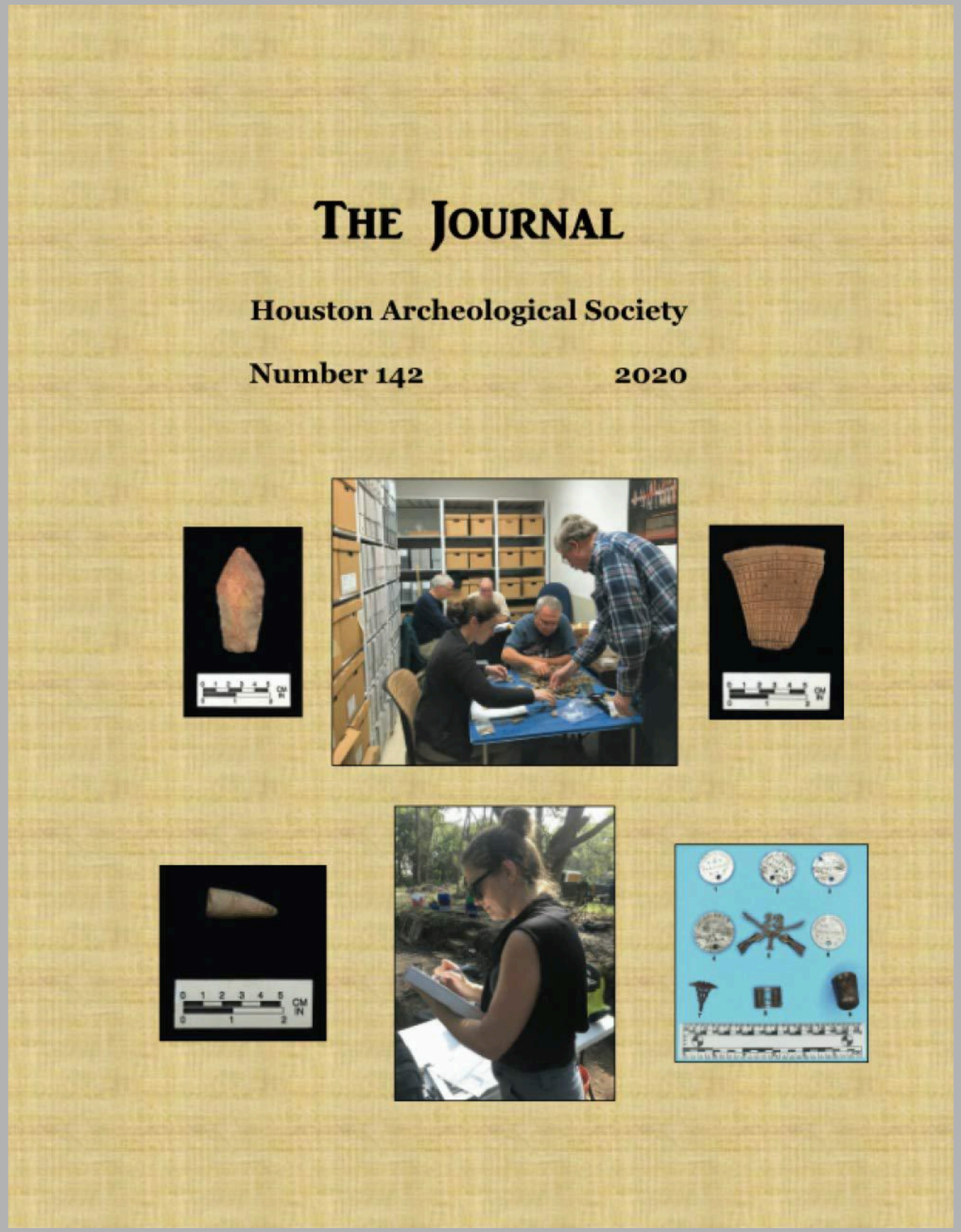


The Journal

Houston Archeological Society

Cover photos:
Top left: A large Angostura point from the Savoy (41LB27) site, Liberty County.
Top center: HAS members analyzing the contents of the Gum Slough site collection.
Top right: Largest of the four engraved sherds from the Gum Slough site showing the extensive cross-hatch decoration.
Bottom left: Side view of the unknown cone-shaped artifact from the Savoy site.
Bottom center: Liz Coon-Nguyen taking notes during the excavation of the Cottonwood Site in Colorado County.
Bottom right: Artifact Collection from the Camp of the 2nd Division U. S. Army.

The Journal

Houston Archeological Society

Number 142 **2020**

Wilson W. Crook, III, Editor

Published

by the

Houston Archeological Society

2020

Copyright @ 2020 by the Houston Archeological Society
All rights reserved.

ISBN 979-8684068836

No part of this book may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without the permission in writing of the Publisher. Inquiries should be addressed to the Publications Editor, Houston Archeological Society, PO Box 130631, Houston, TX 77219-0631.

Foreword

The ***Journal of the Houston Archeological Society*** is a publication of the Society. Our Mission is to foster enthusiastic interest and active participation in the discovery, documentation, and preservation of cultural resources (prehistoric and historic properties) of the city of Houston, the Houston metropolitan area, and the Upper Texas Gulf Coast Region.

The Houston Archeological Society holds monthly membership meetings with invited lecturers who speak on various topics of archeology and history. All meetings are free and open to the public.

Membership is easy! As a nonprofit organization, membership in the Houston Archeological Society is open to all persons who are interested in the diverse cultural history of Houston and surrounding areas, as well as the unique cultural heritage of the Upper Texas Gulf Coast Region. To become a member, you must agree with the mission and ethics set forth by the Society, pay annual dues and sign a Code of Ethics agreement and Release and Waiver of Liability Form.

The Membership Form and the Code of Ethics agreement and Release and Waiver of Liability Form are available from the HAS website: http://www.txhas.org/membership.html

Current subscription rates are: Student $15, Individual $25, Family $30, Contributing $35+

Mail the completed and signed forms and a check for the appropriate amount to:

Houston Archeological Society
PO Box 130631
Houston, TX 77219-0631
Web Site: www.txhas.org

Current HAS Board Members:
President: Linda Gorski
Vice President: Larry Golden
Treasurer: Bob Sewell
Secretary: Beth Kennedy

Directors-at-Large:
Dub Crook
Ashley Jones
Frank Kozar

Editor's Message

I am pleased to present Issue #142 of *The Journal*, the third publication of the Houston Archeological Society in 2020. This issue does not have a specific theme but contains 10 papers about various aspects of Texas archeology covering the Paleoindian, Archaic, Woodland, Late Prehistoric, and Historic periods. In additional, there are four short papers by prominent HAS members, Dr. Liz Coon-Nguyen, Louis Aulbach, Linda Gorski and Val Phoenix, on how they became avocational archeologists. These four papers are the lead articles in this issue of *The Journal* and are meant to demonstrate the many and varied routes most of us have taken to become interested in the field of archeology.

Following these four short papers is a superb study of the artifacts and history of the camp of the 2nd Division of the U.S. Army near Texas City that was in operation prior to the start of World War I. Charlie Gordy, the author, has spent a great deal of time researching the history of the camp and its artifacts. This paper is followed by a study of an Archaic to Late Prehistoric site in Walker County (41WA55) by long-time HAS member Bill Moore and Tim Perttula. Tim has a second paper which follows this article on the aboriginal ceramics from a number of sites along Allens Creek in Austin County. The last paper in this section describes the artifacts from an archeological and paleontological collection from the McFaddin Beach area (41JF50) donated to the HAS by Ms. Claudia Eggleston. This collection will be used in future teaching displays by the HAS.

Next comes a series of papers on artifacts stemming from our ongoing study of the Andy Kyle curated at the Sam Houston Regional Library and Research Center in Liberty, Texas.

The first paper in this section describes a short pastern bone from the leg of a Pleistocene horse (*Equus sp*.) found at the Wood Springs site in Liberty County. While the bone cannot be unambiguously associated with the Clovis or later Paleoindian occupation at the site, its presence along with bones of mammoth, mastodon, and bison is intriguing. This paper is followed by a description of a large and heavily used Angostura point from the Savoy site, also in Liberty County. Next are three papers describing unique pottery found in the Andy Kyle Archeological Collection from two sites in Liberty County – Gum Slough and Wood Springs. The engraved sherds found at the Gum Slough site are unknown and may represent a new type of Gulf Coast ceramics. The first Wood Springs article describes the occurrence of a well-known Caddo trade ware, Holly Fine Engraved. The second paper describes a Caddo ceramic vessel of the type Crocket Curvilinear Incised, which was imported into the site from East Texas. The last paper in this issue describes a unique ceramic artifact from the Savoy site in Liberty County which may represent a warp weight from a weaving loom.

Note that our new publishing policy has now expanded to include any topic of archeological interest that is studied and written by a HAS member. First preference will be given to subjects along the Gulf Coast / Houston area, followed by archeological subjects within the State of Texas. Material from outside Texas within the U.S. would receive next consideration followed by subjects outside the U.S.. So if you have worked on a site in Texas, the U.S., Europe, Africa, Meso-America, etc., consider writing it up and submit it to *The Journal* for publication.

As always, we are very open to receiving any new submission that deals with an archeological subject. Do not worry that your paper may not be "perfect"; your editor is more than willing to work with you to create a publishable result. *The Journal* is the ideal vehicle for young and older authors alike to either begin or expand your published resume. Please send all submissions and inquiries to Dub Crook at the following email address:

dubcrook@kingwoodcable.com

Or call me with questions at 281-360-6451 (home) or 281-900-8831 (cell).

Contents

Why I am an Avocational Archeologist with the Houston Archeological Society

WHY I AM AN AVOCATIONAL ARCHEOLOGIST

Elizabeth Coon-Nguyen, M.D.

It was 1982, I was seven years-old, and at least one or two Indiana Jones movies were out on VHS by that point. But aside from the pop culture of the time, I recall other influences which inspired my interest in archeology. My great-aunt, Stella was my great-grandmother's much younger half-sister. Stella was ahead of her time and a professor of statistics at the University of Texas during the 1940's, 50's and 60's. She lived in a little bungalow near campus, never married, and her students were her family. When not teaching, she traveled all around the world. Visiting her house was like visiting a museum. She would take us kids on world tours through her living room, bringing forth her curiosities for us to inspect and to read the carefully handwritten labels she had put underneath each object. After she died, my mother took us up for that last visit and we cleared 60 years of her accumulated life and travels. Her Tibetan prayer bells, little porcelain vases, Venetian glass, and paper fans from Thailand all were released from the dusty confines of her china cabinets. These relics, which included things as varied as scrimshaw knickknacks, rusty old keys from the San Saba mission, and faded pot sherds from I hate to think where, intrigued me. Another influence I can vividly recall was my old garage sale collection of *National Geographic* magazines, and I especially liked the articles about mummies - Egyptian or Peruvian or Bog people, the time-period and location did not matter. I can vividly recall an article about an Incan girl, who had the remains of a drug-laced drink on her blouse and who had been very carefully left on a mountain top, probably as a sacrifice. The braids in her hair and her clothes were still intact despite the centuries. She was not much older when she died than I was at the time, and that impressed me. I tried to imagine what it must have been like to be those parents or that girl.

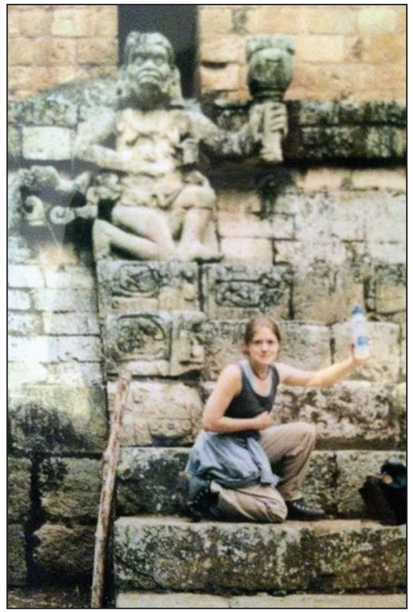
My Science Fair project in the 5th grade was entitled, "What Did the Maya Eat?" My parents took me all over Houston to procure "coca" beans which was not successful, thankfully. It was not until much later that I discovered the difference between cacao and coca or read about hallucinogenic enemas. Fortunately none of this was included in this early foray into experimental archeology. Despite my best efforts, the judges didn't deem the project "science", which sent me in the direction of "hard science" with future projects (which also didn't require Field Work in Mesoamerica). I liked school in general and especially Biology, Chemistry, and Latin classes. By High School time, a career in medicine seemed more practical and a better fit for me.

My undergraduate degree is from Yale, a Liberal Arts college. To fulfill the degree requirements, a certain number of courses from each of the various general disciplines were required. These included humanities, arts, social sciences, and science, as well as foreign languages. By the time I was selecting classes for my Junior Year, it was evident that, while my principal major was Biology, all the other classes I had taken would contribute to a second major in Archaeology. With some additional work to produce the additional Senior Thesis, the Archaeology Major could happen, and along with it, the ability to apply for funding for a Summer Field School experience. Dr. Takeshi Inomata was a Visiting Professor then, and he taught a year-long Field and Lab Techniques class. We excavated the Eli Whitney Armory near New Haven, Connecticut, which is credited as the birthplace of the technological innovation of Interchangeable Parts and later was a colt-.45 manufacturer. The course was a wonderful excuse to be outside all day, off campus, on New England Fall Saturdays. Some of my favorite memories of my time at Yale occurred there. Later, a few of us from the class convinced Dr. Inomata to take undergrads with him to Guatemala to work at his site at Aguateca.

Initially, he told us "No!" multiple times; they just had a civil war and it's not safe. It's in a third world country and the site is in the middle of the jungle. There is no electricity or running water. The monkeys come through and throw sticks and excrement at you. It's remote and dangerous with no medical services. It's hot and humid and the rainy season hits in June. There are bugs, big bugs, and snakes. And flies that lay eggs under your skin which then hatch, pupate and erupt out from underneath your skin. Somehow none of these very logical arguments worked, and he finally relented. His graduate

students told us that was the nicest camp he had ever put together that year. Dr. Inomata had a water cistern brought up and installed at the top of the bluff, which fed some shower stalls created from blue tarps, twine, and machetes.

Aguateca was not a large place and it dated to later in the Maya period, at a time when it appeared that warfare dominated. The buildings were burned and abandoned quickly. The city was situated at the top of a bluff, with a river flowing below it. It was not easy to reach, partly due to it's defensible location. After flying from the U.S. to Guatemala City, we then flew to the Peten, near Tikal, loaded up in the back of trucks to bounce along washed out dirt tracks all day to a town that existed only because the road crossed a river there. That was where the giant beetles were hatching out, and they crunched under your boots as you walked along the street at night, millions of them. The next morning, we loaded all our gear and equipment onto long skinny flat boats and then spent a day on the river. Once we reached we reached the riverbank where the boats could unload, our gear could then be carried up the slope to the site. Waiting for us along the shoreline were the local indigenous people, who still spoke the Maya tongue and very, very little Spanish.



A young Liz Coon-Nguyen at a Mayan site in Guatemala.

The project for that summer was a row of houses. These were smaller, less ostentatious structures located off the main square of the site. Dr. Inomata thought they were houses belonging to some middle-class individuals, perhaps scribes or some type of artisans, but not the ruling class elite. We had a 21-day schedule in which to excavate this block of rooms, which were located at the top of the bluff. Deposition was minimal, and we were able to expose the lime covered floors quickly. Due to the sudden nature of the fire and abandonment of the city, what we found littering the floors was breathtaking and very time consuming to excavate and document properly. Jars were sitting exactly where they were left. Beads scattered across a corner of a room. Beneath the floor of one room, a graduate student from Guatemala excavated a burial, that contained jade inlaid teeth and a modified head shape. I am forever grateful to Dr. Inomata for allowing me to participate in that small portion of his research, especially knowing how much trouble and concern we undergraduates caused him!

For a few months, mostly while I was preparing to take the MCAT and start applying for medical school, I thought about a career in archeology. I spoke to my professors, my advisors, and at length with Dr. Inomata. They all echoed similar themes about the difficulty and hardships of an academic archeologist. Few positions were available, for which there was much competition. The career of an archeologist also left little room for a personal life. As an example, Dr. Inomata told me he was midway through a several year stint at Yale, while his wife was working at the University of Arizona. They looked forward each year to field work because it would be the most consecutive days they would spend together. The hard scramble for grant money, the year-to-year employment uncertainties, and the difficulties in trying to attain tenure seemed overwhelming. I would stick to the original plan of attending Medical School and becoming a physician. When I returned from Guatemala, I thought I had turned in my trowel for good. And for 10+ years, I had.

Medical School, residency, marriage, and early parenthood were all-consuming. Then, at some point, there were no more diapers or 3 AM feedings. There were no more nights on call at the hospital or every other weekend spent there making rounds on patients. Time became available for other things! I stumbled across an article in the Houston Chronicle about the Dimond Knoll site, TxDOT's involvement there, and the Houston Archeological Society. I didn't know the society existed before I read that

Liz Coon-Nguyen excavating at the Mayan site of Aguateca in Guatemala.

article. I didn't know that avocational archeology existed before I read that article. The very next monthly meeting, I was there. And they haven't been able to get rid of me since!

That regular folks – doctors, lawyers, retired cops, teachers, accountants – can all participate in and contribute to the body of archeological data in our area and beyond continues to amaze me. What a privilege! What an honor! The opportunity to learn from people with lifetimes of accumulated knowledge, from all across the state, and then to put that knowledge to some practical use, whether as a volunteer at a salvage project like the Dimond Knoll site, the Kellum-Noble House, or Frost Town, or in a public outreach role at Kleb Woods, or manning the HAS booth at International Archeology Day or the Field School Fair, has been a fulfilling experience. Participating in the longer-term field work at Cottonfield and the large-scale artifact processing after that field work ended has been a growth experience for many of us in the HAS, myself included. My excavation abilities have significantly improved, and, with the lab work, I have increased my knowledge of and experience with lithic and ceramic artifacts. I have enjoyed serving on the HAS Board and participating in the planning aspects of the society's projects. This is a dynamic

Liz Coon-Nguyen taking notes during the excavation of the Cottonwood Site in Colorado County.

Liz Coon-Nguyen with Doug Boyd during the youth group dig at TAS Field School at Camp Wood.

group of individuals with lots of great ideas and the ability to make great things happen for Houston and Southeast Texas archeology!

I am so grateful that an organization like the HAS exists, and that it found me. I am grateful to Linda Gorksi and the HAS Board of Directors for their dedication to the organization, the projects in which we participate, and the archeology. It is my sincere hope and goal that the HAS can continue to be a resource for the public to access and contribute to archeology in the Houston area for years to come. Thank you, Houston Archeological Society!

Liz Coon-Nguyen with her sister, Margaret Coon, at Hueco Tanks Rock Shelter.

MY LIFE IN ARCHEOLOGY

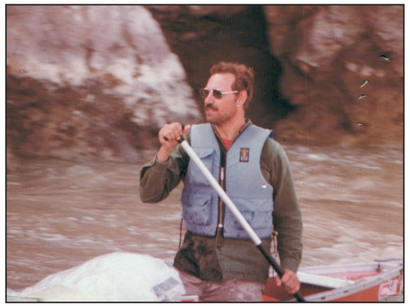
Louis F. Aulbach

As the 2017 Texas Archeological Society Annual Meeting approached, I made plans to attend the event since I was going to receive my 30-year membership certificate. It was hard to imagine that the time had passed so quickly. Nevertheless, I recall very clearly the time that I first joined the Texas Archeological Society.

In the summer of 1980, I went canoeing for the first time in my life. I grew up in the city of Houston and my outdoor experiences as a youngster were mostly related to playing baseball. During basic training in the army, our company spent a few days in the field where we slept in tents. What a revealing experience! I loved it. So, eventually, when I returned to Houston and got a regular civilian job, I decided to buy some camping gear and head out to the Big Bend of Texas over the Thanksgiving weekend.

As a result of that trip to the Big Bend, I was ready to jump on the idea that one of my friends on my bowling team had. Hank (yes, his real name) Moeller called and said he bought a canoe at a garage sale and wanted to know if I wanted to try canoeing. Without hesitation, I accepted the chance for a weekend canoe trip on the Colorado River.

With that beginning, I decided that canoeing was the gateway to the great outdoors. By the mid-1980's, I was an active member of the Houston Canoe Club (HCC) taking regular trips to the Texas Hill Country and the Rio Grande Wild and Scenic River in the Big Bend. After multiple trips through the Lower Canyons of the Rio Grande, Colorado Canyon in the Upper Canyons of the Rio Grande, and Boquillas Canyon in the Big Bend National Park, the research on the history of this part of Texas led me to archeological reports from the Texas Historical Commission and the Texas Archeological Society. I sent in my membership application to the TAS in 1987 while in preparation for a canoe trip with the Houston Canoe Club on the Pecos River. In March, 1988, I joined the HCC for my first trip through the rock art-rich canyonlands of the Pecos River, and became thoroughly impressed by the mystique of that spectacular landscape.

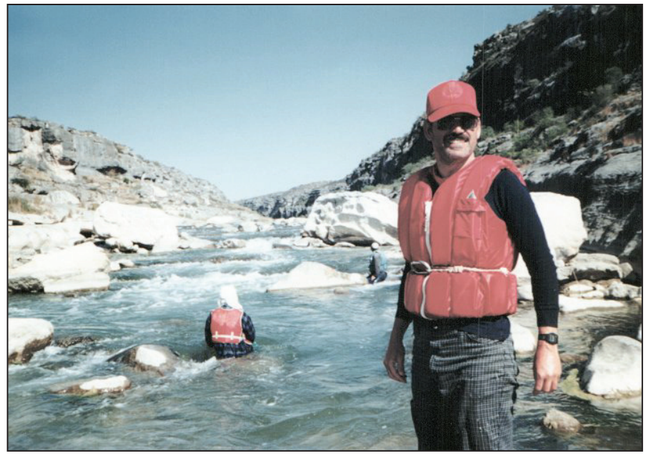


Canoeing in Colorado Canyon of the Upper Canyons of the Rio Grande on Thanksgiving weekend, 1981.

Then, in January of 1989, a fellow paddler, my good friend Leonard Hulsebosh, asked me to go with him and one other paddler on a week-long canoe trip down the Devil's River near Del Rio. The three of us camped for three days on land recently purchased by the Texas Parks and Wildlife Department (TPWD) that later became the Devil's River State Natural Area. My buddy Leonard, who organized the trip, got permission from TPWD for us to camp and look around on the future state park. He also knew that there were several pictograph sites on this tract of land and he wanted to see if we could find them. We did and moreover, we saw several of the dozens of sites on the property.

A few weeks later, Leonard called and told me that the TAS was going to have a field school at the Devil's River property and did I want to go? Well, I did not hesitate too long to answer that question. So, in June, 1989, my friend Leonard and I drove out to the Devil's River for ten days of absolutely fascinating archeological work. As a well-tuned regular runner and marathoner, I found the field survey crews to be right up my alley. My first TAS field school made a very good impression on me.

Over the next two decades, I attended a handful of TAS field schools, but only if the schools were located in West Texas. During this same time, I spent most of my free time (two to three week-long trips each year) with a small group of like-minded expedi-



Below Painted Canyon Rapid on the Pecos River, about sixteen miles above the junction with the Rio Grande, in March, 1988.

tion canoers as we repeatedly paddled sections of the Rio Grande from Presidio to the mouth of the Pecos River, the Pecos River from Pandale to the Rio Grande, and the Devil's River. We were thoroughly enamored with this region and its network of waterways that contains such a high density of prehistoric pictograph and petroglyph sites.

About 1998, while helping Jack Richardson, one of our crew of explorers, with his canoe and kayak store in Sugar Land, I met Linda Gorski. Linda was also helping Jack to keep his shop afloat and she soon joined our small group of West Texas adventurers. Linda proved to be not only capable of handling the rigors of the outdoors, but her contacts with the archeologists at the Shumla School in Comstock, the Center for Big Bend Studies in Alpine, and the Big Bend National Park were invaluable.

Almost all of our trips on these rivers were private expeditions. We became familiar with the archeologists working in the areas, and often reported to them the current condition of the rock art at the various backcountry sites. A few times, we escorted the archeologists down the river so they could assess the sites for themselves. Over time, we participated in or volunteered for archeological events in the Lower Pecos area with groups like the Shumla School, the Rock Art Foundation, and the Lake Amistad National Recreation Area.

These experiences on the rivers of West Texas provided the source material for a series of guidebooks to these wilderness rivers of Texas. By 2006, I had published five best-selling guidebooks -- some of them in their second and third editions -- covering

With Leonard Hulsebosch (right) below Dolan Falls on the Devils River in mid-January, 1989.

With Linda Gorski at the Black Dike site, a historic farming village with scattered lithic evidence of prehistoric occupation, in February, 2019.

the Rio Grande from Presidio to Dryden Crossing (in three volumes), the Pecos River and the Devil's River.

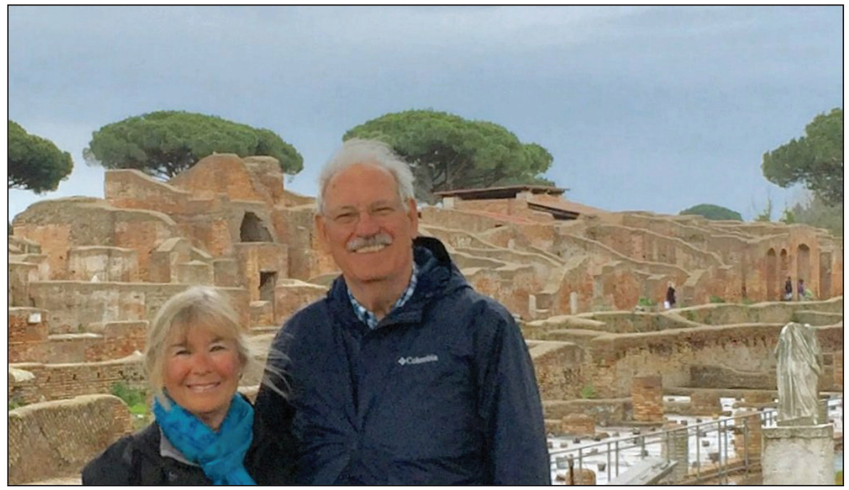
About fifteen years ago, at the suggestion of one member of our crew, Dana Enos, we began to attend the Center for Big Bend Studies Conference at Sul Ross State University each November. At this conference, we have been able to meet several of the archeologists active in the Big Bend area and compare notes on the numerous historic sites in the area.

Through all of these years, I maintained my membership in the Texas Archeological Society, but for the most part, was only marginally active in the organization. It was only when Linda Gorski and I began researching a so-called paddling guide to Buffalo Bayou in Houston that I became interested in the archeology of the Houston area. I joined the Houston Archeological Society around the 2008 or 2009. The first actual field work in the Houston area that I participated in was the excavation at the Bernardo Plantation site in 2010-2011. Since that time, there has been plenty of volunteer archeological work with the Texas Archeological Society, the Houston Archeological Society, and the Texas Historical Commission to keep me occupied.

When Linda Gorski decided to become the president of the HAS and initiate the revitalization of the organization, she asked me to join the Board of Directors. Little did I realize what I was getting into! Soon, I found out that I had been nominated for the Texas Historical Commission Archeological Stewards Network. Linda and I seemed to be tapped as a team every time a THC project came around. And, thankfully, that has been a good thing! Such a great experience.

I was particularly gratified when the Texas Department of Transportation (TxDOT) project to rebuild the Elysian Viaduct finally began in 2014. Doug Boyd, the PI of the project for Prewitt and Associates, immediately contacted me about consult-

Working the screen with Linda Gorski on the last day of the Cotton Field excavations on a cold day, February 9, 2019.



With Linda Gorski at the Archeological Park of Ostia Antica, the port city of ancient Rome, in early April, 2017.

ing on the project because I had written extensively on the history of the Frost Town community, the neighborhood that lay under the Viaduct. Doug was even more thrilled when I told him I would rather help him as a THC Steward and volunteer than as an employee. That multi-year project was one of the best archeological opportunities for me, personally, and the Houston Archeological Society.

And, just to show that there is always an opportunity to put latent skills and knowledge to work in archeology, Linda Gorski and I took a trip to Rome in 2014 to take a look at the ancient ruins. Within the first days in the Eternal City, the memories from four years of Latin in college (after four years of Latin in high school) reminded me that I could read those old inscriptions and I knew the stories of the Roman Republic and the Empire of the Caesars. The city of Rome is flush with the ruins of the gloried past, however, the most difficult part is trying to locate them among the tangle of winding lanes and narrow alleyways of the old parts of town. We decided that a good guidebook was needed!

For the past six years, Linda and I have traveled to Rome, usually in the early spring, for a two-week tour to locate and document archeological sites in Rome. The result has been a series of guidebooks to the ruins of ancient Rome -- our fifth volume was published this past summer and number six is in preparation. We have also condensed the guidebook information into six papers for the HAS Journal issues on Roman archeology (numbers 138 and 140). And, I have a new paper, co-authored with Dub Crook, on two Roman military diplomas that again utilized my old high school and college Latin expertise.

Although I consider myself simply an avocational archeologist, at times, it seems that my work schedule is full time!

MY ARCHEOLOGY STORY

Linda C. Gorski

I think I have been interested in archeology since the day I was born. I've seen grainy black and white films of myself digging in the back yard of my grandparent's house in Providence, Rhode Island, when I was a mere tyke, probably using one of Grandma's spoons. However, my toddler's enthusiasm for archeology was pretty much overcome by events!

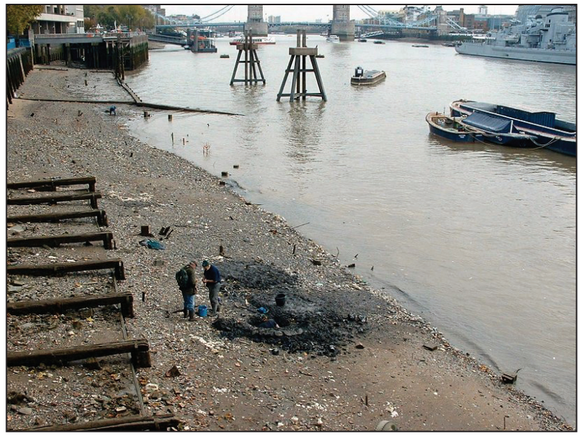
After WWII when my dad returned from service in the Philippines, many more siblings arrived. I grew up as the oldest of eight children in a military family that moved … a lot. My dad was an officer in the U.S. Army and in the first 12 years of my educational life we moved 26 times … and between kindergarten and high school I attended 17 different schools. Not only that, I was taken out of school for half of the 4th grade to stay at home to look after four younger brothers and sisters while my mother spent weeks in the hospital and my dad was attending another flight school at Fort Rucker, Alabama, and

Linda Gorski with three of her seven siblings in front of the quarters at Fort Hood, Texas in 1955.

couldn't miss a day of training (Note! That scenario would NEVER happen today! We'd all be in the foster system!). One of the things I did to entertain my brothers and sisters was to dig up the yard with them looking for archeological treasures until my dad came home one day and reminded me (sternly) that we lived in military quarters on a military base and this was NOT allowed. Thus, I grew up from a very early age with quite an enormous amount of responsibility and not much time to be a kid and certainly no time to learn about archeology or play in the dirt!

I actually discovered archeology in a vicarious way in junior high school. While still carrying out my responsibilities at home, I read every single book on archeology that was in the library of whichever military post we happened to be stationed at the time. Thus, even though I only stayed in one place for a short time for most of my life, my reading habits familiarized me with the history and archeology of many of the locations we lived including Virginia, Texas, Alabama, Florida, and Germany (to name a few) as well as taking me off to many exotic locations including Egypt, Turkey, China, and Europe (perhaps the basis for my wanderlust as an adult?). It wasn't until I left home, got married and had my own children that I not only discovered "real" archeology, but I also rediscovered my lost childhood – and I've been playing in the dirt ever since.

In 1975 my husband, Rick Gorski, at the time a young major in the United States Army Corps of Engineers, accepted an assignment as the exchange officer to the British Army's Royal Engineers in England. We lived on a little military "patch" in Chattenden near Rochester and I was fortunate enough to take courses in Roman British archeology at the nearby University of Kent, Canterbury. There I met many like-minded, older (I was 30 at the time) students who were very serious and almost territorial about the history and archeology of their Island. Some of them were not overly thrilled to have a brash American woman in their class but eventually they accepted me. Our professor was very enthusiastic and arranged for us to go on field trips to dig at several archeological sites nearby. The highlight of

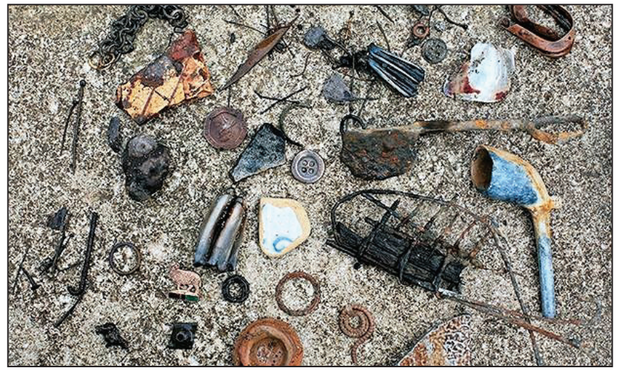


Archeological surveys on the Thames Foreshore in London.

the class was the opportunity to dig for three years at a recently discovered Roman villa site called Lullingstone. For anyone who has been to England recently, that site is now one of the most well-preserved Roman villas in the U.K. https://www.english-heritage.org.uk/visit/places/lullingstone-roman-villa/

After three amazing years in England where I had thousands of years of archeology at my feet and spent days and weeks and months exploring sites from Roman to Victorian, we were reassigned to Fort Riley, Kansas. Seriously, Kansas??? We both thought we were being punished for some unintended transgression against the Queen!!! However, one of the artillery commanders at Fort Riley who was as avid an historian and avocational archeologist as I was, convinced the post commander to let us start the Fort Riley Historical and Archeological Society and we proceeded to dig up the history of that old and famous cavalry post. Not only that, I was given complete access to the Fort Riley Cavalry Museum's maps, files, photographs, and artifacts and was asked to write a weekly column for the local Junction City newspaper about the history and archeology of the area. As an unexpected bonus, I was paid $25 for each article. I thought I had died and gone to heaven being given the opportunity to fulfill my two passions at once – archeology AND writing!

Fast forward several years to 1991 when Rick retired from the military and we moved to Texas where he began his second career in the oil and gas industry. We settled in Richmond, a small town west of Houston with its own rich history. I went to work as the Marketing and Public Relations director for the George Ranch Historic Site and Fort Bend Museum Association and was also fortunate to be hired as the Fort Bend County correspondent for the Houston Chronicle. What was missing from that area at the



"Mudlarking" can reward you with some interesting artifacts!!

time was an active archeological society. So a group of us got together and convinced the Fort Bend Museum Association to let us start an archeological society called the Fort Bend Archeological Society which recently celebrated its 25th anniversary. And we started almost immediately digging up the history of Fort Bend County - one trowel full at a time. We excavated Jane Long's Boarding House in Richmond ahead of some development at the site. We excavated Mirabeau B. Lamar's homestead. We excavated the original site of the Fort Bend County jail. We excavated at the George Ranch. We excavated several prehistoric sites along the Brazos River. I was having the time of my life and becoming a real part of a small community, something that had been lacking in my previously transient life. That was to end when Rick changed jobs in 1998, hated the commute from Richmond, and we moved to downtown Houston.

I thought that moving to the Big City in 1998 would end my archeological opportunities but then I discovered the Houston Archeological Society and I met Louis Aulbach and together we started traveling together and writing books reflecting our mutual interest in archeology … and the rest is history. **Well, not quite**. A couple of years later, in 2000, Rick was offered the opportunity to move to London for an 18 month project. I moved with him, thinking I would be gone a year. Ten years later we moved back to Houston after 6 years in England, two in Australia and one in South Korea. The archeological opportunities I had overseas in those 10 years were absolutely amazing. In London I joined the Museum of London Archeological Society and took part in excavations along the Thames Foreshore … and "mudlarked" just like poor folks in Victorian times used to do – searching at the end of sewage pipes that belched water into the Thames, searching for treasures.

In Australia. I joined archeological societies in both Perth and Adelaide and was able to put a trowel in the ground in both places. But my adventurous spirit soared in Australia when I purchased a heavy duty, diesel powered, 4 wheel drive vehicle and started exploring the entire country from Perth to Darwin, Queensland to Melbourne and even the Red Center – Alice Springs – looking for archeological sites. One of my favorite trips was to explore a rock art site called Walga Rocks in the Pilbara in far Western Australia. Accessible only by 4 wheel drive on a mud track in dry weather, this site features ancient drawings of Wanjina, sacred anthropomorphic symbols, plus a more recent (1600s) rendering of a Dutch ship that the Aborigines captured in a splendid pictograph.

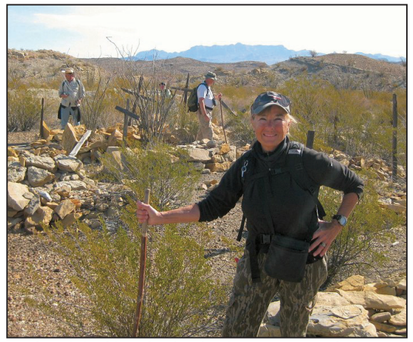
First vehicle allowed on this clay road to the Walga Rocks Archeological site after "The Wet" – 50 km to site.

Pictographs of Wanjina, sacred anthropomorphic symbols, at the Walga Rocks archeological site.

Indigenous "contact painting" of what is thought to be the Dutch East India Company ship Batavia seen by Aboriginals off the west coast of Australia.

Louis and I explored most sections of the Rio Grande from Presidio to the Lower Canyons by canoe, documenting sites along the river.

TAS Field Schools like this one on the Devil's River, gave us more opportunities to do research in West Texas.

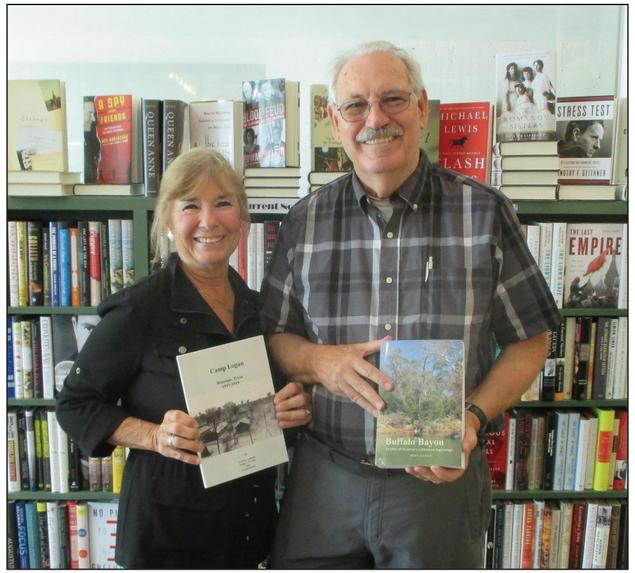


And we hiked hundreds of miles in Big Bend National Park, Big Bend Ranch State Park, the Davis Mountains and other locations to gather research for our books.

We returned to Houston in 2010 and ever since my passion has been Texas archeology. I was so fortunate to continue my collaboration with Louis Aulbach who has since become my best friend, co-author, and general partner in crime …. Errr … archeology. Although we initially forged a friendship through our mutual love of canoeing, we soon realized we had so much more in common including our passion for history, archeology, rock art, research, writing, and so much more. Louis and I joined the Houston Archeological Society and the Texas Archeological Society and our archeological

Linda and Louis document a set of submerged railroad tracks on Buffalo Bayou near the McKee Street bridge that are only visible during extremely low tide.

Shovel testing in Memorial Park, looking for features of WWI Camp Logan, before the new running center was built.



Linda Gorski and Louis Aulbach at a book signing at the River Oaks Bookstore in Houston.

adventures have taken us all over the State of Texas. We have used those experiences to author many papers, presentations and books about archeology, geology and history in West Texas and especially in the Big Bend area, paddling and hiking to many sites along the Rio Grande River.

Closer to home Louis and I have helped excavate dozens of sites in the Greater Houston Area with the Houston Archeological Society and the Texas Archeological Stewards Network from Frost Town in downtown Houston to Dimond Knoll in Cypress, from Bernardo Plantation in Hempstead to the Lone Oak site in Frelsburg, and from Memorial Park to Champs d'Asile in Liberty County and lots in between. In the process we have co-authored books on how Houston developed along Buffalo Bayou (*An Echo of Houston's Wilderness Beginnings*) and about Camp Logan, a WWI training camp that was built to

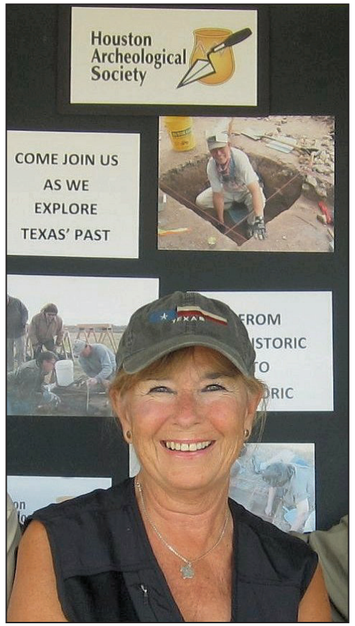
Louis and Linda standing on the remnants of the Circus Maximus in Rome, with Severan Palace of the Palatine Hill in the background.

Louis and Linda standing in front of archeological ruins at Ostia Antica.

house 45,000 soldiers at a time in what is now Memorial Park (*Camp Logan, Houston, Texas 1917-1919*).

More recently, and through our mutual love of Roman history and archeology, Louis and I have traveled to Rome annually since 2014 exploring every part of the Eternal City and documenting archeological sites in a series of books we call "Rome in Ruins". So far, we have published three guides to sites in Rome and two guides to the fabulous archeological sites in Ostia Antica which we think rivals Pompeii in importance. Two additional books in the *Rome in Ruins* series are in the pipeline!

This is nowhere near the end of the story!!! We look forward to many more adventures as we continue to dig up Texas history …. one trowel full at a time … with the Houston Archeological Society!



MY PATH TO THE HOUSTON ARCHEOLOGICAL SOCIETY

Valdemar Phoenix

My earliest recollection of something archeological was a TV program I saw when I was a teenager, probably nearing high school graduation. It was a documentary on Louis and Mary Leakey. The impact on me was "Wow! People can actually dig up bones of our ancient ancestors? I have got to know more about this." Unlike the famous primatologist Jane Goodall, I did not rush off into the field under great sponsorship. I just sort of plodded along to Utica College, eventually taking an introductory course in Anthropology. I don't remember much about that course, but somehow it reminded me of that feeling I got from watching the Leaky documentary. So, I thought I might major in Anthropology. Alas, Utica College didn't have an Anthropology degree, so I transferred to the State University of New York at Albany, and completed my Bachelor of Arts in Anthropology (with a Minor in Biology) in 1973.

My Anthropology coursework was mostly in Physical Anthropology, so I had lots of courses in human evolutionary biology, primates, human ecology, genetics, and some lab work. The curriculum also included archeology coursework with Old World prehistory and Old World civilizations in the mix. Unfortunately, I never had the resources to engage in fieldwork opportunities. Many HAS members have much more experience in this aspect of Archeology than I do.

In 1976, I learned that there was a Master's degree in the teaching of English to international students. As luck would have it, the degree was offered at my Alma Mater. The program was based on applied linguistics methodologies, and linguistics being one of the main subfields of Anthropology, I thought it was right up my alley. I was accepted into the program, and received my MS in 1978.

I applied for a teaching position at many schools, and one morning got an offer from the English language program at the University of Houston, which I eagerly accepted. So here I was, back in Houston, and ready to launch my new career. I have taught the English language to college-bound international stu-

Figure 1. Lobby of the Museum of Human evolution in Burgos, Spain.

Figure 2. Val Phoenix and his wife, Lucia, in the replica skull monument to Homo antecessor at the Museum of Human Evolution in Burgos, Spain.

dents since about 1978 and retired from that profession in 2018.

However, during all this time, my life had developed many branches. Coming from a professional musical family, I had studied music since childhood and eventually became a professional flamenco guitarist. My wife Lucia, a flamenco dancer/singer, and I maintained very active careers in the flamenco world for 40+ years. This was a parallel track to my day job as an English language educator. I certainly had heard about the Houston Archeological Society, but there was no way I could fit it into my life. Still, I have always tried to keep up with my first field of Anthropology. PBS programs over the years have

Figure 3. "Elivs the pelvis", one of the most complete hominid pelvis fossil (Homo heidelbergensis) on display at the Homo antecessor at the Museum of Human Evolution in Burgos, Spain.

certainly helped. Of course, I read as much as possible, just to try to keep fairly current, a difficult task indeed.

My musical and anthropological interests came together in 2016 when Lucia and I took our last trip to Spain. One of our musical colleagues had invited us to visit him at his family home in Burgos, in northern Spain. I looked up Burgos to see what there was to do, and found Atapuerca and The Human Evolution Museum. Atapuerca is the site of the oldest-known hominid yet found in Europe, dated at 1.2 million years old. I immediately made plans to visit the site, and our musical buddy made arrangements for a few more musicians to tag along. None of them had been to the Atapuerca site, just 10 miles from Burgos.

The Museum is dedicated to all the hominid finds, especially *Homo heidelbergensis*, which are among the most important discoveries from the *Sima de los Huesos* (Pit of the Bones) at Atapuerca. There are plenty of Neanderthal and other hominid remains on display as well, and plenty of prehistoric stone tools. After touring the museum, we hopped in the car and headed over to the Atapuerca excavation visitor center. At the scheduled time, we boarded a shuttle and soon found ourselves at the excavation, where we were all issued hard hats One of the staff archeologists led the group on a tour of some of the digs, all crisscrossed with scaffolding, tarps, and other coverings, since the site was not active at the time. She explained (in Spanish) the history of the finds, *Heidelbergensis'* relation to the Neanderthals, the discovery of evidence of cannibalism at the site, and the importance of the site for understanding human evolution in Europe.

Now I am retired from academia, but Lucia and I are still involved in the flamenco music world, a real anthropological field trip in itself. We are both now members of the Houston Archeological Society. Maybe I can fill in some of the many gaps in my knowledge of archeological methodology, and learn something of New World Prehistory, which contains many mysteries yet to be solved.

Texas Archeology

AN ARTIFACT COLLECTION FROM THE CAMP OF THE 2nd DIVISION USA AND THE 1ST AERO SQUADRON

Charles L. Gordy

The Camp of the 2nd Division USA and the 1st Aero Squadron

Texas City, Texas
February 27, 1913

Major General William H. Carter, Commanding

Introduction

Beginning in the 1970s, Mr. Lester O. Cavender (1932-2010) has assembled a collection of artifacts from the camp of the U.S. Army's Second Infantry Division which was located in Texas City, Texas, from 1913-1915. This collection totals almost 1,000 artifacts related to the camp. These artifacts were mostly lost due to the 1915 Storm that came ashore on the Galveston County coast and devastated the city and the army camp. This paper documents his collection and through its material evidence, together with the history of events during the time, offers a glimpse of Army life during the camp's existence.

Historical Background

Division Organization & Command

Organized divisions in the United States Army have existed since the American Revolution when on July 22, 1775, George Washington organized three divisions in Boston, Massachusetts. Early American divisions, up until the American Civil War, were primarily temporary organizations, with the permanent units of the United States Army being brigades and regiments. During the Civil War, the war which formed the first large true armies in United States history, divisions were formed primarily to support army corps, and were usually numbered as 1st, 2nd, and 3rd Division of the respective corps.

However, the turn of the twentieth century saw a lot of changes in the organization of the U.S. Army, both in its mission for war and for civil defense. Lessons learned during the U.S. Army's involvement during the Spanish-American War (1898) and its involvement in the Philippine-American War (1899-1902) prompted the need for organizational changes to the army. The era of 1911-1917 represented the beginning of a major evolution of army divisional structure. In 1910, political instability in Mexico impelled President William Howard Taft to increase the number of army troops who could deploy rapidly to the Mexican border. The first attempts at modernizing the division took place to address this mission by organizing a Maneuver Division. The Maneuver Division was formed in March 1911, to undertake offensive operations against Mexico during the Mexican Revolution. This was the United States' first attempt at modernizing the concept of a division. Army Chief of Staff, Major General Leonard Wood, mobilized the division primarily to demonstrate to Congress that the United States was not adequately prepared for modern warfare. Since Major General William H. Carter was extensively involved in the technical details of the organization of the U.S. Army, he was made commander of the new Maneuver Division. This first modern self-sustaining division was composed of tactical and support components. Because of the mobilization difficulties experienced with the Maneuver Division, on February 15, 1913, a standing organization of a "regular army" was organized consisting of divisions and cavalry brigades. This organized regular army was to be ready for immediate use as an expeditionary force or for other purposes. In addition, an army of national citizen soldiers was also organized in full divisions for peace times civil use and to be prepared to reinforce the Regular Army in time of war. This concept was organized by Secretary of War Henry L. Stimson and known as the "Stinson Plan" and was the beginning of what is now known as the National Guard organization. It was under this plan that the National Guard was activated and deployed for the first time during the Border War in 1916. As was designed then, we see this concept still in use today with National Guard units being deployed during hostilities to augment the regular army.

In implementing the Maneuver Division concept during 1913, the continental United States was divid-

ed into four geographic departments with each assigned a division designation. The 1st Division was designated the Eastern department; the 2nd Division was the Central **d**epartment; the 3rd Division was the Western department; and the Cavalry Division was the Southern department, however, the latter was never officially numerically designated. (Wikipedia: https://en.wikipedia.org/wiki/History_of_the_United_States_Army #20). In 1913, having been a developer and supporter of the new division structure, General Carter was assigned as the commander of the newly organized 2nd Division of the United States Army and in a matter of months, he would be headed to Texas City, Texas, with his 2nd Division (Figure 1). Thus, not only was the establishment of a divisional army camp in 1913 a first for Texas City, but it was also a new experience for the U.S. Army und

Major General William Giles Harding Carter (1851-1925) had a distinguished military career. He served as a cavalry officer during the American Civil War and in the Spanish-American War. He also took part in the Indian Wars seeing extensive service against the Apache and Comanche in Arizona, being awarded the Medal of Honor against the Apache during the Comanche Campaign on August 30, 1881.

Figure 1. Major General William G. H. Carter.

He was a strong advocate of reform in the United States Army during the late 19th and early 20th centuries. General Carter and Secretary of War Elihu Root are credited with the creation of the U.S. Army War College and helped pass the General Staff Act of 1903 through the United States Congress. He was also instrumental in replacing the office of commanding general with a chief of staff resulting in a more efficient reorganization of military staff structure. It stood to reason that General Carter would be the right commander for the newly organized division concept in its move to Texas City. In 1914, Major General Carter was reassigned as commanding general of the Hawaiian Department where he remained until his retirement on November 19, 1915. (Wikipedia: https://en.wikipedia.org/wiki/William_Harding_Carter_See_also...). Replacing General Carter as commander of the 2nd Division in 1914 while at Texas City, was Major General J. Franklin Bell. Major General Bell's last duty assignment before assuming command of the 2nd Division was as a commander in the Western Pacific military forces in the Philippines (Wikipedia: https://en.wikipedia.org/wiki/William_Harding_Carter).

Mission and Movement Order

The Political unrest in Mexico spurred the Mexican Revolution. It began as an outgrowth of the resentment that had built up during Mexico's President Porfirio Diaz's thirty-four year regime dictatorship. By 1910, the turmoil resulted in refugees flooding across the border into Texas to continue their exploits against the Diaz regime while being under the protection of the foreign US government. Clashes between Diaz's Mexican Government and the refugees became more aggressive along the Texas-Mexico border (Overfelt n.d.: http://www.tshaonline.org/handbook/online/articles/pqmhe). By 1913, as violence along the border and within the boundary of the United States escalated, President William Howard Taft, ordered the deployment of troops along the U.S.-Mexico border. In addition, orders were given for the establishment of a safe presence near the Texas Coast which would allow for a quick deployment response into Mexico by sea should the need arise (Benham n.d.: http://www.tshaonline.org/handbook/online/articles/hdt03).

Due in large part to local community leaders' political connections and lobbying efforts, within a matter of weeks of the division's reorganization and the president's movement orders, Texas City, Texas, was chosen to be the location for the Camp of the 2nd Division United States Army. An advantage of the location was its access to rail and seaport assets which was a large factor in the decision to station the division in Texas City. Its mission was to guard American interests during Mexico's revolution (Unknown n.d.: http://www.texascity-library.org/history/development/army_camp.php, pp. 1-10.).

In just 13 days after the official reorganization, the 2nd Division immediately began moving troops and equipment to Texas City on February 28, 1913. During the next five days soldiers began arriving on the average of two train loads a day. Within a matter of weeks, the soldiers were joined by other groups

until there were a total of approximately 10,000 troops comprising the 2nd Division. At the time, the port of Texas City had only been incorporated as a city since 1911. The deepened channel, the railroad connections, the expansion of warehouses' and docks, and plenty of level and clear land area available, made the city an attractive location for a military post. Growth was rapid and increased port activity came in part from the building of the Texas City Refining Company. In 1911, the number of inhabitants had grown to 1,169 and wasn't much larger than that by 1913. The city was overwhelmed by the arrival of the 2nd Division. Along with 10,000 to 14,000 troops and 3,000 animals, the military occupation expanded the town's population about seven fold in a matter of weeks mostly housed in a newly erected tent city. To the citizen population, it seemed almost magical (Benham n.d.: http://www.tshaonline.org/handbook/online/articles/hdt03). With all the wagons, cavalry horses, pack trains, supplies, construction, rifle and artillery practice, and airplanes buzzing around, excitement filled the air for the town's citizens. Not to mention the invasion of tents. The camp quickly grew into a regular tent city in the northeast portion of the city, covering about 700 acres (Figure 2). Large event-sized tents were also erected for the newly arriving 1st Aero Squadron. Horse-drawn caissons and troops of soldiers were a common sight, and small boys were captivated by the sight. The city was on the verge of an economic boom town growing to cater to the goods and services for the soldiers and divisional needs. The Orpheum, the Star, and the Empire theaters not only featured movies but at times offered vaudeville acts. Catering to the soldiers, as well as the public, were dances given in the Suttle Hall. New brick buildings and hotels were built, bars were commonplace, businesses flourished and trolley cars shuttled from camp to town. All the business and entertainment enterprises, legal and illegal, which catered to soldiers, sprang up. Gambling halls and burlesque shows thrived along the main streets. Many townspeople went to the baseball games and other events provided for the soldiers (Editor1986.: A historical special to The Texas City Sun).

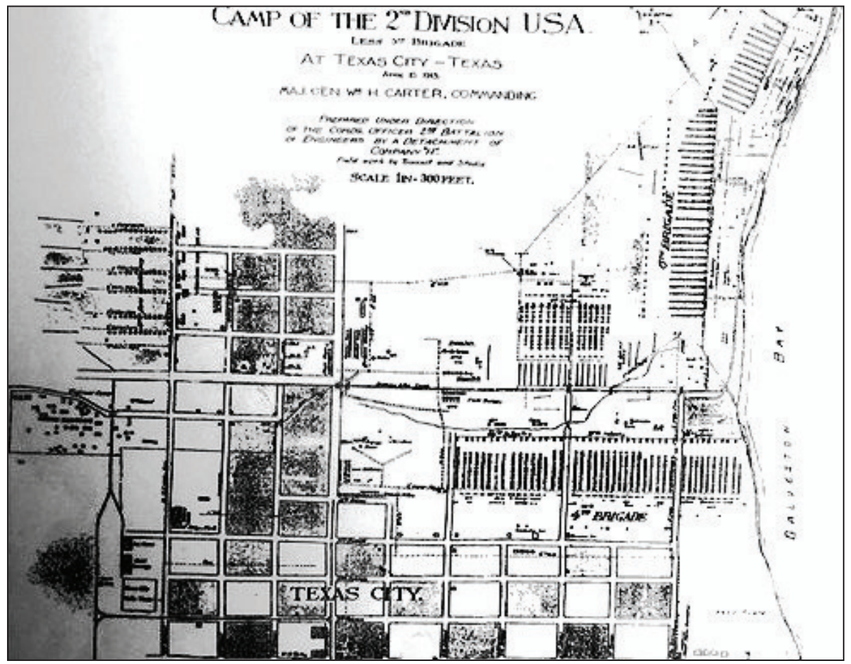


Figure 2. Map of the Camp of the 2nd Infantry Division, Texas City, Texas 1913-1915. (Source: Library of Congress)

After all was in place, the 2nd Division in Texas City consisted of the Fourth and Sixth Infantry Brigades, the Fourth Field Artillery, the Sixth Cavalry, Engineers Companies G, H and M, Field Hospital No. 3, Ambulance Company No. 3, and twelve ovens of Field Bakery No. 2. Although the Division Headquarters was located in Texas City, the Fifth Brigade was ordered to Fort Crockett at Galveston on February 22, 1913.

Arrival of the First Aero Squadron

Shortly after the arrival and positioning of the 2nd Division, on March 5, 1913, a small group of officers and enlisted men were formed into the 1st Aero Squadron (Provisional), and assigned to the 2nd Division. The squadron was commanded by Signal Corps Captain Charles de Forest Chandler. Nine JN2s "Jennys" airplanes (Figure 3) were assigned to the squadron, which was formed into two companies: Company A had three pilots, four airplanes, and 24 enlisted men; Company B had three pilots, five airplanes and 27 enlisted men. The pilots were all Army Officers with the rank of First or Second Lieutenant. The 1st Aero Squadron was organized under the Army's branch of the Signal Corps as it was first most useful in communications and reconnaissance rather than transporting and combat operations. While the airplanes were 'cutting edge' at the time, very little technological/mechanical testing had been done before their development. Modifications and repair were time-consuming and difficult. In general, the fatality rate was high among pilots, although none were noted while stationed in Texas City. Flight lessons were almost unheard of, and frequently consisted of general guidelines given on the ground followed by individual practice. One of the early pilots, Captain Benjamin D. Foulois, was given instruction from Orville Wright, by mail (Aldrich n.d.: http://firstaerosquadron.com/articles/the-1st-aero-squadron-a-history/)!

For Texas City residents, it was exciting to see the planes coming in to land for the first time. They took great interest and pride in the daring deeds of the pilots and their crews. The military pilots, Lieutenants Graham, Call, Ellington, Sherman and Milling, wasted no time in setting new aeronautical records including distance and speed records set on round trips to Houston and San Antonio (Brown 1986: The Daily News). As a side note, Ellington Air Force Base, (Ellington Field) about 25 miles away, was named after Lt. Ellington and is still in use today as an army reserve training center, the Air National Guard, and the National Aeronautical Space Administration (NASA). The 1st Aero Squadron pilots were also the first military pilots to use airplanes as a means for scouting/reconnaissance for combat maneuvers, aerial photographing and mapping terrain (Figure 4). The squadron spent much of its time practicing cross-country flying and operating from rough terrain, skills that would be of great value later in the field. They also spent a lot of time making repairs to the 'Jennys'(Warne 2012: https://warnepieces.blogspot.com/2012/05/first-aero-squadron-inauguration; pp. 1-4). The aero squadrons' buildings and airfield were located north

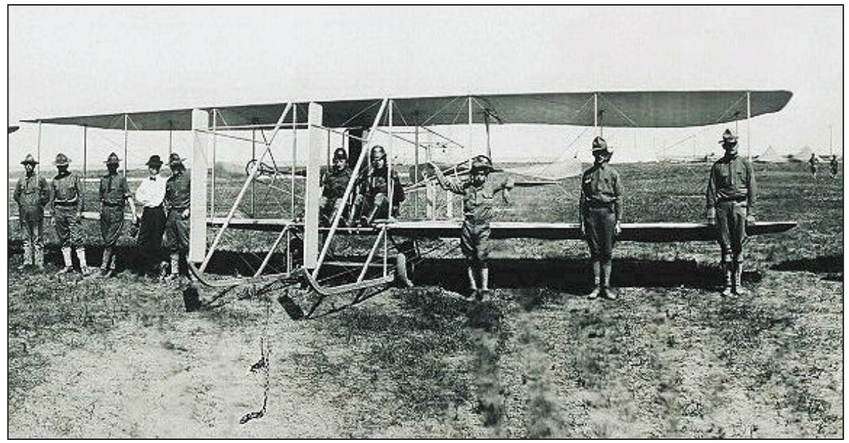


Figure 3. Part of the 1st Aero Squadron, Texas City, Texas 1913. (Source: Library of Congress)

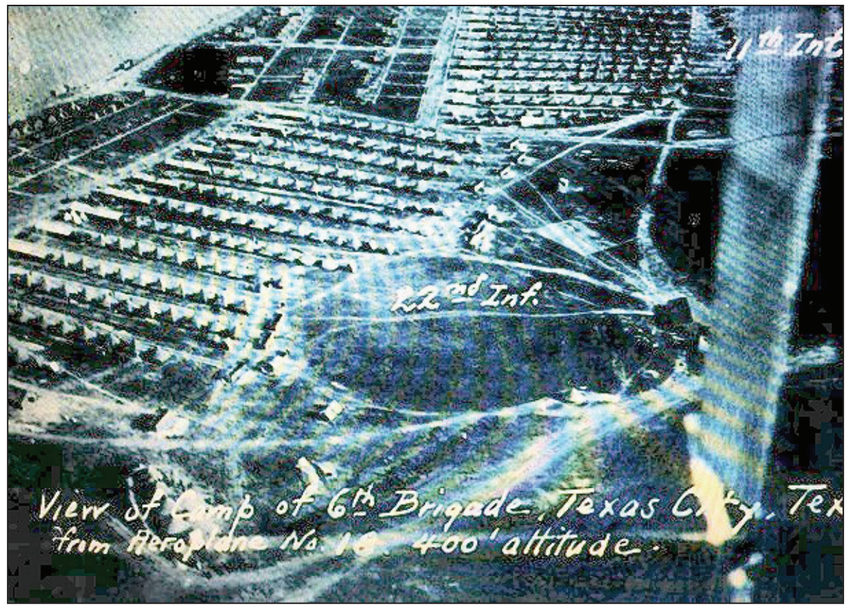


Figure 4. View of Camp of 6th Brigade Showing the 22nd and 11th Infantry Regiments. Photo location compares to the upper right corner of Figure 2.

of 8th Avenue and East of Bay Street (see Figure 2 open space in lower right corner).

After only about eight months in Texas City, the squadron was ordered to relocate to California at North Island, San Diego as a training unit on November 8, 1913. At that time it consisted of two companies of eight officers and forty five enlisted men each, and eight aircraft. While they eventually returned to Texas in 1915, they never returned to Texas City (Warne 2012: https://warnepieces.blogspot.com/2012/05/first-aero-squadron-inauguration; pp. 1-4). It would be in March two years later that the squadron would be used in an actual military operation when it would fly its first reconnaissance mission at the Columbus, New Mexico border with Mexico during the Mexican Revolution. (Aldrich n.d.: http://firstaerosquadron.com/articles/the-1st-aero-squadron-a-history/; pg. 4). Thus, for a time Texas City, with the Aero Squadrons' total of nine airplanes, had become the home of what would be later known as the U.S. Air Force.

Division Training Routines

A brief glimpse into the military routine of the Texas City camp in 1913, is revealed in an excerpt from a report of the 22nd Infantry Regiment. Recovered Identification Tag artifacts for a few soldiers of the regiment; Pvt. J. M. Scanlon, Pvt. William Kresztoweak, Pvt. M.A. Whalen, and Pvt. A. Goerges indicate they were among those that experienced the following (Figure 5a and 5b):

- The months of March and April, 1913, time was spent in field training exercises.
- On May 12, they marched to Galveston, pitched tents and remained there until the 19th.
- On the 19th, they returned to Texas City by marching a distance of 35 miles and did field training the rest of the month.
- On June 24, the regiment marched to Dickinson, Texas. They pitched shelter tents and remained in camp for two days before returned to Texas City on the 26th. The distance was 24 miles. They conducted maneuver training along the route.

- On August 22, they marched to Galveston and went into camp a short distance from the Crockett Reservation.

- During the remaining four months of 1913, the regiment remained at Texas City, where it was occupied with the routine duties of the camp. Field exercises and maneuvers continued during the early part of 1914 and in January a thorough course of field firing took place.

- In March, two divisional maneuvers took place.

- On April 16, 1914, the Second Division started on a march to Houston, Texas, for the purpose of taking part in a parade in that city on San Jacinto day, April 21.

- They reached Houston on the 19th, but at 3:25 A.M., April 20, orders were received to march at once to Texas City. Began the march at eight o'clock on the morning of the 20th, and reached Texas City on the 22nd. At Texas City they again went into camp, and took former duties.

- The long period of maneuvers was broken in October, 1914, when the 22nd regiment was granted a month of comparative rest. Many leaves and passes were granted and a number of hunting and fishing parties organized. (Unknown n.d.: http://1-22infantry.org/history/mexican.htm. pp. 13-14, 17)

Disaster Strikes: The 1915 Storm and Aftermath

During the summer of 1915, changes in the conduct of the Mexican Revolution prompted changes in the Department of War strategy in dealing with the threat to the United States border with Mexico. While not officially made public earlier, there were plans to relocate the Second Division from Texas City to other locations within closer response distance to the Mexican border. Before the movement plans were formally announced and fully executed, a natural disaster struck.

In early August 1915, a storm developed in the open Atlantic Ocean. It soon entered the Gulf of Mexico on August 12 as a Category 4 hurricane with sustained winds of 135 miles per hour. The storm hit Galveston at its peak intensity on August 17, 1915, and quickly directed its punishing fury on Texas City and the Camp of the Second Division. It was the first major hurricane to hit Galveston County since the catastrophic hurricane of 1900 that destroyed the city of Galveston and killed thousands of people. (Braate; 2015; http://www.click2houston.com/news/ remembering-galveston-hurricane; pp. 2). As the storm passed over Texas City, it had a devastating effect on the army's tent city not to mention on many substantial civilian structures built in the city. One eye witness account made by a young Texas City boy recalls his experience this way:

We were living in this house by the bay during the 1915 storm. I remember this storm very well because it was a very frightening experience. At first, dad thought we could stay in our house on the bay shore, but as the storm became worse, he decided that we should leave and go to his mother's house which was

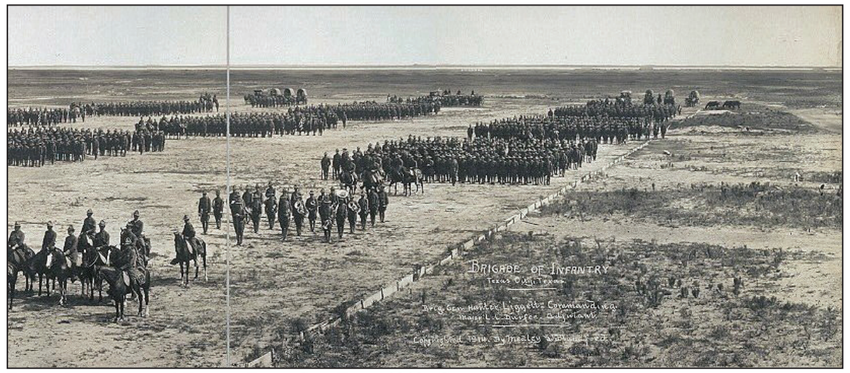


Figure 5a. Regimental Troops, Texas City, Texas 1913. (Source: Library of Congress)

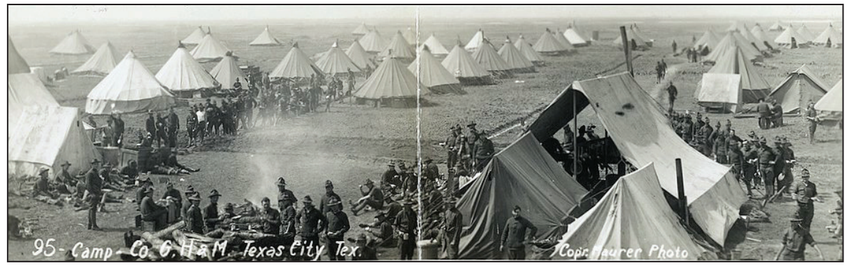


Figure 5b. Troops in Camp, Texas City, Texas 1913. (Source: Library of Congress)

further away from the bay. So in the midst of driving rain, we walked to grandmother's house. The rain was coming down in sheets and the howling wind was blowing so hard that we could barely move. I remember the rain falling with such force that it seemed like ice picks driving into my flesh. After the storm we returned to our house and discovered that our pet rabbits were dead and that our house had about two or three inches of clay inside. The wind had blown so hard that it picked up the waves and forced them against the clay bank, cast the clay and water spray high into the air and carried them hundreds of feet and slung them against our house, causing the clay to seep through the cracks and cover everything inside. The wind had blown our house off the blocks at an angle.

Several soldiers who were stationed in Texas City drowned during the storm. Two ships blown by the strong wind from Galveston were shoved up into Campbell's Lake. To salvage these ships, a crew had to bring in dredges and dig a channel from the bay to the side of each ship and slip the ship into the water and then tow it out. The storm had left litter everywhere. The pasture at the far west end of Texas City was littered with oil tank cars, bales of cotton, and timber that had been blown up by the storm. We were out there with our team and wagon salvaging whatever was still usable when I fell underneath the wagon. The wheel came up to my forehead before my dad was able to stop the team. I was really scared. Also during the storm, part of the old causeway that connected Galveston and the mainland washed out. A temporary wooden bridge was laid parallel to the washed out places and then up to the top of the good roadway to utilize the good portion of the causeway. (Gordy 1986: pp. 4-6).

Fortunately by June 1913, the 1st Aero squadron had already been relocated to California sparing its destruction (Miller 2003: pp. 5). The storm's aftermath was a major part of the regional news. The storm and the planned relocation of the 2nd Division would double the economic impact to the city of Texas City. The events that followed the storm are further attested to in the excerpts of the following abbreviated news accounts:

August 16, 1915, The Galveston News**:**
THE STORM STUCK GAVESTON TODAY
The barometer is at 29 flat and still dropping. Wind 70 miles an hour, variable. The storm is severe….

August 17, 1915, The Houston Post:
HURRICANE HAS STRUCK THE MAINLAND NO COMMUNICATION WITH GALVESTON…
There is every indication that the hurricane of 1915 is following closely the line of that of 1900 with little variation……

August 19,1915, The Galveston News:
THE KNOWN DEAD
Listed the following soldiers of the 2nd Division in Texas City as dead after the storm:
Private John J. Murphy; Lawrence, Mass.
Private Charles E. Miller; Watertown, N.Y.
Private Jos. P. Shankel; Baltimore, Maryland
Private Haiman Samet; Freeport, L.I.
Private Paul A. Seureau; Houston, Texas
Corporal William H. Moore; Greensboro, Ga.
Private Albert Mitchell; Valdosta, Ga.
Private Thomas A. Watson; Carthage, N.C.
Private Henry J. Rivage; Troy, N.Y.
Bader Cook, Quartermaster Corps. (No other information)

Figure 6. Thompson Building after 1915 Storm Damage. (Source: Photo by Maurer)

They were among the eleven people that died due to the collapsing of the roof of the Thompson building (Figure 6).

August 20, 1915. Galveston News, citing:
August 19 Telegram from Washington
The Texas City camp was badly damaged by the storm, high water and wind sweeping down the tents and badly damaging equipment. A general order issued by F Bell yesterday gave unstinted praise to officers, enlisted men and civilian employees of their conduct and prompt discharge of their duty during the storm (Figure 7).

August 23, 1915, The Texas City Times**:**
citing division general orders:
SYMPATHY, AID AND PRAISE FOR SOLDIERS AT TEXAS CITY
General Orders No. 14
Headquarters Second Division, Texas City, Texas August 23, 1915
The following telegrams are published for the information of this command
Major General J. Fanklin Bell, Commanding General Second Division, Texas City, Texas
Washington, D.C., August 19, 1915
The news of loss and suffering imposed on officers and men of the Second Division and their families by the disaster of Galveston and Texas City calls forth the deep sympathy of the department. The department conveys to the command its profound regret for the loss of life already reported and awaits with anxiety full details of developments. All in its power will be done to relieve situation as soon as specific recommendation is received.

August 24, 1915, Galveston Daily News:
SOLDIERS ONCE MORE ARE SAFELY IN CAMP NEW TENTS ARISE ON SITE SWEPT BARE BY GREAT TEXAS COAST STORM
Yesterday a visitor in the camp could have hardly believed his eyes. What was a devastated and wreckage-strewn place a week ago was transformed into modern new and neat appearing military camps. new tents, equipment and clothing..

August 26, 1915, The Houston Post:
TEXAS CITY TROOPS MAY BE MOVED WEST
It was learned here today that all but three regiments of the Second Division of the US Army, whose camp at Texas City was severely damaged by the recent gulf coast storm, will be ordered to Fort Sam Houston. The three regiments not included in this prospective movement will be the 26th Infantry, which was recently ordered to Brownsville; the 27th Infantry, now under orders to go to the Philippines, and an infantry regiment probably the 23rd, which will be ordered to Florida.

August 27, 1915, Secretary of War, Washington, D.C., to the Commanding General, Second Division.
Your report, dated August 23, 1915, just received. Exigencies of the service will control distributions of troops. You and all those under you must realize the sincere sympathy that I feel for the pecuniary and personal losses incident to the flood and also the pride and gratification at the splendid conduct of the entire command. The newspapers here all reflect the fine work done by the division. I have no objection to your letting it be known that the camp will not be re-established at Texas City and that it will not be attempted to establish a large camp at Galveston.

Figure 7. Division Camp Storm Damage. (Source: Library of Congress)

The credit justly due all officers and enlisted men and citizens' employed of this command because of their behavior in the severe and unexpected lest they have just met so admirably, cannot be sustained by any words of praise from the division commander, but, is publishing the above for their letters of gratitude.

August 28, 1915, Galveston Daily News:
WILL MOVE TROOPS FROM TEXAS CITY
Second Division To Be Shifted To New Quarters, It Is Officially Announced.

August 29, 1915, The Houston Post:
TEXAS CITY TROOPS MAY BE MOVED WEST
It was learned here today that all but three regiments of the Second Division of the United States army, whose camp at Texas City was severely damaged by the recent gulf coast storm, will be ordered to Fort Sam Houston. The regiments not included in this prospective movement will be the Twenty-sixth Infantry, now under orders to go to Brownsville; the 27the Infantry now under orders to go to the Philippines, and an Infantry regiment, probably the Twenty-third, which will be ordered to Florida.

September 2, 1915, The Texas City Weekly Times:
THE FOURTH IS HURRIED
Sudden change was made in the plans of the Fourth yesterday. Originally the regiment was to begin loading this morning, but an order from the commanding officer of the Brownsville patrol district. Major General j. Franklin Bell yesterday morning ordering that the unit entrain as soon as possible set the camp in a bustle of activity. Afternoon and late last night the Fourth was getting ready to depart. The trains probably will leave some time this afternoon, via the Santa Fe for Harlingen, where it will report for duty to the commanding officer of the Brownsville patrol district.
Orders have been issued directing that the men and equipment of the field hospital No. 5 at Texas City entrain next Tuesday for Harlingen. The date for the departure of the Sixth Cavalry from Texas City has not been set so far as could be learned yesterday, the time of its going depending. It is said, largely on when the rail equipment is ready.

September 7, 1915, The Texas City Weekly Times:
SIXTH CAVALRY ENTRAINS FOR THE MEXICAN BORDER
The movement of the Sixth Cavalry from Texas City to the border began yesterday afternoon when

the train carrying the forage and heavy baggage belonging to the regiment pulled out.

September 7, 1915, The Texas City Weekly-Times:

HIGH AUTHORITIES PAY TRIBUTE TO THE WORK OF THE ARMY IN TEXAS CITY FOLLOWING THE RECENT TROPICAL STORM.

Texas City appreciates the work of the soldiers in assisting in restoring order after the recent storm. The energy displayed by officers and men, and the willingness to help in returning normal conditions, showed that the men whom the citizenship depend in times of peril will prove as brave as patriotic, as willing, and as satisfying as any as history records. Texas City is loyal to the army, not a man, woman, or child in the city but what will be a champion of the army at any time and under any eventualities.

In a matter of a few short weeks after the storm, the United States Army's Second Division departed Texas City, with no plans to ever return.

Artifact Collection

The Material Evidence

Research has not noted any recorded archeological site survey of the 2nd Division's location in Texas City. Only site recognition by the placement of historical markers has been installed. Markers were placed in 1968 for the location of the 1st Aero Squadron, and in 1994 for the U.S. Army Camp. Since the camp was constructed mostly of tents, there were few hard structures, foundations or sub-surface utility improvements that remained. As with most installations of this type, any remaining foundation piers and other building materials were salvaged to repair and rebuild other structures in the community over time. As would be expected, a majority of the area on which was once the camp has been highly disturbed due to the development of homes, schools, streets, parks and other city improvements over the decades. Only small areas have been developed into parks and sports fields. A significant portion of the camp location was highly disturbed or destroyed due to the construction of the hurricane levy by the U.S. Army Corps of Engineers from 1962 to 1982 (Evens 2008: Chron.com). However, there is a lot of evidence of the camp's existence in the form of small artifacts which were scattered as a result of the 1915 storm and lost due to the final abandonment of the camp.

This collection of artifacts was recovered in soil from construction, demolition, and grading spoils resulting from both public works and private activity. The method used in the recovery of the artifacts was metal detecting by hand held metal detectors and by screen sifting dirt spoils.

Artifact Analysis

Equipment used during the Spanish-American War (1898) and the Philippine-American War (1899-1902) time period was not completely phased out of inventory after the wars and continued in use. During the time period of the Texas City occupation, old equipment was still being used although gradually being replaced with improved newer equipment. In analyzing the artifacts, there is evidence of the evolutionary changes in parts of old and new models of equipment. This was particularly noted regarding accoutrements. The general purpose of some of the basic accoutrement hardware did not change as to purpose, but an improvement or adaptation of some equipment required the redesign of some hardware. Especially of note were the cartridge belt and the canteen. The evolution of arms and materials for the army was continuously being improved, as they are to this day. There was evidence that 1902 equipment was being used the same time as improved 1914 equipment of the same type, and hardware of each type were noted. The same was found true for equipment from the 1907-1909 time period (Cole 2007: pp. 54-70).

For ease of review and description, the artifacts contained in the collection are classified into five group categories according to probable use. However, some artifacts could questionably be assigned to more than one group, thus an arbitrary assignment was made. Table 1 below is an overview of each group indicating the total artifact count of each group category, the percent relative to the total of all artifacts and a corresponding reference to a photo assemblage by Figure number (Appendix 1: Photo Assemblages, Figures 8-17). The following is a brief description of each group represented: (1) PERSONAL; personal effects such as money, jewelry, watches, etc., (2) ACCOUTREMENTS; general military combat and campaign equipment and associated hardware, (3) MUNITIONS; weapon parts, munitions and associated hardware, (4) UNIFORM; buttons, insignia, awards, etc., and (5) GENERAL; miscellaneous artifacts of a general nature. Each artifact in the collection is given a catalogue number according to group category to include quantity, dimensions, weight, and described as to identification and probable use (Appendix 2: Table 2. Artifact Collection). The majority of the artifact's base material consisted of copper alloy such as brass and

TABLE 1 ARTIFACT GROUPS

GROUPS	CAT SYMBOL	QUANITY	%	PHOTO ASSEMBLAGES
PERSONAL	P	72	7	Figures: 8, 9, 10, 11
ACCOUTREMENTS	A	87	9	Figure: 12
MUNITIONS	M	423	43	Figure: 13
UNIFORM	U	213	22	Figure: 14, 15
GENERAL	G	192	19	Figure: 16
TOTAL		987		Figure: 17 BAND Special

bronze (79%), aluminum (9%), lead (5%), and all other (7%).

Summary

The Camp of the 2nd Infantry Division, USA, has been gone from Texas City for more than a century. Gone too are the eye-witness memories of the events of that time. Only a few written records and a few private artifacts attest to the time and stories of the camp. In the preparation of this report, research did not note any archeological investigative report (record) revealing any physical evidence of the camp. The only memorial of the physical location of the camp is a monument erected in 1994. In addition, the Texas City Museum maintains a small military display representing the time of the Second Division's occupation of Texas City as well as documentation in the Moore Memorial Library. The documentation of the artifacts recovered and saved by Mr. Lester Cavender, which are the subject of this collection report, may be the only detailed inventory recorded to date.

References

Aldrich, Captain Nancy Wetz
n.d. The First Aero Squadron – A History; First Aero Squadron Foundation. http://firstaerosquadron.com/articles/the-1st-aero-squadron-a-history/; accessed 10/25/2015.

Benham, Priscilla Myers
n.d. "TEXAS CITY, TX," *Handbook of Texas* Online. http://www.tshaonline.org/handbook/online/articles/hdt03), accessed October 26, 2015. Uploaded on June 15,2010. Published by the Texas State Historical Association.

Braate, Eric
2015 Remembering Galveston Hurricane of 1915 Century Later. http://www.click2houston.com/news/remembering-galveston-hurricane Accessed 11/4/2015.

Brown, Renee
1986 Border Patrol, 1913. The Galveston Daily News.

Cole, David
2007 Survey of U.S. Army Uniforms, Weapons, and Accoutrements, pp. 54-70. Basic Curatorial Methods Training Course. U.S. Army Medical Museum, Fort Sam Houston, Texas.

Editor
1986 Looking Back On History. The Texas City Sun, pp. 4D-7D.

Editor
1915 High Authorities Pay Tribute to The Work of the Army in Texas City Following the Recent Tropical Storm, The Texas City Times, Vol. III. (Original copy of published article dated September 7, 1915). Texas City Museum. City of Texas City, Texas.

Editor
1915 Hurricane Has Struck the Mainland No Communication With Galveston, The Houston Post, No. 136. (Original copy of published article dated August 17, 1915). Texas City Museum. City of Texas City, Texas.

Editor
1915 Sympathy, Aid and Praise for Soldiers at Texas City, The Texas City Times, Vol. III. (Original copy of published article dated September 7, 1915). Texas City Museum. City of Texas City, Texas.

Editor
1915 Detachment of 26th Infantry Leaves Tuesday, The Texas City Times. (Original copy of published article dated September 4, 1915). Texas City Museum. City of Texas City, Texas.

Editor
1915 Texas City Troops May Be Moved West. The Houston Post. (Original copy of published article dated August 26, 1915). Texas City Museum. City of Texas City, Texas.

Editor
1915 Loss of Life Due To Storm Identified, Galveston Daily News, September 7, 1915; (Original copy of published article dated September 7, 1915). Texas City Museum. City of Texas City, Texas.

Evens, Thayer
2008 Levee System Kept Texas City From Flooding; Chronicle Correspondent: Houston Chronicle; 11/6/1008; Chron.com. Accessed 1/22/20.

Gordy, Charles M.
1986 Dawn To Dusk, pp. 4-6. Bazzoon, Taylor & Moncla, Moore Memorial Library.

Maurer, J.M.
1913 Camp of Fourth and Sixth Brigades, Second Division United States Troops at Texas City, Texas 1913 Photo Images. Library Of Congress; https://www.loc.gov/pictures/pan.6a30260/. Accessed 2/26/2020.

Miller, Roger G.
2003 A Preliminary to War; The 1st Aero Squadron and the Mexican Punitive Expedition of 1916. Air Force and Museums Program, Washington, D.C., pp. 8-10.

Overfelt, Robert C.
n.d. "MEXICAN REVOLUTION," *Handbok of Texas Online,* http://www.tshaonline.org/handbook/online/articles/pqmhe*), accessed October 26,2025. Uploaded on June 15, 2010. Published by the Texas State Historical Association.*

Unknown
n.d. 22nd Infantry Regiment on the Mexican Border, 1st Battalion 22nd Infantry 1911-1915. pp. 13, 14, 17. http://1-22infantry.org/history/mexican.htm. Accessed 10/25/2015.

Unknown
n.d. Soldiers Camp, Texas City, After The Storm; The Portal to Texas History.

http://Texashistory.edu/ark:/67531/metapth11529/. Accessed 11/4/2015.

Unknown
n.d. Texas City History Army Camp; http://www.texascity-library.org/history/development/army_camp.php, pp. 1-10, http://www.texascity-library.org/history/development/aero_squadron.php, pp. 1-5. Accessed 10/2015.

Unknown
n.d. After The Storm, Texas City; The Portal Of Texas History, pgs. 2-3.

https://texashistory.unt.edu/ark./67531/metapth11543/m1/1/?q=us army in texas city. Accessed 1/26/2020.

Unknown
n.d. Great Seal Uniform Buttons of The United States; Inkspot Antiques; pp. 1-5; https://inkspotantantiques.com/index.php?main_page=page&id=10, Accessed 2/6/20.

Unknown
n.d. Civil War Relics; http://nccivilwarrelics.com/cgl-bin/display_item.asp?3207; accessed 3/7/20.

Unknown
n.d. 1st Aero Squadron In Pursuit of Pancho Villa; History Net; pp. 1-22. http://www.historynet.com/1st-aero-squadron-in-persuit-of-pancho-villa. Accessed 10/25/2015.

Unknown
n.d. Headstamp Identification-Center Fire Cartridges; Uscenter; pp. 9. http://members.shaw.ca/estein0/uscenter.htm. Assessed 12/2/2004.

Warne, Gary C.
2012 The First Aero Squadron-Inauguration of the U.S. Air Force; Warenspieces; pp. 1-4.https://warnepieces.blogspot.com/2012/05/first-aero-squadron-inauguration, Accessed 11/3/2015.

Wikipedia
n.d. William Harding Carter; Wikipedia. https://en.wikipedia.org/wiki/William_Harding_Carter_See_also Accessed 10/26/2015.

Wikipedia
n.d. History of the United States Army; https://en.wikipedia.org/wiki/History_of_the_United_States_Army#20), Accessed 1/26/2020.

Other Sources Used

Crouch, Howard R.
1993 Civil War Artifacts, pp. 133. SCS Publications, P.O. Box 3832, Fairfax, Virginia.

Edwards, Douglas E.
1998 1st Aero Squadron in Texas City, Texas. Journal of the League of World War I Aviation Historians. pp. 13,116-134.

Emerson, William K.
n.d. *Encyclopedia of United States Army Insignia And Uniforms*; *Chapter 6. Early – 20th Century 1902-1926*. University of Oklahoma Press, Norman and London.

Hennesy, Juliette A.
1985 United States Army Air Arm April 1861 April 1917. Office of Air Force History, United States Air Force, Washington D.C., pp. 74-79.

Johnson, David F.
1948 *Uniform Buttons, American Armed Forces 1784-1948, Vol. I*., pp. 210-218. Century House, Watkins Glen, N.Y.

Lord, Francis A.
1995 *Civil War Collector's Encyclopedia, Volume III*; pg. 187; Volume IV; pg. 27; Volume II; pp. 195: Blue & Gray Press, 114 Northfield Avenue, Edison, New Jersey.

Mathews, Matt M.
2007 *The US Army on the Mexican Border: A Historical Perspective,* pp. 61-67. Combat Studies Institute Press; Fort Leavenworth, Kansas.

Moncla, Susie and Ponce, Jesse
1993 *History of the Army Camp & The 1st Aero Squadron at Texas City, Texas. Texas City, Texas.* Moore Memorial Library.

Strauss, E.
1964 *Complete Guide of United States Coins 1973-1964*, edited by Anthony Mazzuccu, pp. 14-20; 25-26; 39-40; 49. E. Strauss Publications Inc., New York, N. Y.

Unknown
n.d. Remembering Galveston Hurricane of 1915 century later. http://www.clck2houston.com/news/remembering-galveston-hurricane; Accessed 11/4/2015.

Wikipedia
n.d. Distinctive Unit Insignia. https://en.wikipedia.org/wiki/Distinctive_unit_insignia#History; Accessed 11/6/2016.

Wikipedia
n.d. Infantry Branch (United States); https://en.wikipedia.org/Infantry_Branch_(United_Stateed s); Accessed 1/26/2020.

Wikipedia
n.d. Divisions of the United States Army. https://en.wikipedia.org/wiki/Divisions_of_the_United_States_Army. Accessed 10/26/15.

Appendix 1: Artifact Assemblage Photos

Figure 8. Personal Items 1.

1. Bar soap container lid; Factory inscribed "Toilet Soap",
2. Container top and cap; sprinkle holes and pour slot in cap which suggests foot powder content.
3. Razor blade safe cap; inscribed "Gillete Blades".
4. Medicine bottle, aide embossed "B.W.&Co, (Borrough Welcome) and "Tabloid" 1911.
5. Aluminum pocket comb.

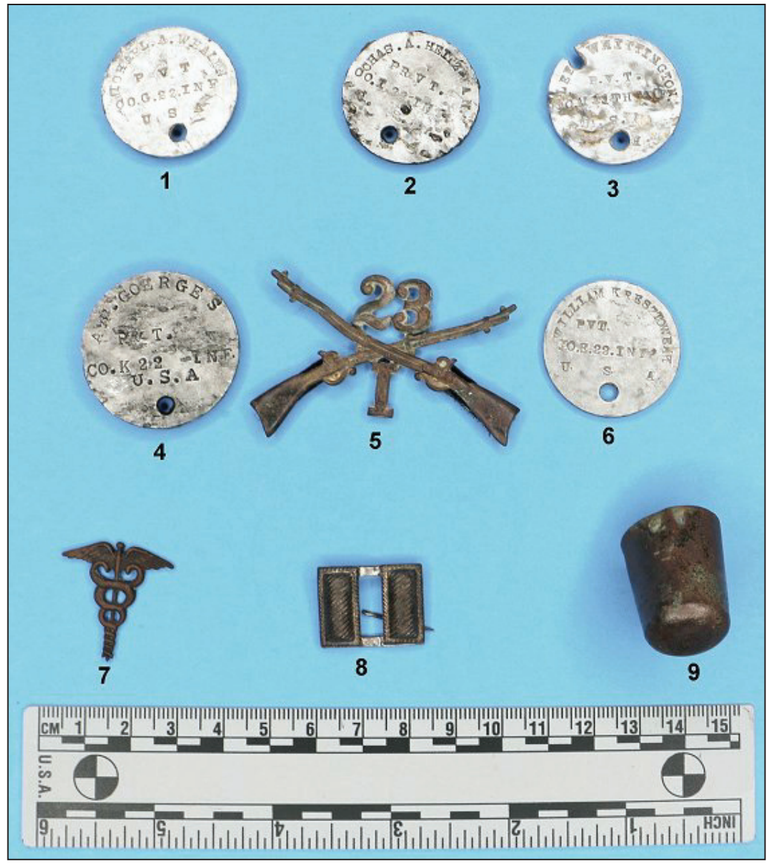


Figure 9. Personal Items 2.

1. ID tag, Michael A. Whalen, Pvt, Co G 22nd Inf, USA.
2. ID tag; Chas. A. Heitzman, Pvt, Co I 22nd Inf, USA.
3. ID tag; Lee Whittington,Pvt, Co M 22nd Inf, USA.
4. ID tag, Art Goerges, Pvt, Co K 22nd Inf. USA.
5. Branch insignia; Infantry, officer, Co I 23rd Infantry, hat or collar, pattern 1910.
6. ID tag; William Kresztoweak, Pvt, Co F 22nd Inf. USA.
7. Branch insignia, officer,collar, medical corps.
8. Rank insignia, collar, captain bars.
9. Swagger stick tip; authorized (but optional) for all levels of commanders. A historical symbol of authority said to have evolved from the hand switch used by riders to command and control their horses.

Figure 10. Personal Items 3.

1. Token; 50 cents, Co. L 23rd Inf.
2. Token; 25 cents, Co. L 23rd Inf.
3. Token; 10 cents, "Good Deeds Not Words".
4. Token, "Good For Trade", Co. I 28th Inf, Texas City.
5. Token, Scalloped, 10, Co. F 23rd Inf.
6. Token, local, "1 2 5 2", "Alamo Pool Room".
7. Token, 5 cents Co. L 23rd Inf.8. Token, local, "1 2 5 2", "Alamo Pool Room"
8. Regimental token; 5 cents Co L, 23rd Inf.
9. Coin; Silver quarter, Barber 1909.
10. Coin; Silver dime, Barber 1903 O mint.Coin; Nickel, V, 1911.
11. Coin, Nickle V, 1911.
12. Coin; Copper, Indian Head Cent 1891.
13. Coin; Copper, Lincoln Wreath cent 1911.

Figure 11. Personal Items 4.

1. Pocket Watch.
2. Pocket knife; horn handle, 2 blades, German silver saddles and stretched oval shield
3. Heart keepsake; engraved "I Love You" all over in many languages.
4. Religious medal; embossed "Blessed Virgin Mary" and reverse "Heart Of Jesus.
5. Luggage tag; inscribed "Daisy Clifton; 513 St. Michaels, Mobile, ALA.
6. Buckle, belt, brass.
7. Watch fob; Embossed picture of battle ship Texas together with details:
"Built by Newport News Shipbuilding Co.; Keel Laid 1911, Commissioned March 12, 1914; Displacement 27,000 tons Coal capacity 2850 tons; H.P.28,100; Speed 22 knots; Draft 18'6": Length 565'; Width 95' 2"; 91 Guns; Compliment 1074 men; Cost exclusive of guns and equipment $5,830,000.00. Launched May 1912".

Figure 12. Accoutrement Items.

1. Canteen cup folding handle, M1913-1914.
2. Mess kit spoon remnant.
3. Sling hook for the M1909 Canteen.
4. Canteen cap, M1913-1914.Mess Kit spoon.
5. Hooking hardware for attaching M1914 Canteen cover to cartridge belt.
6. Snap, Great Seal, M1909 canteen cover and ammo pouches.
7. Lift –a-dot snap, M1914 canteen cover and ammo pouches.

Figure 13. Munitions.

1. Stripper Clip.
2. Lid fastener hardware for ammunition box.
3. Sling swivel.
4. Cleaning rod fitting.
5. Fully loaded stripper clip with five unfired 30-06 Cartridges for a 1903 Springfield rifle; headstamp FA (Frankford Arsenal) date 6 09 (June 1909). Frankford in business from 1864 to present.
6. Unfired .45-70 cartridge; head stamp F (Frankford) 9 87 (Sep 1887). 2.1" case most likely for a 1884 Springfield.
7. 45 cal ACP for Colt Model 1911automatic pistol; headstamp FA (Frankford Arsenal) 12 9 (Dec 1909).
8. 45 cal. cartridge for Model 1909 Revolver.
9. 38 cal. cartridge for Model 1901 Revolver; headstamp FA (Frankford Arsenal) 11 09 (Nov 1909.
10. 32 cal. cartridge; headstamp W.R.A.Co. (Winchester Repeating Arms Co. 1866-1932).

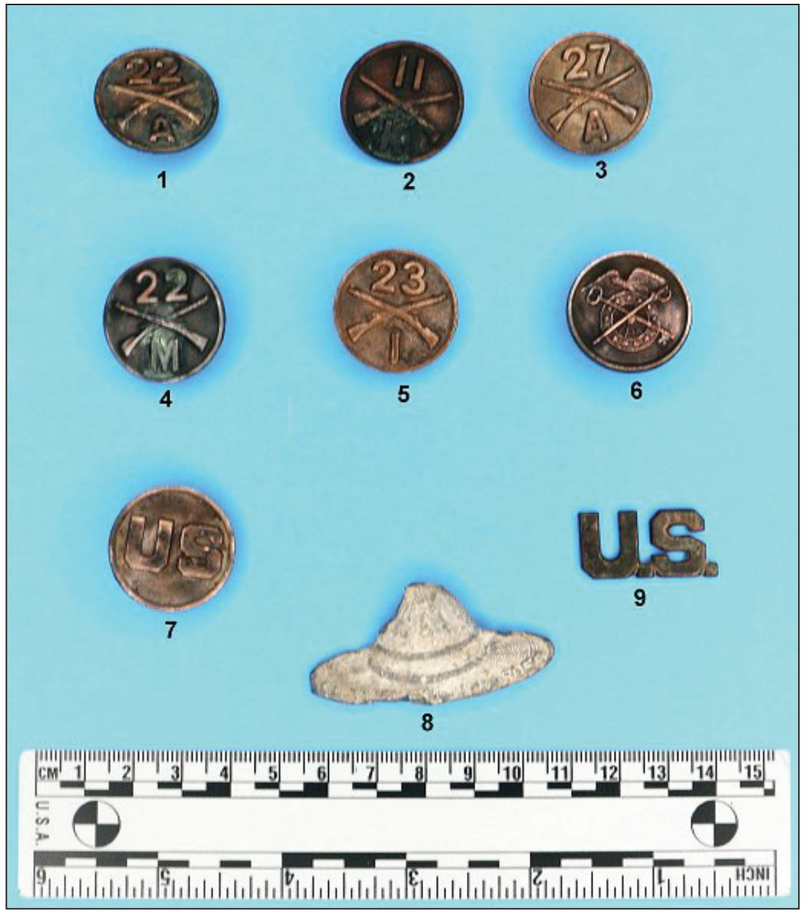


Figure 14. Accoutrements – Uniform Items.

1. Collar insignia, enlisted; Company A, 22nd Infantry Regiment.
2. Collar insignia, enlisted; Company K, 11th Infantry Regiment.
3. Collar insignia, enlisted; Company A, 27th Infantry Regiment.
4. Collar insignia, enlisted; Company M, 22nd Infantry Regiment.
5. Collar insignia, enlisted; Company I, 23rd Infantry Regiment.
6. Collar insignia, enlisted; Quartermaster branch.
7. Collar insignia, all enlisted; U S; regulation pattern1910
8. Awarded decoration medal; A sombrero inscribed around front bottom rim "On The Mexican Border"; Back: "U S Army Texas 1914".
9. Collar insignia, all officers, U S; regulation pattern 1910. Branch collar insignia pattern regulation 1908

Figure 15. Accoutrements – Uniform Items 2, Buttons.

1. Button; Great Seal pattern 1902, trench coat.
2. Button; Great Seal pattern 1902, service coat breast.
3. Button; Great Seal pattern 1902 service coat pocket.
4. Button (back side); Great Seal with threaded stud, fastens chin strap to hat band.
5. Button; embossed "U S M A" (United States Military Academy), trouser button. Late 1800s to 1900s.
6. Button; embossed "NT Hashim & Co", a supplier to the United States from Manila, Philippines, trouser button possibly from a soldier that served during the Philippine-American War.
7. Button; embossed "U S ARMY, trouser button.
8. Button, plain brass two hole sew through, shirt, possibly civilian.

Figure 16. General Items.

1. Tent rope guy-line adjuster. This pattern dates back to Civil War period.
2. Padlock key
3. Small brass round knob; type used as a small instrument drawer of a medical or dentist cabinet.
4. Buckle shield. These date back to the mid-1800s to present day.
5. Padlock; missing shackle; made by Corbin; on back stamped "Fort Slocum, New York, Firing Range".
6. Rosette, Bridle; U S in block lettering, 1.5 inch brass lead filled with attaching wire; type dates to mid-1800s and is of the type used on driving horse blinder bridles common to the artillery.
7. Rosette, bridle, rare U S brass in early 1800s German font. Style possibly Mexican War period. May be an officers personal equipment as they were no longer an issued item.

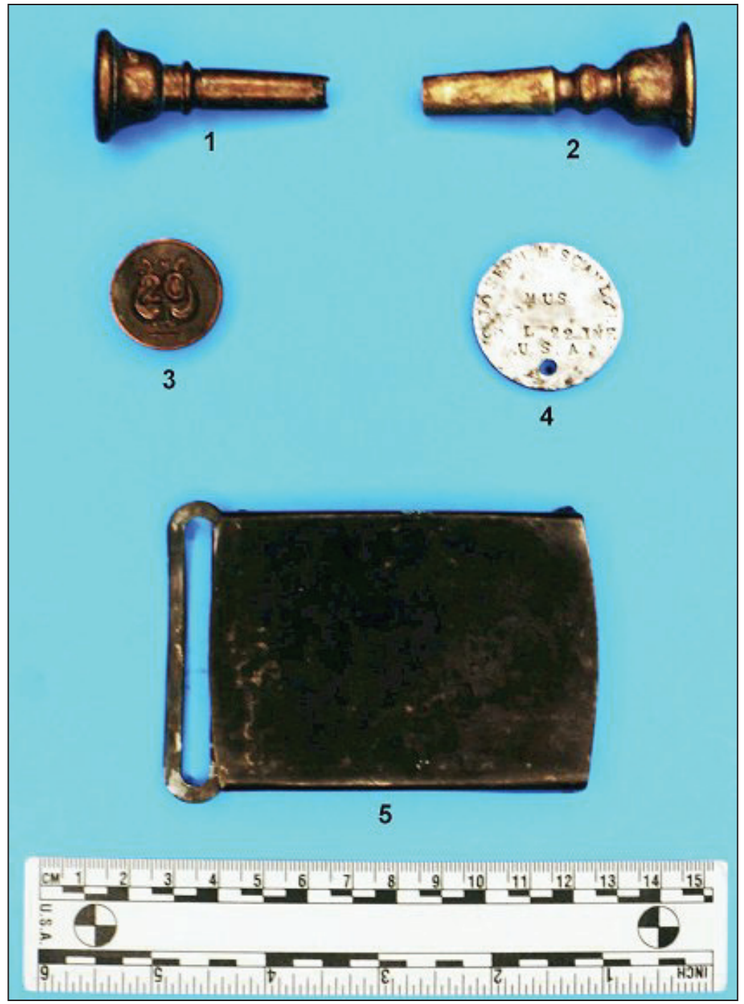


Figure 17. Band (Special) keeper of cadence and booster of morale.

1. Coronet mouth piece.
2. Bugle mouth piece.
3. Enlisted collar insignia, 20th Regimental Band of the 4th Brigade.
4 Identification tag, Musician Joseph M. Scanlon, Company L, 22nd Infantry, U.S.A.
5. Buckle, dress parade.

Appendix 2: Table 2, Artifact Collection

TABLE 2 **ARTIFACT COLLECTION** Page 1 of 7

P PERSONAL GROUP / ARTIFACTS	CAT #	QUANTITY	cm DIMENSIONS	gr WEIGHT	MAT	COMMENT / DETAILS
Pocket Knife	P-1	1	8x1	35	Co	stag horn handle, broken blade, oval shield
Religeous medal	P-2	1	2.5 x1.7	<1	Al	blessed virgin Mary; heart of Jesus
Pocket watch	C	1	4 dia	20	Co	with winding stem
Pocket watch	P-4	1	5 dia	60	Co	base plus 2 pieces; no stem
Pocket watch	P-5	1	4.8 dia	36	Co	base plus 2 pieces; no stem
Watch fob	P-6	1	4.4 x 4.6	13	Br	1911 Battleship Texas
Luggage tag	P-7	1	4.6 x 2.3	5	Br	Daisy Clifton; 513 St. Michaels; Mobile, ALA
Container lid	P-8	1	2.7 x 1.3	3	Br	Marked "Gellette Blades"
Belt buckle	P-9	1	3.5 x 2	5	Br	End bar with tang
Buckles	P-10	2	3 x 2.5	2	Br	Suspenders; W.H.H. Co.
Winding Stem	P-11	1	1.6 x 1 dia	5	Br	Watch part
Charm	P-12	1	3 x 2.3	<1	Al	Partial keychain charm
Lid	P-13	1	9 x 6.5	26	Br	Toiletry soap case, plain
Lid	P-14	1	9.3 x 7	31	Br	Toiletry soap case, Engraved "hand soap"
Label tag	P-15	1	1.3 x 2	<1	Br	Partial; "Bru----"
Comb	P-16	1	12 x 2	6	Al	Pocket, with teeth
Comb	P-17	1	13 x1.5	3	Al	Pocket, no teeth
COINS	P-18 to 27					
Penny, indian head	P-18	8	------	------	Cp	1891,1893,1898,1901 (4), 1902
Penny, Lincoln wreath	P-19	2	------	------	Cp	1911 (2)
Nickle	P-20	1	------	------	Ot	Liberty head 1898
Nickle	P-21	1	------	------	Ot	V Nickle 1911
Dime	P-22	1	-----	------	Sv	Barber 1898
Dime	P-23	1	------	------	Sv	Barber 1905
One Cent	P-24	6	------	------	Cp	Unidentified pennies
Dime	P-25	1	-----	------	Sv	Barber O Mint, 1903
Dime	P-26	1	------	------	Sv	Barber 1902
Quarter	P-27	1	------	------	Sv	Barber 1909
TOKENS	P-28 to 35					
Token	P-28	1	1.7 dia	<1	Al	Good Times Not Words 10 cents
Token	P-29	1	2 dia	<1	Al	Co I 28 Inf; Texas City, good for ? In trade
Token	P-30	1	2.3 dia	5	Br	L 2 5 2 "Alamo Pool Room"
Token	P-31	1	1.8 dia	<1	Al	;
Token	P-32	6	2.7 dia	12	Al	Front: L 23 rd
Token	P-33	1	2 dia	<1	Al	Front: 10c Back: "Deeds Not Words"
Token	P-34	3	3.5 dia	7	Al	Front: L 50c 23 Back: L
Token (scalloped)	P-35	1	2.3 dia	4	Br	Front: 10 Co F 23rd; Back: blank
ID Tags	P-36	3	3.5 dia	14 ttl	Al	Blank
ID Tags	P-37	2	2.8	8	Al	Unreadable
ID Tag Co F 22nd Inf	P-38	1	2..8	3	Al	William Kresztoweak PVT

LEGEND: Br = Brass or Bronze ; Cp = Copper; Al = Alluminum; Co = Composit; Sv = Silver; Ot = Other

TABLE 2 Page 2 of 7

P PERSONAL GROUP / ARTIFACTS	CAT #	QUANTITY	cm DIMENSIONS	gr WEIGHT	MAT	COMMENT / DETAILS
ID Tag Co. K 22nd Inf	P-39	1	3.8 dia	3	Al	Art Goerges PVT
ID Tag Co.M 11th Inf	P-40	1	3 dia	3	Al	Lee Whittenton PVT U.S.A.
ID Tag Co. G 27th Inf	P-41	1	3.5 dia	4	Al	Miichael A. Whalen PVT U.S.A.
ID Tag Co L 22nd Inf	P-42	1	3 dia	3	Al	Joseph M. Scanlon MUS U.S.A.
ID Tag Co I 23rd Inf	P-43	1	3 dia	3	Al	Chas. M. Heitzman PVT
Jewelry, Pin	P-44	1	3..8 x 3.3	3	Br	Inscribed ?; broken attachment device
" mounted stone	P-45	1	2.3 x 2.2	9	Ot	Turquoise stone Possible necklass drop
" mount	P-46	1	2,2 x 1.2	<1	Ot	missing stone mount
" clamp earring	P-47	1	1.5 x 1.3	3	Ot	design on rim; no stone.
" Heart	P-48	1	4.5 x 4.5	13	Br	inscribed "I Love You" in multiple languages
PERSONAL TOTAL		72				
A ACCOUTREMENTS						
ARTIFACTS						
Buckle, strap adjust	A-1	3	3.5 x 1.8	29 ttl	Br	raised single center bar; slide adjust
Buckle, strap adjust	A-2	1	2.3 x 2.3	6	Br	flat single center bar, slide adjust
Buckle, strap adjust	A-3	9	3.5 x 2	68 ttl	Br	single center bar, slide adjust
Buckle, frame	A-4	1	3.5 x 3.5	13	Br	end tang, belt
Buckle, retangle frame	A-5	1	5.5 x 5	31	Br	end tang missing, belt
D ring, strap	A-6	3	2.5 x 2.5	6 ea	Br	strap and hitching
Buckle, belt	A-7	1	3.8 x 2.5	15	Br	raised center bar with tang
Buckle, belt	A-8	3	2.8 x 2	6 ea	Br	frame; end tang
Buckle, strap adjust	A-9	1	3 x 2.2	4	Br	single raised center bar, slide adjust
Buckle, strap adjust	A-10	1	5.2 x 3.6	49	Br	lingle raised center bar, slide adjust
Buckle slideing bar	A-11	1	2.5 x 2.3	7	Br	strap self locking grip lock. PAT No ?
Strap end tip	A-12	1	2.5 x 1.4	2	Br	tip threading end, stamped July 9,1910
Wire interlock buckle	A-13	1	9.5 x 3.7	27	Br	Left side interlocking cartridge belt buckle
Buckle, strap adjust	A-14	1	4 x 3.3	11	Br	double center bar
strap attaching hook	A-15	2	4..4 x 1	6 ea	Br.	Canteen sling M1910
Buckle, strap belt	A-16	1	3.5 x 2.5	14	Br	center raised bar with tang
Fastener	A-17	2	3 x 2.8	15tl	Br	Galoshes type lever fastener
Buckle, strap grip	A-18	1	3.5 x 2.3	10	Br	fixted bar grip lock
Snap fasteners	A-19	3	2 dia	4 ea	Br	Used on field dressing pouch (first aid kit)
Grommet	A-20	2	1.7 dia	<1	Br	attaching assessories to cartridge belt 1910
Great Seal eagle snap	A-21	1	1.5 dia	7	Br	early cartridge pocket flap snap 1910
Strap hook	A-22	1	4 x 2.3	10	Br	Cartridge belt suspenders
wide strap hook tab	A-23	1	6 x 2	11	Br	adjust cartridge belt size or attach equipt
Buckle, strap	A-24	1	3.5 x 1.5	8	Br	single center bar, slide adjust
ring, strap keeper	A-25	2	4 x 2.3	12 ea	Br	strap or sling

LEGEND: Br = Brass or Bronze ; Cp = Copper; Al = Alluminum; Co = Composit; Sv = Silver; Ot = Other

TABLE 2 **ARTIFACT COLLECTION** Page 3 of 7

GROUP ARTIFACTS	CAT #	QUANTITY	cm DIMENSIONS	gr WEIGHT	MAT	COMMENT / DETAILS
Buckle, strap	A-26	1	3 x 3	12	Br	center bar w/2 rivet hole strap connect tab
fastener, sew on	A-27	1	3 x 1.6	8	Br	2 point sew eyes, w/lever jaw clamp
Canteen cup handle	A-28	1	23 x 2.3	75	Ot	fits M1913 or M1914 canteen and cup set
Canteen cap	A-29	1	3 x 1.6 dia	8	Ot	fits M1913 or M1914 canteen and cup set
Fastener, lift-a-dot	A-30	1	2.7 x 1.3	5	Br	pouch flap fastener for M1914 canteen
Ring, strap	A-31	1	5.8 dia	35	Br	equipt. Strap hitching ring
" "	A-32	1	4 dia	17	Br	" " " "
Grommet	A-33	21	3 dia	79 ttl	Br	tent or tarp hardware
Great Seal snap	A-34	2	1.5 dia	<1 ea	Br	Cartridge pouch flap M1907 belt
D ring with S hook	A-35	2	5 x 1.7	11	Br	equipment hitching hardware
Keeper	A-36	1	1.9 x 2	5	Br	Belt loose-end keeper
Buckle, strap	A-37	4	2.5 x 2	27 ttl	Br	equipment strap buckle
Swivel Buckle, strap	A-38	1	2.5 x 2	8	Br	swivel hitching buckle
grommet eye, small	A-39	1	1 dia	<1	Br	webbing eye, cartridge belt
Grommet	A-40	1	1.7 dia	<1	Br	use on pancho or ground tarp
Spoon bowl	A-41	1	4.4 x 4	12	Ot	Mess kit spoon
Ring. Strap	A-42	1	3 dia	5	Br	Equipt strap hitching ring
ACCOUTREMENTS TOTAL		87				
M MUNITIONS GROUP						
ARTIFACTS						
Stripper clip	M-1	24	6 x 1.5	10 ea	Br	Holds 5 cartridges of 1903 30-06 ammunition
Loaded ammo clip	M-2	1	8.8 x 6	132	Br	Headstamped Frankford Arsonal 09 1909
Cartridge, 30-06	M-3	23	7 x 1.2	53 ea	Br	headstamp: F-A-12-09 (Frankford Arsonal Dec. 1909
45 ACP cartridge	M-4	25	3.3 x 1.3	501 ttl	Br	11.46 mm; for 1911 45 semi-auto pistol
38 Cal cartridge	M-5	6	9.67 mm	72 tt;	Br/Ld	38 revolver cartridge
45-70 unfired cartridge	M-6	1	12.63mm	25	Br/Ld	2.1" case; headstamp F-9-87; pble Springfield 1884
32 Cal cartridge	M-7	9	8.52mm	8ea	Br/Ld	hdstamp W.R.A.C. Winchester Repeating Arms Co.
Rifle sling swivel	M-8	3	3.5 x 2.5	12 ttl	Br	hook missing
45 Cal cartridge	M-9	14	3.6 x 1.2	1 74 ea	Br/Ld	Army issued Colt revolver
Cleaning rod tip	M-10	1	7.1 x 1.5	11	Br	for rifle or pistol
Bullit, 30-06	M-11	168	2.7 x .7	9	Ot	For 1903 Springfield rifle
Hook, sling adjust	M-12	1	4 x 2.8	10	Br	possible rifle sling adjust keeper hook
L bolt, w/wing nut	M-13	26	4.5 x .4 di	7	Br	hdware for ammo box lid clamp-down
Wing nuts for above	M-14	35	3.3 x 1.6	13 ea	Br	extras for lid clamp-down hardware
Shot shell, fired	M-15	1	2 dia	5	Br	UMC Co No 12 smokeless; 1892-1902
" "	M-16	1	1.8 dia	3	Br	Peters Made In USA 20ga; HV 1910-1927

LEGEND: Br = Brass or Bronze ; Cp = Copper; Al = Alluminum; Co = Composit; Sv = Silver; Ot = Other

TABLE 2 **ARTIFACT COLLECTION** Page 4 of 7

M MUNITIONS GROUP ARTIFACTS	CAT #	QUANTITY	cm DIMENSIONS	gr WEIGHT	MAT	COMMENT / DETAILS
Shot Shell, fired	M-17	1	2 dia	3	Br	Remington Express 16 Ga 1895-1911
" " "	M-18	1	2.3 dia	3	Br	Winchester NUBLACK No 10; 1905-1938
case, ?	M-19	2	3.7 x 1.5	22	Bt	Rim fire; Hdstamp U (Remington) 1885-present
cases, 30-06 frags	M-20	21	various	187	Br	fragmented cases
45 cal ACP bullits	M-21	47	1.5	685	Ld Cp	For 1911 semi-automatic Colt pistol
45 Cal Bullit	M-22	1	1.5	8	Ld	Revolver bullit
45 Cal Bullit fi	M-23	4	3	28	Ld	Possibly 45-70 11.42 mm dia : fired
Lead	M-24	2	mis-shaped	12	Ld	fragments of unknown caliber
MUNITIONS TOTAL		423				
U UNIFORM GROUP						
ARTIFACTS						
Snap	U-1	1	5 x 3.4	14	Ot	Frt: On The Mexican Border; Bak: US Army Texas 1914
Button, trouser	U-2	1	1,6 dia	<1	Br	NT Hashim & Co; supplier; Manila, Phillipines
Snap	U-3	1	1.6 dia	<1	Br	Atlas; Chicago, ILL
Button, trouser	U-4	4	1.7 dia	4	Br	Marked U S Army; 4 hole sew-through; trousers
Insignia, Officer	U-5	1	6 x 3	9	Br	Co. I 23rd Inf., Crossed Rifles collar device
Insignia, Officer	U-6	1	2.2 x 1.5	3	sv	Captain rank bars, w/broken pin
Insignia, Officer	U-7	2	2.3 x 1.5	8 ttl	Br	Collar, U S (one with pin attached)
Insignia, Officer	U-8	1	2.5 x 2.5	<1	Br	Medical Branch
Button, stud type	U-9	1	1.5 dia	<1	Br	Unmarked; possible fatigue uniform
Button	U-10	1	1.5 dia	<1	Br	plain unmarked; 4 hole sew-through
Button	U-11	1	1.5 dia	<1	Br	U S M A (U S Military Academy); half moon sew-thru
Button, Great Seal	U-12	1	2.8 dia	9	Br	C. Kenyon Co.; soldered shank; for trench coat
Insignia, Branch	U-13	1	2.5 dia	7	Br	Enlisted, Co. K 11th Inf.; missing screw nut
Insignia, Branch	U-14	1	2.5 dia	13	Br	Enlisted, 20th Band with screw nut
Insignia, Branch	U-15	1	2.5 dia	11	Br	Enlisted, Co M 22nd Inf w/screw nut
Insignia, Branch	U-16	1	2.5 dia	11	Br	Enlisted, Co A 27th Inf w/screw nut
Insignia, U S Army	U-17	9	2.5 dia	11 ea	Br	Enlisted U S
Ensignia, Branch	U-18	1	2.5 dia	11	Br	Enlisted, Quartermaster Branch
Button, screw stud	U-19	2	1.5 dia	<1 ea	Br	Great Seal screw button for hat chin strap
Button, eagle snap	U-20	1	1.5 dia	3	Br	Great Seal 1907-1910 ammo pouch snap
Button	U-21	1	1.5 dia	<1	Br	Great Seal clamp back
Button	U-22	1	1.5 dia	<1	Br	Great Seal knob back
Button	U-23	1	1.3 dia	<1	Br	Plain two hole sew-thru, no marks, shirt
Button, Great Seal	U-24	2	4.5 x 3	23	Br / C	pocket buttons in melted glass
Insignia, Branch	U-25	1	1.5 dia	11	Br	Enlisted, Co I 23rd Inf w/screw nut
Insignia, Branch	U-26	1	1.5 dia	7	Br	Enlisted, Co A 22nd Inf; No screw nut
Buckle	U-27	1	8.8 x 6,5	68	Br	Band musician, Parade Dress, no marks
Swagger tip	U-28	1	4.5 x 1.3	8	Br	Officer; symbol of command authority

LEGEND: Br = Brass or Bronze ; Cp = Copper; Al = Alluminum; Co = Composit; Sv = Silver; Ot = Other

TABLE 2		ARTIFACT COLLECTION				Page 5 of 7
U UNIFORM GROUP ARTIFACTS	CAT #	QUANTITY	cm DIMENSIONS	gr WEIGHT	MAT	COMMENT / DETAILS
Button, Great Seal	U-29	1	1.5 dia	<1	Br	Mkr; Horstman, pocket
" " "	U-30	11	2.5 dia	5 ea	Br	Mkr; Scoville, service coat, breast
" " "	U-31	3	1.5 dia	<1 ea	Br	Mkr; Scoville, service coat, pocket
" " "	U-32	3	1.5 dia	<1 ea	Br	Mkr; J.R. Gaunt & Son, New York; pocket
" " "	U-33	1	2.5 dia	5	Br	Mkr same as above, service coat, breast
" " "	U-34	6	2.5 dia	30 ttl	Br	Mkr; Eisner; service coat, breast
" " "	U-35	2	1.5 dia	<1 ea	Br	Mkr; Eisner, service coat, pocket
" " "	U-36	3	1.5 dia	<1ea	Br	Mkr; Kenyon; service coat, pocket
" " "	U-37	7	2.5 dia	35 ttl	Br	Mkr; Kenyon; service coat, breast
" " "	U-38	3	3 dia	27 ttl	Br	Mkr; Kenyon, trench coat
" " "	U-39	2	1.5 dia	<1 ea	Br	Mkr; Badger, service coat, pocket
" " "	U-40	9	2.5 dia	45 ttl	Br	Mkr; Badger, service coat, breast
" " "	U-41	2	2.5 dia	10 ttl	Br	Mkr; U S Army Standard;; service coate, breast
" " "	U-42	2	2.5dia	10 ttl	Br	Mkr; Adolf Richter & Co; service coat, breast
" " "	U-43	33	2.5 dia	155 ttl	Br	Mkr; Horstman; service coat, breast
" " "	U-44	66	1.5 dia	64 ttl	Br	.Mkr; Horstman; service coat, pocket
" " "	U-45	2	3 dia	18 ttl	Br	Mkr Unknown; no backs, trench coat
" " ""	U-46	5	2.5 dia	25 ttl	Br	Mkr Unknown; no backs, service coat, breast
UNIFORM TOTAL		213				
G GENERAI GROUP ARTIFACTS						
Bar stock	G-1	1	5 x 2 x 1	77	Ld	General purpose lead bar
Bar stock	G-2	1	4x1.5x1.3	51	Ld	General purpose lead bar
Medallion	G-3	1	3 dia	28	Cp	Rosette, U S, lead back
"	G-4	1	3.5 dia	23	Br	U S lead back, possible horse related décor
"	G-5	1	4 dia	54	Br	" " " " " " "
Cover	G-6	1	6.6 x 5.5	32	Br	Heart design buckle cover horse related
Guy line hardware	G-7	1	10 x 1.5	49	Br	Tent line adjusting hardware
" " "	G-8	82	7.5 x 1.5	20 ea	Br	" " " "
Stud fastener	G-9	8	1.5 dia	14 ea	Br	Misc. snap or stud fastners
Weight	G-10	1	3 dia	7	Ld	Lead fabric hem weight
Pin	G-11	1	6.7 x .4	15	Cp	Hitch pin with washer and hammered head
Lock, Pad	G-12	1	3.5 x 3	97	Br	Mkr, Corbin; inscribed Post Gunrange, Ft Slocum, N.Y.
Lock, Pad	G-13	1	4.5 x 3.5	49	Br	Mkr, Corbin; w/cut shackle
Key	G-14	1	3.3 x 2.2	5	Br	Pad Lock key; clover shape turn w/3 holes; pin tumblr
Key	G-15	1	3.5 x 1.8	4	Br	Pad Lock key; round shape turn; pin tumblr
Lock, Pad	G-16	1	4.4 x 2.5	48	Br	Mkr, Corbin, pin tumbler type w/shackle
Screw cap	G-17	3	1.8 dia	25	Br	tube caps with knurlings

LEGEND: Br = Brass or Bronze ; Cp = Copper; Al = Alluminum; Co = Composit; Sv = Silver; Ot = Other

TABLE 2		ARTIFACT COLLECTION				Page 6 of 7
G GENERAL GROUP / ARTIFACT	CAT #	QUANTITY	cm DIMENSIONS	gr WEIGHT	MAT	COMMENT / DETAILS
Ring	G-18	1	1.5 dia	5	Br	Threaded screw ring with knurlings
cap, threded	G-19	1	1.3 dia	<1	Br	Small screw-on cap with knurlings
Knob	G-20	1	1.5 dia	9	Br	small drawer pull knob with threaded bolt
Mouth piece	G-21	1	5.5 x 2.5 dia	38	Br	Band instrument, probably coronet
Bottle, Medicine	G-22	1	5 x 3.5	32	Gl	Emb. B.W.&Co. (Burroughs Welcome) 1911
Grommet	G-23	33	2.5 dia	4 ea	Br	Tarp or tent size
Grommet	G-24	5	1.8 dia	6 ttl	Br	Pancho or ground tarp size
Rivet	G-25	1	.5 dia	<1	Br	fastener
Rivet	G-26	1	.8 dia	<1	Br	fastener
Seal	G-27	1	2.3 dia	30	Ld	Lead security seal
Seal	G-28	1	1.5 dia	5	Ld	" " "
Seal	G-29	1	1.8 dia	10	Ld	" " "
Bottle, Medicine	G-30	1	6.8x2x2	28	Gl	Medicine, bottom mark unreadable
Clock	G-31	1	8.5 dia	112	Br	Alarm
Pin wheel	G-32	1	2.3 dia	<1	Br	Band instrument, probably coronet
Washer	G-33	6	4 x 1.3	72 ttl	Br	2 hole (one slotted) oval for wire tie-down
Tip	G-34	1	2.5 x 1.5 dia	8	Br	Rounded end tip
Tip	G-35	1	3 x 1 dia	<1	Br	Briefing pointer tip w/wood remnants inside
Wheel	G-36	1	4.5 dia	45	Br	No axle or shaft hole. Unknown purpose
Cotter key	G-37	1	4 x .8	5	Br	For securing parts
Clamp splicer	G-38	1	2.3 x 1.3 dia	5	Br	Hose Clamp
Gear	G-39	1	4 x 1.7 dia	29	Br	Gear w/shaft
Crank	G-40	1	4.3 x 4	23	Br	Part of fishing reel
Gear	G-41	1	8 dia	54	Br	Fine tooth, spoked. Possible off precision instrument
Washer	G-42	1	1.5 dia	<1	Br	Standard bolt washer
Washer	G-43	1	2 dia	1	Br	" " "
Washer	G-44	1	1 dia	<1	Br	" " "
Orniment	G-45	1	1.5 x 1.5	<1	Br	Ornimental piece
Spoon	G-46	1	5 x 3	24	Br	plated, coffee, no readable maker
Handle	G-47	1	12.3 x 2	33	Br	dinnerware, table knife, broken blade
Shaker	G-48	1	6.5x 4.5	48	Al	Salt shaker, broken in tw le
Plug	G-49	1	4 x 1.5 dia	8	Br	Threaded hex=head tube plug
Pull	G-50	1	2.5 x 2 dia	19	Br	Small drawer pull
Hitch pin	G-51	1	2.8 x .3	3	Br	Round head; bent
Can sholder and cap	G-52	1	6 x 1	17	Cp	Cap w/small sprinkle holes & slot; possible ft powder
Finial	G-53	1	1.7 x 1.3 dia	10	Br	Unknown part
Hinge	G-54	1	5 x 2.5	9	Cp	light weight, random holes; for small lid
Hook, strap	G-55	1	3.5 x 3	7	Br	Strap mounting hook
Weight	G-56	1	1.5 dia	20	Ld	Round w/hole; casting net weight
Finial, cone shaped	G-57	1	2.5 x 1.3 dia	12	Br	small hole in stemmed end. Unknown part

LEGEND: Br = Brass or Bronze ; Cp = Copper; Al = Alluminum; Co = Composit; Sv = Silver; Ot = Other

TABLE 2		ARTIFACT COLLECTION				Page 7 of 7
G GENERAL GROUP / ARTIFACT	CAT #	QUANTITY	cm DIMENSIONS	gr WEIGHT	MAT	COMMENT / DETAILS
Weight	G-58	1	2 dia	28	Ld	Round fishing weight with shank
Hex part	G-59	1	1.3 x 1.3	12	Br	Unknown instrument part
Screw	G-60	1	5 x 1.5 dia	5	Br	Sloted head machine screw
Mouth piece	G-61	1	6.5 z 3.5	53	Br	Bugle
GENERAL TOTAL		192				
COLLECTION TOTAL		987				
LEGEND: Br = Brass or Bronze ; Cp = Copper; Al = Alluminum; Co = Composit; Sv = Silver; Ot = Other						

REFLECTIONS ON THE REESE SITE (41WA55) IN WALKER COUNTY, TEXAS

William E. Moore and Timothy K. Perttula

Abstract

This article discusses the history of the lead author's investigations at 41WA55 in Walker County, Texas and documents his personal collection from the site. Over a period of several years, he collected numerous artifacts as surface finds in a plowed field and through subsurface digging as a collector with a strong interest in keeping records and learning about my finds. His investigations are documented in *An Archeological Survey of Walker County, Texas* (Moore 1976). The only part of his collection currently curated at TARL is 121 undecorated body sherds. Photographs of the collection, except for the sherds at TARL, are also on file at TARL in paper and digital format. The Reese site (41WA55) is one of many located along Winters Bayou, a major drainage in the area. It has been physically disturbed through the clearing of woods and years of cultivation. Surface collecting has removed an untold number of artifacts. Yet, it remains a significant source of information regarding the utilization of the area during the Middle and Late Archaic and into the Late Prehistoric period of Southeast Texas prehistory.

Introduction

The Reese site is one of many sites with mixed components dating to the Archaic and Late Prehistoric periods in Walker and adjacent counties. Most of these sites are on private property and not available to professional archaeologists unless covered by state or federal legislation or by permission of the landowner. Disturbance through cultivation is commonplace, and local collectors are responsible for much of the destruction to these ever-dwindling cultural resources. I was originally one of those collectors. Tom Zimmermann introduced me to a site in San Jacinto County that he learned about from a local collector named Max Hill. Mr. Hill owned a small grocery near Old Waverly where his large collection was displayed in many frames and a glass case beneath his cash register. After our visits to sites in the area, we frequently stopped at his store to show him what we had found, have a soda, and listen to his stories of the days when he amassed his collection. One day, we stumbled upon 41WA55. Mr. Hill told us that this site was a popular place for artifact collectors. During World War II, when much of the county was in cultivation, it was well-known by the locals for its reputation for containing numerous "arrowheads." It was so popular that many people would trek to it following a big rain to look for specimens.

Archaeological Regions

The process of preservation planning in Texas began in earnest in 1968 when the Texas Historical Commission began an inventory of known archaeological sites statewide that were referred to as "planning regions." The intended goal was to divide Texas into four major planning regions with each one composed of archaeological sub-regions based on unique environmental and archeological characteristics. This division resulted in the creation of the Plains Planning Region, the Eastern Planning Region, the Trans-Pecos Planning Region, and the Central and Southern Planning Region (Figure 1). These regions were to be discussed in planning documents that could be used to "provide recommendations to federal agencies, to direct the effort to list sites in the National Register of Historic Places, and to preserve significant sites through other mechanisms" (Kenmotsu and Perttula 1993:4-5). The planning documents are based on geographic areas that in most cases correspond to regional archaeological syntheses prepared for the Southwestern Corps of Engineers by Story (1990), Hester et al. (1989), and Simons et al. (1989). Walker County is in the Eastern Planning Region. Kenmotsu and Perttula (1993) authored a comprehensive document entitled *Archeology in the Eastern Planning Region, Texas: A Planning Document* that divides the region into three separate sub-regions – Prairie-Savanna, Northeast Texas, and Southeast Texas (Figure 2**).** The planners realized that these regions were based on data available at the time, and that they may not coincide exactly with cultural and geographical units as identified by some archaeologists and other researchers

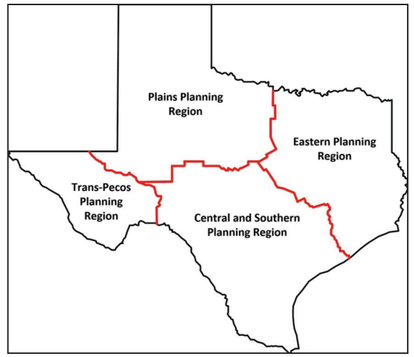


Figure 1. Planning Regions of Texas.

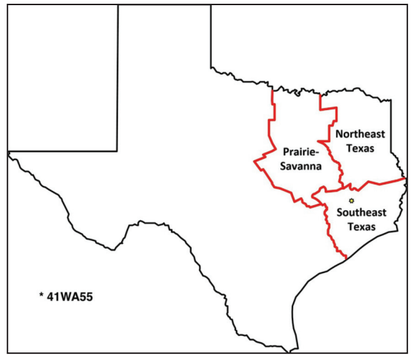


Figure 2. Eastern Planning Region.

(Suhm and Krieger 1954: Figure 1) and Perttula (2004:Table 1.1). Walker County is in the Southeast Texas sub-region and is comprised of 790 square miles of land not submerged by water (Moore 1975:28). It is bounded on the north by Madison, Houston, and Trinity counties; on the south by Montgomery County; on the east by San Jacinto County; and on the west by Grimes County. Within the boundaries of this sub-region are nineteen counties.

Previous Research

When Suhm and Krieger (1954) discussed the various regions of Texas in their critically acclaimed work entitled *An Introductory Handbook of Texas Archeology*, Walker County was part of an area they described as archaeologically "undefined" and contained no recognized culture complexes (Suhm and Krieger 1954:Figure 5). In fact, it was surrounded by the Alto Focus to the north, the Galveston Bay Focus to the south, and the Central Texas Aspect to the west.

In 1965 and 1966, the site of the proposed Lake Livingston was surveyed by the Texas Archeological Salvage Project (TASP) under the supervision of Burney B. McClurkan (1968). The field crew from TASP was assisted by members of the Houston Archeological Society (HAS) who were responsible for the archaeological portion of the proposed lake in Walker County. They located and documented the first seven sites to be recorded in the county (41WA1-41WA7). The benefits of a local archaeological society working with professionals was not overlooked by McClurkan (1968:ii) when he wrote "Members of HAS merit many kind words, not only for their willingness to do and learn, but also for their determination and persistence in the face of inclement weather, hard work, and their already crowded schedules."

In 1974, I was living in Huntsville and attending Sam Houston State University (formerly Sam Houston State Teachers College) working on a certification that would qualify me to be a teacher in secondary schools. I had already made collections from several sites in Walker and adjacent **counties,** but had done so informally. A friend left her 1967 Corvette with me while she travelled throughout the Southwest with friends. I enjoyed driving it throughout the county. Utilizing a 1974 General Highway Map for Walker County, virtually all roads crossing streams and rivers were traversed, and the banks of these drainages examined for archaeological sites. Admittedly, I was a novice attempting to emulate a professional survey. Most sites were recorded based on surface finds and information shared by locals. Shovel testing was rarely conducted and few photographs were taken. Artifacts collected were kept separate by site, assigned a temporary field number, and the locations of the sites were documented in my field notes per the name of the drainage and its relationship to the road. Eventually, these sites were recorded at TARL. My informal survey added 34 sites to the meager data base that existed at the time (Table 1). These included new finds as well as those previously known to me from my collecting days in the 1960s during my first tenure at Sam Houston State Teachers College. My work culminated in a report entitled *An Archeological Survey of Walker County, Texas* (Moore 1976). The first site known to me in Walker County was 41WA55, and this site that is the subject of this article.

Table 1. Sites Recorded During Archaeological Survey of Walker County.

41WA53	41WA66	41WA78
41WA55	41WA67	41WA79
41WA56	41WA68	41WA80
41WA57	41WA69	41WA83
41WA58	41WA70	41WA84
41WA59	41WA71	41WA85
41WA60	41WA72	41WA86
41WA61	41WA73	41WA87
41WA62	41WA74	41WA88
41WA63	41WA75	41WA89
41WA64	41WA76	

The Site

Reese is the surname of the former landowner who graciously allowed members of the community and others to visit it. The property has changed hands, and the current owner may or may not be agreeable to allowing others on the property. **The Reese site** is located on the southern bank of Winters Bayou, a major drainage in the area. Most of the site is in Walker County, while a lesser portion is just across the county line in San Jacinto County. The topographic setting is a sandy knoll that rises above the surrounding floodplain. The site boundaries are Winters Bayou to the north, the floodplain of the bayou to the south and east, and a tributary of the bayou to the west. An artificial pond or stock tank named Pursley Lake is a short distance to the southwest. The area between the site and the pond was forested at the time of my visits.

Based on the plotting on the 7.5' Maynard topographic quadrangle, this site appears to cover an area of about 3.5 acres. However, I believe that is an exaggerated number. At the time of my visits to this site, I never determined the depth of the sandy mantle that overlies the basal clay. The soil survey for Walker County describes the soil at the Reese site as located in the Depcor Huntsburg soil association, gently sloping (McClintock et al. 1979:9 and Map 61). This unit is found on upland divides. The unit is composed of approximately 54% Depcor soils, 31% Huntsburg soils, and 15% other soils not mentioned in the survey. The Depcor soils are found in the more sloping areas, while the Huntsburg soils are present in the less sloping areas. The soils in this association consist of loamy fine sand on the surface, followed by loamy fine sand, very strongly acidic loamy fine sand, strongly acidic sandy clay loam, sandy clay loam, strong sandy clay loam, and terminating with strongly acidic clay loam at about 72-80 inches below the surface.

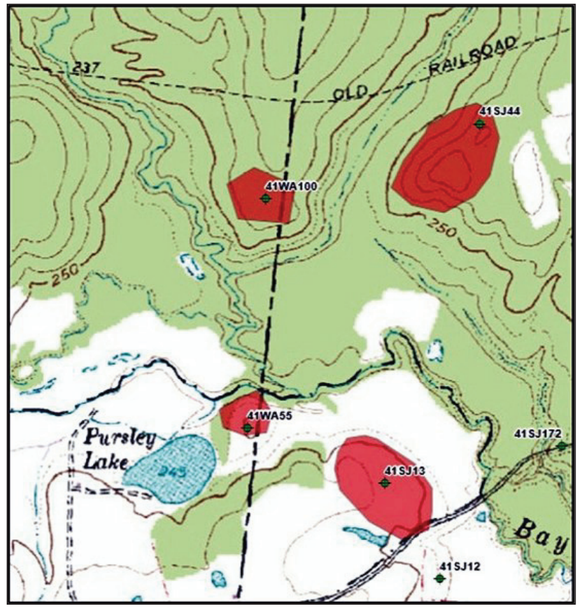


Figure 3. Reese site (41WA55) on 7.5' Maynard Topographic Quadrangle.

The relationship of the Reese site to others along Winters Bayou is, in my opinion, an indicator of the significance of this drainage and its tributaries to native populations in this part of Texas. Approximately 500 meters to the southeast, along a sandy ridge, is 41SJ13, and just across the county road is a small rise that I recorded as 41SJ12. Site 41WA100 was recorded 700 meters to the north in an upland setting overlooking tributaries of Winters Bayou, and 41SJ44 is 1200 meters to the northeast (Figure 3).

41WA100 was reported on by Moore (1990a, 1990b) and tested with a grant from the Texas Archeological Society (Moore 1990c). Students of Rice University led by Roderick McIntosh conducted limited testing, and a report of their findings was written as a student project but never published. I have visited other sites on this drainage but was discouraged from recording them by the landowners.

Known site disturbance occurred in three forms. Clearing of forests for cultivation has had serious impacts on the subsurface deposits to varying depths and the contents therein. The recently recognized natural process of bioturbation as it effects archaeological sites contained in a sandy mantle is a form of internal disturbance that can occur at any time

(Thoms 1993:51-52). Finally, the collecting of artifacts by collectors and well-meaning curiosity seekers removes valuable data from sites before professional archaeologists can perform systematic investigations.

Methods

Although the methods at the **Reese site** when Tom Zimmerman and I worked at the site did not conform to those conducted by professional archaeologists at the time, our efforts employed some of the basics that they practice. We recognized the added value that provenience provided and made mental notes of the association of certain artifacts and types of artifacts that we considered to be significant. The initial visits to the site were a series of surface inspections to determine site boundaries and the main part of the site. Sadly, this effort could not be achieved solely through surface visibility, as the only exposed area was the cultivated area enclosed by a fence. The remainder of the landform was in pasture, and surface exposures were limited to the backdirt of gopher burrows and ant hills. We selected an area in the approximate center of the high ground within the fenced enclosure and dug two pits separately. I never tried to calculate the volume of dirt we removed, but it was a very small percentage of the site. We did not use screens, but the removal of soil was painstakingly done by scraping with knives and similar tools. Every artifact, including flakes and cobbles, was collected and kept separate from those from other sites we had investigated. Measurements were not taken, but we made mental observations as to changes in artifact types per the overall depth they were found. I compared **our** finds to those depicted in *Handbook of Texas Archeology: Type Descriptions* by Suhm and Jelks (1962). There were cases where projectile points could not be typed with any degree of certainty. However, most arrow points were obvious examples of the Catahoula type, and the dart points were by far examples of the contracting stem class of points bearing the names Gary and Kent. During the writing of my report entitled *An Archeological Survey of Walker County, Texas* (Moore 1976), I consulted the 1962 Handbook as well as contract reports loaned to me by Harry J. Shafer to categorize miscellaneous items such as manufacturing failures and miscellaneous bifaces. I also learned how to differentiate flakes by amounts of cortex present. All artifacts, except for the sherds already curated at TARL, remain in my possession until they can be properly catalogued and donated to a recognized curation facility.

The Artifacts

Admittedly, our primary interest was the collection of the category of specimens that we collectively and incorrectly referred to as "arrowheads." We also retained tools, ceramic sherds, and bone. The stone tool category consists of dart points, arrow points, drills or perforators, scrapers, miscellaneous bifaces, and unidentifiable objects.

Dart Points

Virtually all items believed to have been fashioned for use as dart points used with the atlatl found at this site are of the contracting stem variety, and this is consistent with other sites in the area. Typable specimens overwhelmingly belong to the Gary/Kent tradition whose shared characteristic is the contracting stem. Therefore, it is often difficult to differentiate between Gary points and Kent points, especially with resharpening Because the differences between Gary and Kent points are often subtle, the term Gary/Kent tradition was conceived to cover the ambiguous forms. Fifty-six specimens in my personal collection from this site have contracting stems. The raw materials most used to create these artifacts were quartzite, silicified wood, and chert.

The Gary type is described by Turner et al. (2011:107) as a "relatively crude and thick point."

Figure 4. Gary Points from the Reese site (41WA55).

Figure 5. Kent Points from the Reese site (41WA55).

They list the diagnostic traits as a "triangular body, indistinct to squared shoulders, and a contracting stem." Also, the stem is often pointed. They also write that the "distal portion is often heavily reworked." Turner et al. (2011:107) cite Ford and Webb (1956:52-54) and Young (1981:73) as proponents of the idea that this type underwent gradual diminution in size through time (as has been noted many other archeologists). This reduction in size may be related to the transition from dart points to the introduction of the bow and arrow and use of Gary points as tips for arrows. One such miniature Gary point was found at the Reese site. Examples of Gary points recovered from this site are depicted in Figure 4.

Turner et al. (2011:120) describes Kent points in the following quote: "Overall, they are small, with often asymmetrical bodies (perhaps linked to resharpening), and usually with a prominent medial ridge. The shoulders are squared to indistinct, and the stems often have cortex at the base." A sample of Kent points from this site is depicted in Figure 5.

One side-notched dart point that resembles the Big Sandy type as described by Turner et al. (2011:66) was found on the surface of the Reese site (Figure 6). This specimen is made of chert, and the blade has been reworked. The corners of the stem are squared, a trait associated with this type, and the lateral edges are serrated. The Big Sandy point has been known for a long time to occur in the southeastern United States, but Turner et al. (2011:66) write that it has "only been recognized fairly recently in Texas" and "Texas specimens are somewhat smaller than Big Sandy artifacts illustrated by Perino (1985)." "Much more research needs to be done on the Big Sandy type in Texas, and identification of these points should be done with caution" (Turner et al. 2011:66). Crook (2019:39) illustrates three Big Sandy points from 41LB15 in nearby Liberty County. Harry J. Shafer (personal communication, 2020) believes the artifact from 41WA55 is not a Big Sandy, but he offers no other type as an alternate.

A stemmed biface may have functioned as a projectile point (Figure 7). That is the opinion of Harry J. Shafer (personal communication, 2020). It is made of very high quality chert that was not obtained locally.

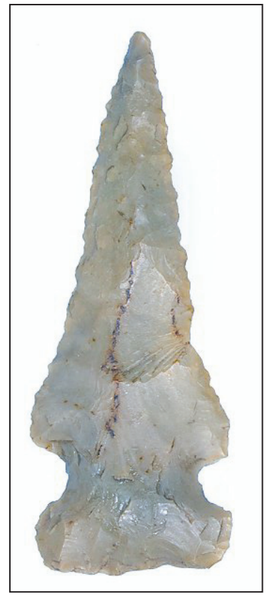


Figure 6. Side-Notched Point from the Reese site (41WA55).

Figure 7. Stemmed Biface of Non-Local Chert from the Reese site (41WA55).

Arrow Points

Eighteen arrow points are in my personal collection from this site. Fifteen are classified as Catahoula, and one fragmented specimen may also be a Catahoula. Turner et al. (2011:185) describe Catahoula points as having lateral edges that are straight to concave or recurved. The most distinctive trait is the "distinctive, large rounded or square barbs" that create a "relatively broad shoulder area." "The expanding stem is short, squared, or somewhat expanded, and the base is slightly convex." Some have serrated edges. A sample of Catahoula points from this site is depicted in Figure 8. One specimen made of silicified wood exhibits the excellent workmanship that can be achieved only with quality material. Two arrow points could not be identified by type. One appears to be a broken Perdiz, and the other is of an unknown type.

Figure 8. Catahoula Arrow Points from the Reese site (41WA55).

Other Lithic Tools

About the value of chipped stone tools, Turner et al. (2011:219) write the following. "The wide array of stone tools often found in association with projectile points are usually difficult to categorize, but they constitute an equally important component of the material culture of a group of people related in time and space." They provide an insight to the daily activities of these groups. The kinds of tools found at this site include scrapers and drills or perforators. Two specimens fit the description of drills or perforators (Figure 9). The third is described as a snub-nosed scraper, possibly made by reworking a broken point (Figure 10).

Flakes

Flakes (aka debitage) constitute the largest sample of any artifact category found at the site. They reflect a wide range of raw materials, but the most identifiable are those of chert and quartzite. Due to

Figure 9. Drills/Perforators from the Reese site (41WA55).

the internal composition of silicified wood, flakes of this material are often difficult to identify with any degree of confidence. All three major categories of flakes, primary, secondary, and tertiary, are present at this site; however, the majority are secondary and tertiary. The presence of these three types of flakes is an indication that all stages of lithic reduction may have been conducted at this site.

Ceramics

Fragments of ceramic vessels were numerous and, as expected, body sherds were more frequently found than rims or bases. Eleven sherds deserve special mention. They consist of two body sherds with punctations, three incised body sherds, one incised rim sherd, one rim sherd with punctations, and one partial base. Sadly, they are now missing and could not be analyzed or photographed for this study. They are, however, illustrated in An Archeological Survey of Walker County, Texas (Moore 1976:Plate 6). The only ceramics available for analysis are those recovered during a one day visit to the site when I was accompanied by Harry J. Shafer (see below)

Max Hill gave me a Holly Fine Engraved rim sherd that he claims was found at the Reese site. Dee Ann Story described it in the Journal of the Houston Archeological Society (Moore 1986:85:19-21) as a rim sherd from a carinated bowl with a scalloped flange bent outward at a right angle to the rim (Figure 11). Her specifications are a well smoothed interior surface finish; exterior engraved rim with a smoothed lower body; surface color brown with fire clouds; and a paste consisting of finely pulverized grog particles. She does not believe it was made by a potter at the Davis site, but likely was made by a Caddo potter somewhere in East Texas.

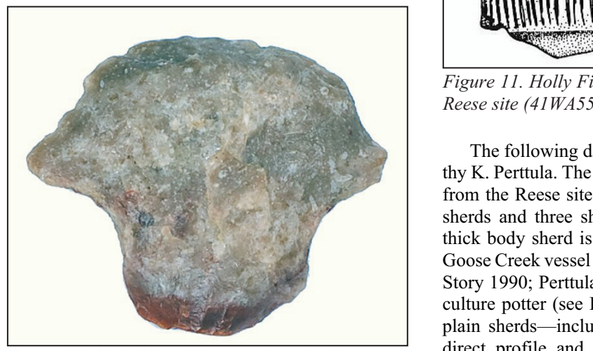


Figure 10. Snub-Nosed Scraper from the Reese site (41WA55).

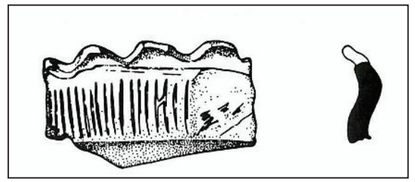


Figure 11. Holly Fine Engraved rim sherd from the Reese site (41WA55).

The following discussion was authored by Timothy K. Perttula. The ceramic vessel sherd assemblage from the Reese site includes nine plain rim or body sherds and three sherdlets (Table 2). One 7.1 mm thick body sherd is from a Goose Creek Plain, var. Goose Creek vessel with sandy paste (Figure 12a; see Story 1990; Perttula 2018) made by a Mossy Grove culture potter (see Ellis 2013). The remaining eight plain sherds—including a rim (Figure 12b) with a direct profile and a rounded lip and seven body sherds)—are tempered with grog (n=6), grog-hematite (n=1), and bone (n=1).

Table 2. Ceramic vessel sherds from the Reese site (41WA55).

Sherd type	Temper/Paste	Firing Conditions	Surface Treatment	Thickness (mm)	Decoration
Test Pit 1, 0-10 cm					
body	SP	A	E SM	7.1	Plain
body	grog	D	I/E SM	4.9	Plain
Test Pit 1, 10-20 cm					
3 sherdlets (less than 1.5 cm in diameter)					
body	grog	G	--	4.2	Plain
rim (direct-rounded)	grog	F	I/E SM	5	Plain
91, body	grog-hematite	A	--	5.8	Plain
92, body	bone	G	--	5.7	Plain
93, body	grog	G	I/E SM	5.7	Plain
94, body	grog	B	--	4.6	Plain
95, body	grog	G	I SM	5.1	Plain

SP=sandy paste; I=interior; E=exterior; SM=smoothed
Firing conditions (Teltser 1993:Figure 2): A fired and cooled in an oxidizing environment; B=fired and cooled in a reducing environment; D=incompletely oxidized during firing; F-G=fired in a reducing environment and cooled in the open air

The grog-tempered sherds from the Reese site are from vessels fired predominantly (67 percent) in a reducing environment and cooled in the open air (see Table 2). Another is from a vessel fired and cooled in a reducing environment (see Teltser 1993:Figure 2b), and the last sherd is from an incompletely oxidized vessel. These sherds represent at least four separate vessels.

Fifty percent of the grog-tempered sherds have been smoothed on both interior and exterior vessel surfaces (Figure 13a), and another is smoothed only on the interior vessel surface (Figure 13b). These sherds are from vessels with thin body walls: the mean thickness is 5.08 $\pm$ 0.45 mm, with a range from 4.2-6.0 mm (see Table 2).

The single body sherd from a grog-hematite-tempered vessel at 41WA55 has thin body walls (5.8 mm, see Table 2). The vessel was fired and cooled in an oxidizing or high oxygen environment.

The one body sherd with bone temper has thin body walls (5.7 mm), and may be from a post-A.D. 1250/1300 Leon Plain vessel (see Kenmotsu and Boyd 2012). Ancestral Caddo ceramic vessels with thin body walls in East Texas are also manufactured with bone temper, however (Perttula 2013).

Ancestral Caddo vessels tempered with grog and/or bone (and occasionally with a sandy paste) that were manufactured in a number of different regions in East Texas, such as at 41WA55, were occasionally traded or exchanged with aboriginal hunter-gatherer groups whose territorial range included the Brazos, Colorado, and Trinity River basins, generally between ca. A.D. 900-1800. Post-A.D. 1400 Caddo ceramics are particularly widespread in the region, as at the Reading site (41BU16) on the Brazos River (Roemer and Carlson 1987), an unrecorded site in Washington County at Lake Somerville (Perttula 2019:Table 1), and numerous sites in Montgomery, Polk, San Jacinto, and Walker counties (Perttula 2018).

Conclusions

The time that the Reese site was inhabited is an estimate based on the relative dating of typed artifacts per their stratigraphic position and dates from similar sites in Southeast Texas. Because of the lack of discernable stratigraphy and the obvious mixing of artifacts in the loose sandy mantle, no definite statement can be made regarding the superposition of the

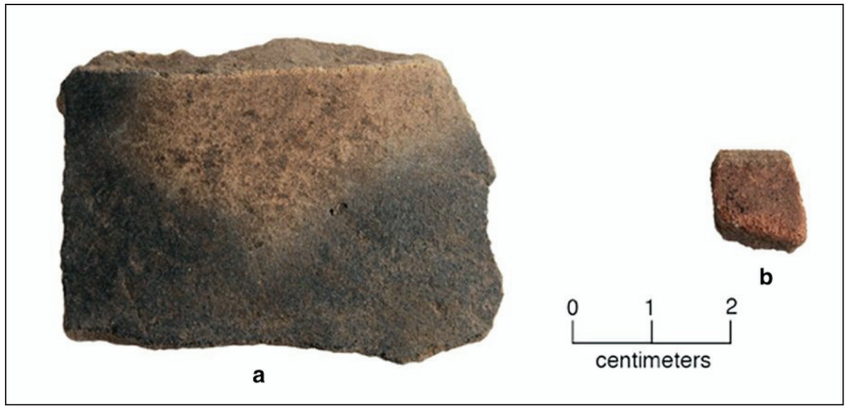


Figure 12. Selected sherds from the Reese site (41WA55): a, Test Pit 1, 0-10 cm, Goose Creek Plain body sherd; b, Test Pit 1, 10-20 cm, plain grog-tempered rim sherd.

dart points, arrow points, and ceramics. The best hypothesis is it was inhabited during the Middle Archaic, Late Archaic, Late Woodland, and Late Prehistoric periods.

No features were discerned, and no human remains were found. Activities probably centered on subsistence, seasonal rounds, and a considerable amount of energy spent reworking or finishing stone tools. There is no dependable supply of chert and quartzite near the site. One of the best-known sources is the lag deposits on Pleistocene terraces in the Lake Conroe area. Good quality agatized wood is present in the nearby Catahoula formation, and to the south excellent chert cobbles are present in the Willis formation (Harry Shafer, personal communication, 2020). Forays from the main camp to collect material suitable for making stone tools and hunting and gathering expeditions would most likely have been a major activity. No tested cobbles or large cores were observed, and it appears doubtful that all steps required for the manufacture of stone tools were conducted at this site. As stated above, large primary flakes were far less numerous, although secondary flakes and tertiary flakes were common. The total number of ceramic sherds collected at the Reese site is 121 plain body sherds (curated at TARL) that were not available for study and the nine sherds and three sherdlets analyzed by Timothy K. Perttula above.

Arrow points were most apparent in the first 40-50 cm below the surface with the larger dart points in the lower levels. However, stratigraphic delineation between the two was not clearly defined,

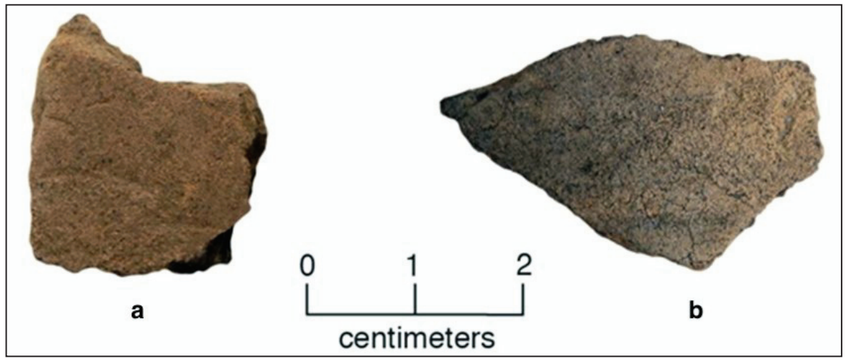


Figure 13. Plain grog-tempered body sherds from the Reese site (41WA55): a, No. 93; b, No. 95.

as the two appeared to be co-mingled throughout much of the site deposits. The only evidence of trade, interaction with distant groups, or travel outside the area is the Holly Fine Engraved sherd identified as ancestral Caddo (see Figure 11) and a stemmed biface made of non-local chert (see Figure 7).

Although the artifacts described in this article were not obtained via methods practiced by professional archaeologists, they provide the only current information for this site. Therefore, I regard the combined efforts of Tom Zimmermann and myself as a form of salvage archaeology that has resulted in a valuable comparative collection for the area. Unfortunately, Mr. Zimmermann's collection was not available for inclusion in this report.

Acknowledgments

As usual, the success of an article cannot be credited solely to the authors. Shared information is the key to any worthwhile endeavor, and the following are recognized for their contributions. Lili G. Lyddon is responsible for Figures 1-3 and the cover. Harry J. Shafer visited the site with me and offered advice regarding its research potential. Jonathan Jarvis is the Associate Director at the Texas Archeological Research Laboratory (TARL) at the University of Texas at Austin. He not only offered encouragement, but helped me locate some of the unpublished manuscripts on file at TARL. Sallie Cotter Andrews edited the first draft. Tanner Singleton photographed the lithics, and Brian Wootan photographed of the ceramic sherds.

References Cited

Crook, Wilson W., III
2019 The Occurrence of Wilson and Big Sandy Points at the Wood Springs Site, Liberty County, Texas. *Bulletin of the Texas Archeological Society* 90:35-42.

Ellis, Linda W.
2013 Woodland Ceramics in East Texas and a Case Study of Mill Creek Culture Ceramics. *Bulletin of the Texas Archeological Society* 84:137-180.

Ford, James A. and Clarence H. Webb
1956 *Poverty Point: A Late Archaic Site in Louisiana.* Anthropological Papers 46, Part 1. American Museum of Natural History, New York.

Hester, Thomas R., Steven C. Black, D. Gentry Steele, Ben W. Olive, Anne A. Fox, Karl J. Reinhard, and Leland C. Bement
1989 *From the Gulf to the Rio Grande: Human Adaptations in Central, South, and Lower Pecos, Texas.* Research Series No. 33. Arkansas Archeological Survey, Fayetteville.

Kenmotsu, Nancy A. and Douglas K. Boyd
2012 The Toyah Phase in Texas; An Introduction and Retrospective. In *The Toyah Phase of Central Texas: Late Prehistoric Economic and Social Processes*, edited by Nancy A. Kenmotsu and Douglas K. Boyd, pp. 1-18. Texas A&M University Press, College Station.

Kenmotsu, Nancy A. and Timothy K. Perttula (editors)
1993 *Archeology in the Eastern Planning Region, Texas: A Planning Document.* Department of Antiquities Protection, Cultural Resource Management Report 3. Texas Historical Commission, Austin.

McClintock, William R., Jr., Joseph J. Castille, Michael Stewart, and L. Eric Andrew
1979 *Soil Survey of Walker County, Texas.* United States Department of Agriculture, Soil Conservation Service and Forest Service in Cooperation with the Texas Agricultural Experiment Station, Washington, D.C.

McClurkan, Burney B.
1968 *Livingston Reservoir, 1965-55: Late Archaic and Neo-American Occupations.* Papers of the Texas Archeological Salvage Project, No. 12. Texas Archeological Salvage Project, The University of Texas at Austin.

Moore, William E.
1975 *A Guide to Texas Counties*. Tejas Publishing Company, Houston and Huntsville.

1976 *An Archeological Survey of Walker County, Texas.* Privately published.

1986 A Holly Fine Engraved Sherd from the Reese Site (41WA55), Walker County, Texas. *Journal of the Houston Archeological Society* 85:19-21.

1990a The Derrick Adams Site (41WA100), A Late Prehistoric Site in Walker County, Texas. *Journal of the Houston Archeological Society* 96:11-14.

1990b A Paleo-Indian Point from the Derrick Adams Site (41WA100) in Walker County, Texas. *Journal of the Houston Archeological Society* 95:16-17.

1990c *Archeological Testing at the Derrick Adams Site (41WA100), A Late Prehistoric Site in Walker County, Texas.* Contributions in Archaeology, Number 1. BVRA, Bryan.

Perino, Gregory H.
1985 *Selected Preforms, Points, and Knives of the North American Indians* (Volume I). Privately published by Gregory H. Perino.

Perttula, Timothy K.
2004 *An Introduction to Texas Prehistory*, In *The Prehistory of Texas,* edited by Timothy K. Perttula, pp. 3-14. Texas A&M University Press, College Station.

2013 Caddo Ceramics in East Texas. *Bulletin of the Texas Archeological Society* 84:181-212.

2018 *The Strawberry Hill Site (41SJ160) Ceramic Vessel Sherd Assemblage, San Jacinto County, Texas, and Comparisons to other Mossy Grove Culture Ceramic Assemblages.* Report No. 31. Houston Archeological Society, Houston.

2019 Aboriginal Ceramic Wares from Sites in the Yegua Creek Drainage of the Brazos River Basin, East Central Texas. MS on file, Texas Parks and Wildlife Department, Austin.

Roemer, Erwin, Jr. and Shawn Bonath Carlson
1987 *Excavations at 41BU16: State Highway 21 at the Brazos River, Burleson County, Texas*. Contract Reports in Archaeology, Report No. 1. Highway Design Division, Texas State Department of Highways and Public Transportation, Austin.

Simons, Alan H., Ann Lucy Wiener-Stodder, Douglas D. Dykeman, and Patricia A. Hicks
1989 *Human Adaptations and Cultural Change in the Greater Southwest*. Research Series No. 32. Arkansas Archeological Survey, Fayetteville.

Story, Dee Ann
1990 Cultural History of the Native Americans. In *Archeology and Bioarcheology of the Gulf Coastal Plain* by Dee Ann Story, Janice A. Guy, Barbara A. Burnett, Martha Doty Freeman, Jerome C. Rose, D. Gentry Steele, Ben W. Olive, and Karl J. Reinhard, pp. 163-366. Research Series No. 38, 2 Vols. Arkansas Archeological Survey, Fayetteville.

Suhm, Dee Ann and Alex D. Krieger, with a contribution by Edward B. Jelks
1954 An Introductory Handbook of Texas Archeology. *Bulletin of the Texas Archeological Society* 25:1-562.

Suhm, Dee Ann and Edward B. Jelks (editors)
1962 *Handbook of Texas Archeology: Type Descriptions.* Special Publication No. 1, Texas Archeological Society and Bulletin No. 4, The Texas Memorial Museum, Austin.

Teltser, Patrrice A.
1993 An Analytic Strategy for Studying Assemblage-Scale Ceramic Variation: A Case Study from Southeast Missouri. *American Antiquity* 58(3):530-543.

Thoms, Alston V.
1993 *The Brazos Valley Slopes Archaeological Project: Cultural Resources Assessments for the Texas A&M University Animal Science Teaching and Research Complex, Brazos County, Texas.* Reports of Investigations No. 14, Archaeological Research Laboratory, Texas A&M University, College Station.

Turner, Ellen Sue, Thomas R. Hester, and Richard L. McReynolds
2011 *Stone Artifacts of Texas Indians*. Taylor Trade Publishing, Lanham, Maryland.

Young, Wayne C.
1981 *Test Excavations at the Tankersley Site, A Multicomponent Campsite in Titus County, Texas.* Publications in Archaeology, Report No. 22. Texas State Department of Highways and Public Transportation, Highway Design Division, Austin.

THE ABORIGINAL CERAMICS FROM THE ALLENS CREEK SITES, AUSTIN COUNTY, TEXAS

Timothy K. Perttula

Introduction

A large assemblage of aboriginal ceramic vessel sherds (ca. 700) were recovered during the survey, testing, and data recovery investigations at the Allens Creek Nuclear Generating Station in the lower Brazos River valley in Austin County, Texas (Hall 1981) (Figure 1a). The ceramic sherds from 10 sites in the project area (Figure 1b), along with radiocarbon, OSL, and TL dates (see Hood 2007), and a wide variety of cultural features, provide evidence of Native American occupations in this part of Texas as early as ca. 500 B.C. to after ca. A.D. 1500.

In addition to characterizing the kinds of ceramic vessels that were made and used by lower Brazos River aboriginal populations, comparisons between the assemblages may prove useful in ascertaining changes through time in temper and paste use as well as the kinds of decorated wares that were present locally. Furthermore, the detailed analysis of the Allens Creek ceramic assemblages can contribute to

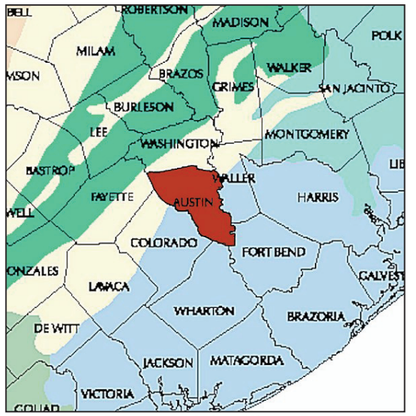


Figure 1a. Location of the Allens Creek project area: Austin County in the southeastern part of Texas.

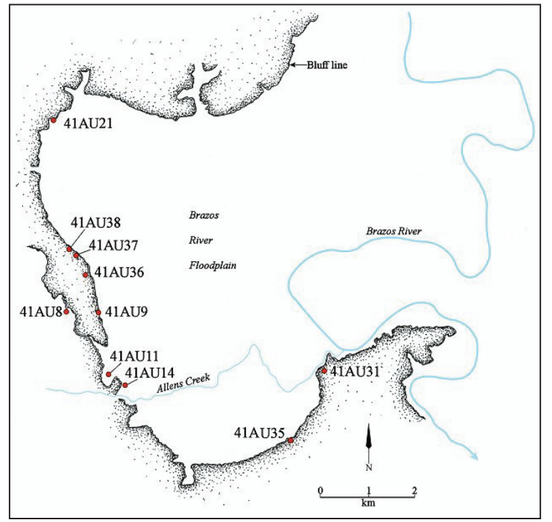


Figure 1b. Location of ceramic-bearing sites in the Allens Creek project area.

a better understanding of local ceramic traditions in the lower Brazos River basin and surrounding locales in the central coastal region of Texas.

Analytical Methods

A number of attributes have been employed in the study of the aboriginal ceramic vessel sherds (greater than 1.5 cm in length and width) from the Allens Creek sites; sherdlets (less than 1.5 cm in length and width) in the assemblage have not been counted or analyzed for this study. These are attributes commonly employed in the analysis of aboriginal ceramics of prehistoric and historic age in Texas (see Ellis and Perttula 2010):

Temper inclusions or Non-plastics: Deliberate and indeterminate materials in the paste (Rice 1987:411), including a variety of tempers (such as grog or crushed sherds, bone, hematite, shell, quartz sands, etc.) and "particulate matter of some size." The grog and bone non-plastics appear to have been deliberately added to the paste as tempers. The bone used for temper by potters has likely been burned and calcined, then crushed, before it was added to the paste. Sherd cross-sections were inspected macroscopically and with a 10X hand lens to determine the character of the paste and its inclusions.

Paste: The paste represents the natural constituents of the clay used, once temper is added, by potters to manufacture vessels, or sometimes left without temper and with a relatively coarse sandy paste. The paste may be a homogeneous clay, or have a sandy or silty paste based on texture, along with minerals such as iron, hematite, chert, and quartz sands, etc., of various sizes and angularity.

Clays used for vessel manufacture were probably gathered from nearby alluvial settings, but almost certainly within a short (1-7 km away, at most) distance from a settlement or a temporary camp (e.g., Arnold 2000:343; Arthur 2006:52), so that an inordinate amount of time and energy was not expended by potters in hauling clay back to the site. Arthur (2006:52) points out that potters would be likely to select lower quality clays for vessel manufacture than high quality clays if the latter were farther away.

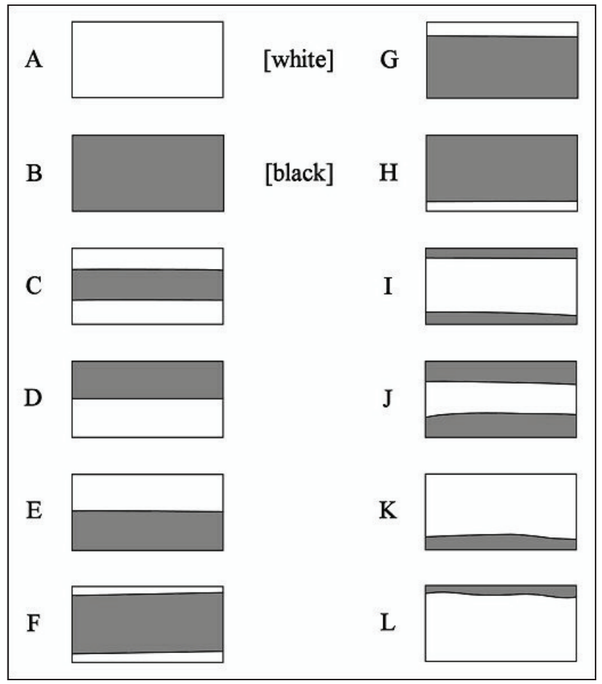


Figure 2. Firing conditions in sherd cross-sections:
a, oxidized;
b, reduced;
c-e, incompletely oxidized during firing;
f-h, fired in a reducing environment and cooled in the open air:
i-l, sooted or smudged; the exterior sherd surface is at the top of each cross-section.

All tables below refer to the firing condition letters as shown in Figure 2.

Figure prepared by Lance Trask.

Vessel Form: The principal vessel form categories ought to include open containers (bowls) and restricted containers, primarily jars. As restricted containers, jars allow access by hand, but bottles do not, and they have a roughened interior surface.

Additional form attributes that are recorded on rim sherds include the rim profile (outflaring or everted, vertical or standing, and inverted), lip profile (rolled to the exterior, rounded, flat, or thinned), and base shape (flat or rounded).

Core Colors: Observations on ceramic sherd cross-section colors permit consideration of oxidation patterns (Teltser 1993:Figure 2a-h; Perttula 2005:Figure 5-30i-l), and thus the conditions under which the vessel was fired and then cooled after firing (Figure 2). Comments may also be included on the presence and location of sooting or smudging from cooking use (Skibo 1992), and the preservation and location of charred organic remains or residues.

Vessels tend to be fired in a variety of different ways, presumably reflecting personal preferences in firing, the desired vessel color, the kind of clays and their pastes that were used, and the functional and technological requirements of the kinds of vessel forms that were being manufactured at a specific site. Vessels were likely fired in an open fire, with the vessels either set atop the fire or nestled in the coals and ash.

Wall Thickness: Thickness is recorded in millimeters for each sherd, using a vernier caliper. These variations in vessel wall thickness are likely related to functional and technological decisions made by potters in how these different wares were intended to be used in local encampments or households. The less substantial vessel walls in some of the vessel sherds would be well suited to the cooking and heating of foods and liquids and, because heat would have been conducted efficiently while heating rapidly, would have contributed to their ability to withstand heat-related stresses. Much thicker vessel sherds (greater than 8 mm in thickness) would have created stronger and more stable vessels (and base sherds in the assemblage tend to be more than 8 mm in thickness), and would have been well suited for use as storage containers (Rice 1987:227). Other wares were probably intended for use in the serving of foods and liquids, and thinner and less porous vessel walls would have helped to maintain the temperature of served food and liquids; thinner and lighter vessels would have also contributed to the ease with which serving vessels could be handled, used, and transported.

Interior and Exterior Surface Treatment: The primary methods of finishing the surface of ceramic vessels include smoothing, as well as burnishing and polishing (Rice 1987:138), although polishing is generally rarely seen on vessels or vessel sherds because of site preservation conditions. Smoothing creates "a finer and more regular surface…[and] has a matte rather than a lustrous finish" (Rice 1987:138). Burnishing, on the other hand, creates an irregular lustrous finish marked by parallel facets left by the burnishing tool (perhaps a pebble or bone). A polished surface treatment is marked by a uniform and highly lustrous surface finish, done when the vessel is dry, but without "the pronounced parallel facets produced by burnishing leather-hard clay" (Rice 1987:138). Another form of surface treatment noted on several of the sherds from the Allens Creek sites is the scraping or scoring of the interior vessel surface, which leaves broad, but shallow, marks where a tool may have been dragged across the surface, perhaps as a form of surface smoothing.

Decoration: Decorative techniques present in the ceramic vessel sherds from the Allens Creek sites include incising, brushing, brushing-incising, engraving, and lip notching. The principal decorative techniques were executed with tools (incising and lip notching) or by using frayed sticks or grass stems (brushing) dragged across the body surface. Engraved lines were fashioned on one vessel sherd with a sharp tool after the vessel was leather-hard, or after the vessel had been fired.

Type: The kinds of named ceramic types may follow primarily the work of Suhm and Jelks (1962), Story (1990), and Aten (1983).

Sites

Ten aboriginal sites at Allens Creek in the lower Brazos River basin have sherds from hand-made ceramic vessels (see Figure 1b), and the assemblages

Table 1. Ceramic sherds from 41AU8.

Lot No.	Sherd Type	Decoration	Temper/Paste	Firing Cond.	Surface Treatment	Thickness (mm)
UNK	body	Plain	SP	F	–	4
UNK	body	Plain	SP	I	–	5.1
UNK	body	Plain	SP	F	–	5.4
1	body	Plain	SP	G	–	6
1	body	Plain	SP	E	–	5.3

UNK=unknown; SP=sandy paste

from each site are discussed below. The total assemblage size is 534 sherds, but the sample size ranges from as few as one sherd per site (41AU11 and 41AU35) to as many as 358 (41AU38). The sherds are dominated by sandy paste Goose Creek Plain and Goose Creek Incised types (64.6 percent), followed by post-A.D. 1000 San Jacinto series grog-tempered, grog-tempered sandy paste, and grog-bone-tempered wares (21.0 percent), and untyped post-A.D. 1300 bone-tempered, bone-tempered sandy paste, and bone-hematite-tempered wares (14.5 percent) (see Aten 1983).

41AU8

The five body sherds from 41AU8 are all from Goose Creek Plain, *var. unspecified* vessels (Table 1), likely dating before ca. A.D. 800. The vessels are thin-walled (mean thickness of 5.2 ± 0.48 mm, with a range from 4.0-6.0 mm), with no surface treatment. Three of the sherds are from vessels fired in a reducing environment, then cooled in the open air (see Figure 2f-g); another is from a vessel that was incompletely oxidized during firing (see Figure 2e); and the last sherd is from a vessel that was smudged or sooted during use, leaving thin sooted areas on both sides of the vessel (see Figure 2i).

The ceramic assemblage from 41AU8 with five plain sandy paste Goose Creek Plain, *var. unspecified* body sherds is indicative of a Mossy Grove Culture occupation at the site during some part of the Woodland period (ca. 500 B.C. to A.D. 800) (see Story 1990; Aten 1983). Hall (1981:441) identified a Late Prehistoric component at the site.

41AU9

Only three Goose Creek Plain, *var. unspecified* body sherds are in the 41AU9 ceramic assemblage (Table 2); they may be from the same vessel, although the range in thickness between the sherds is considerable (5.5-8.2 mm); the mean body wall thickness is 6.77 ± 0.96 mm. The sherds are from one or more vessels that were fired in a reducing environment and cooled in the open air (see Figure 2g). The sherds have been smoothed on both interior and exterior surfaces.

41AU11

One Goose Creek Plain, *var. unspecified* (see Story 1990) body sherd (6.5 mm thick) was recovered from 41AU11 during the 1972 archaeological survey. The sherd was from a vessel fired in a reducing environment and cooled in the open air (see Figure 2g). It had no surface treatment.

41AU14

Hall (1981:442) identified a Late Prehistoric component at 41AU14 from test excavations. These investigations at 41AU14 recovered 25 ceramic body sherds from grog-tempered (n=11, 44 percent) San Jacinto series vessels, grog-tempered-sandy

Table 2. Ceramic sherds from 41AU9.

Lot No.	Sherd Type	Decoration	Temper/Paste	Firing Cond.	Surface Treatment	Thickness (mm)
UNK	body	Plain	SP	G	I/E SM	6.6
UNK	body	Plain	SP	G	I/E SM	8.2
UNK	body	Plain	SP	G	I/E SM	5.5

UNK=unknown; SP=sandy paste
I/E SM=interior/exterior smoothed

paste (n=3, 12 percent) sherds from San Jacinto series vessels, and sandy paste (n=11, 44 percent) Goose Creek Plain, *var. unspecified* vessels (Table 3). Two of the sherds have decorative elements, including a grog-tempered sandy paste body sherd with parallel brushing marks from a vessel of unknown type, and a grog tempered body sherd from a San Jacinto Incised vessel with parallel incised lines on its interior surface. Grog-tempered brushed sherds are a common feature of ancestral Caddo ceramic traditions in East Texas, but brushed sherds are also present in ca. post-A.D. 1300-1400 ceramic assemblages in the Brazos Delta-West Bay area (see Ellis and Ellis 1996; Weinstein and Hutchins 2002:275), and it is likely the brushed vessel at 41AU14 was made in that area of the Upper Texas Coastal Plain.

The majority of the ceramic sherds of each temper/paste group are from vessels fired in a reducing environment and cooled in the open air (see Figure 2g): 45.4 percent of the sandy paste sherds, 81.8 percent of the grog-tempered sherds, and 66.7 percent of the grog-tempered sandy paste sherds. Sherds from vessels fired and cooled in a reducing environment (see Figure 2b) comprise 27.3 percent of the sandy paste vessel sherds, 9.1 percent of the grog-tempered sherds, and 33.3 percent of the grog-tempered sandy paste sherds (see Table 3). Three sherds (12 percent) are from vessels incompletely oxidized during firing (see Figure 2c, e), and one

Table 3. Ceramic sherds from 41AU14.

Lot No.	Sherd Type	Decoration	Temper/ Paste	Firing Cond.	Surface Treatment	Thickness (mm)
1	body	Plain	SP	G	--	6.8
2	body	Plain	grog	G	--	7.7
2	body	Plain	grog/SP	G	--	6.5
4	body	Plain	SP	J	--	7.2
4	body	Plain	SP	B	--	6.4
4	body	Plain	SP	B	--	5.9
4	body	Plain	SP	G	--	6.3
4	body	Plain	SP	G	--	6.9
4	body	Par. Brushed	grog/SP	B	--	5.9
4	body	Plain	grog/SP	G	--	5.9
4	body	Plain	grog	G	--	7.9
4	body	Plain	grog	G	--	4.4
4	body	Plain	grog	G	I SM	5.6
4	body	Plain	grog	E	E SM	6.5
4	body	Plain	grog	G	--	7
4	body	Plain	grog	G	--	5.5
4	body	Plain	grog	G	--	7.1
4	body	Plain	grog	G	--	6.7
4	body	Par. Incised lines (int. surface)	grog	B	E SM	6.1
5	body	Plain	grog	G	E SM	5.6
5	body	Plain	SP	G	I SM	6.7
7	body	Plain	SP	B	--	4.9
9	body	Plain	SP	C	--	6.2
10	body	Plain	SP	C	--	5
10	body	Plain	SP	G	--	6.2

SP=sandy paste
E SM=exterior smoothed; I SM=interior smoothed

Table 4. Ceramic sherds from 41AU21.

Lot No.	Sherd Type	Decoration	Temper/Paste	Firing Cond.	Surface Treatment	Thickness (mm)
2	rim	Plain	SP	G	--	6.5
4	body	Plain	SP	E	--	6

SP=sandy paste

Goose Creek Plain, *var. unspecified* sherd has been sooted during firing and/or use (see Figure 2j).

Few of the 41AU14 sherds have any surface treatment (see Table 3). This includes three sandy paste and grog-tempered body sherds with an interior smoothed surface, and two grog-tempered body sherds with an exterior smoothed surface.

The 41AU14 sherds from the different temper-paste groups are from thin-walled vessels. The body sherds range from 6.10 ± 0.27 mm (ranging from 5.9-6.5 mm) for the grog-tempered sandy paste sherds, 6.17 ± 0.55 mm (ranging from 4.9-7.2 mm) for the sandy paste sherds, and 6.37 ± 0.85 mm (ranging from 4.4-7.9 mm) for the grog-tempered wares.

41AU21

Two Goose Creek Plain, *var. unspecified* sherds are in the 41AU21 ceramic assemblage (Table 4): one rim sherd and one body sherd. These range from 6.0-6.5 mm in thickness, and are from vessels incompletely oxidized during firing or vessels fired in a reducing environment and cooled in the open air. Neither sherd has a surface treatment.

The occurrence of sandy paste Goose Creek Plain sherds at 41AU21 suggests that the site was occupied by Mossy Grove peoples, perhaps before ca. A.D. 800. However, Hall (1981:443) has identified a Late Prehistoric component at the site.

41AU31

Hall (1981) identified four temper-paste groups in the 46 sherds from 41AU31. Most are sandy paste wares (n=27, 58.7 percent), followed by bone-tempered sherds with a silty paste and floated surfaces (n=15, 32.6 percent), bone-tempered sherds with a sandy paste (n=3, 6.5 percent), and one sherd (2.2 percent) with grog temper (Ellis et al. 2013:Table 25). The bone temper is finely crushed. The sandy paste wares are from Goose Creek Plain, *var. unspecified* vessels, and Ellis et al. (2013:243) suggests the one grog-tempered sherd may be from a San Jacinto Plain vessel (see Hamilton 1988:101) from the Brazos Delta-West Bay area of the Central Texas coast. The principal component at 41AU31 dates after ca. A.D. 1200-1300 because of the presence of a grog-tempered vessel sherd and the sole occurrence of Perdiz arrow points in the deposits (Hall 1981).

41AU35

A single plain body sherd (6.8 mm in thickness) was recovered at 41AU35 (Lot 11). It is from a sandy paste vessel made with burned bone temper, perhaps from a Goose Creek Plain, *var. Traylor Branch* (Weinstein and Hutchins 2002) vessel. The sherd came from a vessel that had been fired in a reducing environment and cooled in the open air (see Figure 2g), and had no surface treatment. Hall (1981:445) identified a Late Prehistoric component at the site.

Ernest Witte Site (41AU36)

All but one of the 17 ceramic sherds from the Ernest Witte site are from sandy paste Goose Creek wares (Table 5). These are from the Zone 4' occupation (Hall 1981:81-83), which also had Godley and Gary dart points, consistent with a Transitional Archaic or Woodland period use, one predating ca. A.D. 700, and dating as early as ca. 500 B.C., when sandy paste ceramic wares began to be produced in eastern and southeastern Texas (Ellis 2013:140-141 and Figure 1). Radiocarbon dates ranging from 520 ± 130 B.C. to A.D. 360 ± 80 in Zone 3B underlying Zone 4' (Hall 1981:Table 2) suggests that the Zone 4' ceramics likely date from ca. A.D. 500-700, before the advent of arrow points. The other sherd in this zone is a grog-tempered body sherd with parallel brushed-incised marks; this sherd is likely from a Brazos Delta-West Bay manufactured vessel.

The sandy paste sherds from the Ernest Witte site are from Goose Creek Plain vessels, either *var. unspecified* (n=15) or *var. Burris* (n=1). Sandy paste lip-notched vessels have recently been identified as Goose Creek Plain, *var. Burris* (Perttula 2018:39). Such distinctive vessels appear to have been made and used between ca. 2230-1830 years ago in Mossy Grove culture sites. The rim sherds have direct profiles and rounded lips, and are likely from jars; one has a 16.0 cm orifice diameter.

The Goose Creek Plain sherds are from vessels almost exclusively fired in a reducing or low oxygen

Table 5. Ceramic sherds from the Ernest Witte site (41AU36).

Lot No.	Sherd Type	Decoration	Temper/Paste	Firing Cond.	Surface Treatment	Thickness (mm)
0-12	rim	Plain	SP	C	--	6.6
0-15	body	Plain	SP	F	E SM	6.8
3	body	Plain	SP	G	I SM	6.2
21	body	Plain	SP	B	--	6.1
36	body	Plain	SP	G	--	5.4
36	body	Plain	SP	G	I/E SM	5.6
37	body	Plain	SP	B	I/E SM	6.1
48	body	Plain	SP	G	I SM	6.2
48	body	Plain	SP	B	I/E SM	6.6
62	body	Plain	SP	B	--	4.6
95	rim	Plain	SP	F	--	6.7
161	body	Plain	SP	G	I/E SM	6.3
189	rim	Lip notched	SP	B	E SM	6.2
230	body	Plain	SP	B	I/E SM	6.2
319	body	Par. B-I	grog	N/A	--	N/A
326	body	Plain	SP	B	E SM	5.9
330	body	Plain	SP	B	I/E SM	6.5

SP=sandy paste
Par.=parallel; B-I=brushed-incised
I SM=interior smoothed; I/E=interior/exterior smoothed; E SM=exterior smoothed

environment, including fired and cooled in a reducing environment (50.0 percent) and fired in a reducing environment and cooled in the open air (46.7 percent). One sherd is from a vessel incompletely oxidized during firing (see Figure 2c).

Almost 70 percent of the sandy paste Goose Creek Plain sherds have some form of surface treatment (see Table 5). This includes 12.5 percent with interior smoothed surfaces, 18.8 percent with exterior smoothed surfaces, and 37.5 percent with both interior and exterior smoothed surfaces.

The Goose Creek Plain rim and body sherds from the Ernest Witte site have thin walls. The rim sherds are 6.5 ± 0.2 mm thick (ranging from 6.2-6.7 mm) and the body sherds are 5.96 ± 0.38 mm (ranging from 4.6-6.6 mm).

Leonard K Site (41AU37)

The Leonard K site has two stratified Late Prehistoric components, the earlier dating to A.D. 920 ± 70 (Zone 3) and the later dating to A.D. 1480 ± 80 (Zone 1) (Hall 1981:Table 3). Both components have aboriginal ceramic sherds, according to Hall (1981:112-113), including Goose Creek Plain sandy paste wares and grog-tempered San Jacinto wares.

The re-analysis of the ceramic sherds from the Leonard K site includes 76 rim, body, and base sherds from sandy paste Goose Creek Plain (n=50, 65.8 percent) vessels, as well as grog-tempered (n=22, 29.0 percent), grog-tempered sandy paste (n=2, 2.6 percent), grog-bone-tempered (n=1, 1.3 percent) and bone-tempered (n=1, 1.3 percent) wares; the grog-tempered sherds are from San Jacinto series vessels (Table 6A). This combination of temper-paste groups is consistent with the two dated Late Prehistoric components at the site.

The eight rim sherds include six with direct rims and rounded lips (including two with lip notches, see below), one with a direct rim and a flat lip, and one jar rim with an everted rim and a rounded lip. The one grog-tempered-sandy paste rim has a 19.0 cm orifice diameter.

Nine of the 50 sandy paste sherds have decorative elements. Two are from Goose Creek Plain, *var. Burris* vessels with a lip notched rim (see Perttula 2018). Five others are from Goose Creek Incised vessels with horizontal (n=1), parallel (n=2), and straight incised line (n=2) elements. Another sandy paste vessel sherd has parallel brushed-incised lines and marks and is from a post-A.D. 1200 Goose Creek Brushed vessel (Perttula 2018:41). The last

Table 6A. Ceramic sherds from the Leonard K site (41AU37).

Lot No.	Sherd Type	Decoration	Temper/ Paste	Firing Cond.	Surface Treatment	Thickness (mm)
UNK	body	Plain	SP	A	–	8.8
0-8	body	Plain	SP	K	E SM	6.5
0-10	rim	Lip notched; Horizontal B-I	grog/SP	E	I SM	6.3
2	rim	Lip notched	SP	B	–	5.6
2	body	Plain	grog	E	–	3.9
2	body	Plain	grog	B	E SM	4.6
3	body	Straight Incised line	SP	G	–	5.6
4	body	Plain	SP	G	I SM	5.3
4	body	Straight Incised line	bone	G	–	6.3
4	body	Plain	grog	L	–	8.8
4	body	Plain	grog	B	I/E SM	5.1
4	body	Plain	grog	B	–	6
6	body	Plain	SP	G	–	4.1
12	body	Plain	grog	G	E SM	5.6
22	body	Plain	SP	B	I/E SM; I OR	5
37	rim	Plain	SP	G	E OR	4.4
37	body	Plain	SP	B	–	5.6
39	body	Plain	grog	E	–	4.2
41	body	Parallel Incised lines	SP	F	–	5.1
42	body	Plain	SP	K	–	6.3
43	base	Plain	SP	G	–	9.7
43	body	Interior Straight Incised line	SP	G	E SM	5.8
43	body	Plain	SP	G	–	4.9
44	body	Plain	SP	B	–	5.2
45	body	Plain	SP	I	E SM	6.3
54	rim	Lip notched	SP	B	–	6
54	body	Plain	grog	G	–	5.1
56	body	Plain	grog	E	E SM	4.1
57	rim	Plain	SP	B	E SM	4.5
57	body	Plain	SP	L	–	5.5
57	body	Par. B-I	SP	B	–	6.2
57	body	Parallel Incised lines	SP	C	–	5.1
57	body	Plain	grog/SP	G	–	7.7

SP=sandy paste
E SM=exterior smoothed; I SM=interior smoothed; E OR=exterior organic residue; I OR=interior organic residue
B-I=brushed-incised

Table 6A. Ceramic sherds from the Leonard K site (41AU37). (continued)

Lot No.	Sherd Type	Decoration	Temper/ Paste	Firing Cond.	Surface Treatment	Thickness (mm)
64	body	Plain	SP	B	I/E SM	6.3
64	body	Plain	SP	B	I/E SM	6.4
74	body	Plain	SP	J	–	7.9
85	body	Parallel engraved lines	SP	B	E SM	5.4
85	body	Plain	SP	B	–	5
85	body	Plain	grog	B	I SM	5.8
85	body	Plain	grog-bone	G	E SM	6.5
85	body	Plain	SP	J	–	5.5
85	body	Plain	grog	G	–	5.2
87	body	Plain	SP	J	E SM	5.9
87	body	Plain	SP	I	E SM	6.9
88	body	Plain	SP	E	–	5.9
88	body	Plain	grog	E	I/E SM	6.7
88	body	Plain	grog	B	–	6
88	body	Plain	grog	B	I SM	6.5
88	body	Plain	grog	E	–	5.8
90	body	Plain	SP	D	I/E SM	5.7
90	body	Plain	SP	L	E SM	6.2
90	body	Plain	grog	B	E SM	7.2
90	body	Plain	SP	D	E SM	6.3
91	body	Plain	SP	J	E SM	6
91	body	Plain	grog	B	I/E SM	5.7
91	body	Plain	grog	B	–	5.4
92	rim	Plain	SP	H	I/E SM; E OR	6.5
92	body	Plain	SP	D	I/E SM	6.6
92	body	Plain	SP	L	I/E SM	6
92	body	Plain	SP	G	I/E SM	6.2
92	body	Plain	SP	D	I SM	5.5
92	body	Plain	SP	D	I/E SM	6.5
92	body	Plain	SP	A	I/E SM	6.7
92	body	Plain	SP	G	I/E SM	6.4
92	body	Plain	SP	D	I/E SM	5.9
92	body	Plain	SP	L	I/E SM	6.5
92	body	Plain	SP	D	I/E SM	7.4

SP=sandy paste
E SM=exterior smoothed; I SM=interior smoothed; E OR=exterior organic residue; I OR=interior organic residue
B-I=brushed-incised

Table 6A. Ceramic sherds from the Leonard K site (41AU37). (continued)

Lot No.	Sherd Type	Decoration	Temper/ Paste	Firing Cond.	Surface Treatment	Thickness (mm)
93	body	Plain	SP	G	E SM	6.3
94	rim	Plain	grog	B	–	4.8
109	body	Plain	grog	G	I/E SM	5.6
109	body	Plain	grog	H	–	7.3
121	rim	Plain	SP	C	I/E SM	7.8
132	body	Plain	SP	L	E SM	5.9
135	body	Plain	SP	A	I/E SM	6.7
136	body	Plain	grog	B	–	5.9
137	body	Plain	SP	D	E SM	6.4

SP=sandy paste
E SM=exterior smoothed; I SM=interior smoothed; E OR=exterior organic residue; I OR=interior organic residue
B-I=brushed-incised

sandy paste sherd is a body sherd with parallel engraved lines, likely a decorative innovation from the East Texas ancestral Caddo tradition (see Perttula 2013). None of the grog-tempered, grog-bone-tempered, and bone-tempered sherds in the Leonard K assemblage have decorative elements, but one post-A.D. 1200 grog-tempered sandy paste rim sherd is both lip notched and has horizontal brushed-incised marks and lines.

The sherds from different temper-paste groups are from vessels that were fired differently. The sandy paste wares are most commonly fired in a reducing environment and cooled in the open air (40 percent), followed by sherds from vessels fired and cooled in a reducing environment (22 percent). Equally common are sherds from vessels that were incompletely oxidized during firing (22 percent). Only 6 percent of the sandy paste sherds are from vessels that were fired and cooled in an oxidizing environment. A total of 26 percent of the sandy paste sherds have evidence of sooting and/or smudging (see Figure 2i-l); only one of the tempered wares (a grog-tempered sherd) in the assemblage have sooting and/or smudging.

The tempered wares, particularly the grog-tempered vessel sherds, are also from vessels that were fired and cooled in a reducing environment (42.3 percent), or are from vessels fired in a reducing environment and cooled in the open air (30.8 percent). The remainder (23.1 percent) are sherds from vessels that were incompletely oxidized during firing (see Table 6A).

Smoothing of the interior and/or exterior vessel surfaces is common in both the sandy paste and tempered wares at the site. This includes 62.0 percent of the Goose Creek wares and 46.2 percent of the grog-tempered, grog-bone-tempered, grog-tempered sandy paste, and bone-tempered sherds (see Table 6A). Three sandy paste sherds (6.0 percent) have preserved organic residue on either interior (n=1) or exterior (n=20 sherd surfaces. The residue is the product of the use of Goose Creek series vessels, likely jars, for cooking over a fire (see Hood 2007).

As with other Allens Creek temper and paste groups, the sherds from the Leonard K site are from thin-walled vessels. Sandy paste rim sherds are 5.8 ± 0.97 mm (ranging from 4.4-7.8 mm) in thickness, while body sherds are 6.04 ± 0.61 mm (ranging from 4.1-8.8 mm); the one sandy paste base sherd is 9.7 mm thick. Grog-tempered and grog-tempered sandy paste rim sherds range from 4.8-6.3 mm, respectively, while grog-tempered body sherds are 5.74 ± 0.82 mm (ranging from 3.9-8.8 mm). Grogbone-tempered, grog-tempered sandy paste, and bone-tempered body sherds range from 6.3-7.7 mm in thickness.

Little Bethlehem Site (41AU38)

The Little Bethlehem site has the largest ceramic vessel sherd assemblage of any of the Allens Creek sites, with 358 rim, body, and base sherds from different temper-paste groups (Table 6B). The one radiocarbon date from the site is A.D. 1480 ± 80 (Hall 1981:122), but OSL and TL dates on four sandy paste Goose Creek Plain sherds (Hood 2007:91 and Table 4.1; Feathers 2007:Table A5) in the assemblage suggest that there may also be ceramic-bearing components that date from 90 B.C.-A.D. 318 and A.D. 913-1335.

Table 6B. Ceramic sherds from the Little Bethlehem site (41AU38).

Lot No.	Sherd Type	Decoration	Temper/ Paste	Firing Cond.	Surface Treatment	Thickness (mm)
1A	body	Plain	SP	E	I SM	6.8
2A	body	Plain	SP	G	I SM	6.9
2B	body	Plain	SP	G	E SM	6.2
2E	body	Plain	SP	G	I SM	6.7
2I	body	Plain	SP	G	I SM	8
2K	body	Plain	bone	G	E SM	4.1
2Q	body	Plain	bone	F	--	4.6
2U	body	Plain	SP	B	E SM	7
2W	body	Plain	SP	B	E SM	7
2Y	body	Plain	SP	B	I SM	7.4
2CC	body	Plain	grog	B	--	5.5
2DD	body	Plain	SP	G	I SM	6.8
2EE	body	Plain	SP	G	--	6.5
2FF	body	Plain	SP	E	I SM	6.9
2GG	body	Plain	grog	F	--	6.3
2HH	body	Parallel Incised lines	grog	G	--	6.5
2KK	body	Plain	SP	E	E SM	6.5
2MM	body	Plain	grog	G	--	5.6
3A	body	Plain	SP	G	I/E SM	5.4
3C	body	Plain	bone-SP	B	--	6.2
3C	body	Parallel Incised lines	SP	G	--	4.8
3D	body	Plain	SP	G	--	4.9
3E	rim	Plain	SP	G	--	4.1
3F	body	Plain	grog-bone	G	I/E SM	5
3G	body	Plain	SP	H	--	6.2
3H	body	Plain	SP	L	--	8
3K	body	Plain	SP	G	E SM	4.5
3M	body	Plain	SP	A	--	7.2
3Q	body	Plain	bone	G	I SM	6.4
3S	body	Plain	SP	F	--	6.6
3U	base	Plain	SP	H	--	8.5
3V	body	Plain	SP	F	--	6.6
3W	body	Plain	SP	C	--	6.3

UID=unidentified
SP=sandy paste
E SM=exterior smoothed; I SM=interior smoothed; I/E SM=interior/exterior smoothed

Table 6B. Ceramic sherds from the Little Bethlehem site (41AU38). (continued)

Lot No.	Sherd Type	Decoration	Temper/ Paste	Firing Cond.	Surface Treatment	Thickness (mm)
3X	body	Plain	SP	B	I SM	6.4
3Y	body	Plain	SP	F	I SM	6.9
3Z	body	Plain	SP	F	--	6.5
3AA	body	Plain	bone-grog	C	I SM	5.9
3CC	body	Plain	bone	A	--	5
3DD	body	Straight Incised line	bone-grog	F	I/E SM	5.7
3FF	body	Plain	bone	A	--	5.7
3GG	body	Plain	bone-grog	G	I/E SM	5.6
3JJ	body	Plain	bone	A	E SM	N/A
3KK	body	Plain	bone-grog	E	--	3.8
3LL	body	Plain	bone	A	I SM	5.7
3MM	body	Plain	bone	G	I/E SM	4.9
3SS	body	Plain	SP	B	--	7
3TT	body	Plain	SP	B	I SM	6.1
3UU	body	Plain	SP	G	I SM	6.3
3VV	body	Plain	SP	B	I SM	4.5
3WW	body	Plain	SP	G	I/E SM	7.1
3XX	body	Plain	SP	B	I/E SM	5.5
3YY	body	Plain	bone-SP	G	--	6
3AAA	body	Plain	SP	B	I SM	8.4
3BBB	body	Plain	bone-SP	B	I/E SM	4.5
3CCC	body	Plain	bone-SP	B	I SM	5.4
3III	body	Plain	SP	B	I SM	6.5
3JJJ	body	Plain	SP	B	E SM	3.3
3LLL	body	Plain	grog	H	--	8.8
3NNN	body	Plain	SP	G	I SM	6.7
3PPP	body	Plain	grog	G	--	7
3UUU	body	Plain	grog	F	E SM	7.3
3VVV	body	Plain	grog	G	--	4.8
4G	body	Plain	SP	G	--	5.4
7A	body	Plain	SP	G	--	6.3
7B	body	Plain	SP	G	I SM	4.8
7D	body	Plain	SP	F	--	6.2
7E	body	Plain	SP	G	--	4.9
7L	body	Plain	SP	G	--	5.3

UID=unidentified
SP=sandy paste
E SM=exterior smoothed; I SM=interior smoothed; I/E SM=interior/exterior smoothed

Table 6B. Ceramic sherds from the Little Bethlehem site (41AU38). (continued)

Lot No.	Sherd Type	Decoration	Temper/ Paste	Firing Cond.	Surface Treatment	Thickness (mm)
7M	body	Plain	SP	G	--	6
7N	body	Straight Incised line	grog	G	--	6.5
7O	body	Plain	bone-SP	G	--	6.4
7S	body	Plain	SP	A	--	6
7T	body	Plain	bone-SP	F	--	5.9
7W	base	Plain	grog	A	--	9.1
7AA	body	Plain	bone-grog	F	--	4.9
7BB	body	Plain	grog	G	--	7.3
7CC	body	Plain	SP	B	--	6.4
7CC	body	Plain	grog	G	--	5.2
7DD	base	Plain	grog	A	--	8.9
7EE	body	Plain	SP	B	--	3.8
7EE	body	Plain	SP	G	--	5
7GG	body	Plain	SP	B	I/E SM	4.7
8A	body	Plain	SP	G	E SM	6.3
9A	rim	Plain	SP	F	--	4.4
11H	body	Plain	SP	G	--	5.5
11I	rim	Horizontal Incised lines	SP	F	--	4.2
11J	body	Plain	SP	G	E SM	7.2
11K	body	Plain	SP	H	--	7.4
12A	body	Plain	SP	G	I SM	6.7
13B	body	Plain	SP	G	--	6.2
14A	body	Plain	SP	B	E SM	4.9
15L	body	Plain	SP	A	--	5.6
15M	body	Plain	SP	C	--	7.6
15O	body	Plain	bone-SP	H	--	5.1
15P	body	Plain	bone-grog	F	--	4
15Q	body	Plain	SP	G	I SM	4.4
15R	body	Plain	SP	G	--	4.1
15S	body	Plain	SP	C	--	7.6
15T	body	Plain	SP	B	I/E SM	4.6
15V	body	Plain	grog	B	--	5
16AA	body	Plain	SP	A	--	5.6
16BB	body	Plain	bone	G	E SM	4.8
16EE	body	Plain	bone-SP	F	--	5

UID=unidentified
SP=sandy paste
E SM=exterior smoothed; I SM=interior smoothed; I/E SM=interior/exterior smoothed

Table 6B. Ceramic sherds from the Little Bethlehem site (41AU38). (continued)

Lot No.	Sherd Type	Decoration	Temper/ Paste	Firing Cond.	Surface Treatment	Thickness (mm)
16FF	body	Plain	SP	C	--	6.3
16GG	body	Plain	SP	F	--	4.5
16II-1	body	Plain	SP	B	--	6.1
16II-2	body	Plain	SP	B	E SM	6.5
16JJ	body	Plain	SP	G	--	6.9
16KK	body	Plain	SP	B	--	6.2
16LL	body	Plain	SP	B	E SM	7.1
16LL	body	Plain	SP	G	--	4
16MM	base	Plain	SP	E	--	8.9
16NN	body	Plain	SP	G	--	8.2
17A	body	Plain	SP	G	--	6.6
17B	body	Plain	bone	A	--	3.9
17H	body	Plain	bone-SP	F	--	5.2
17I	body	Plain	bone-SP	F	--	5.4
17J	body	Plain	bone-SP	F	--	5.1
17Q	body	Plain	SP	B	I SM	4.9
21E	body	Parallel Incised lines	SP	B	--	6.5
21WW	body	Plain	grog	G	--	7.5
21XX	body	Plain	SP	G	--	5.6
21ZZ	body	Straight Incised line	grog-SP	G	--	7.1
21AAA	body	Plain	SP	E	--	5.9
21BBB	body	Plain	SP	G	Int. Scored	6.9
21CCC	body	Plain	grog	E	--	7.4
21FFF	body	Plain	bone	F	--	4.9
21GGG	body	Plain	SP	C	--	4.9
21HHH	body	Plain	bone-SP	F	--	4.9
21III	body	Plain	bone-hematite	K	--	3.9
21JJJ	body	Plain	bone	E	--	5.3
21KKK	body	Plain	grog	G	--	6.2
21LLL	body	Straight Incised line	grog	G	--	7.4
21MMM	body	Plain	SP	G	--	6.7
21NNN	body	Plain	grog-bone	G	--	7.4
21OOO	body	Parallel Incised lines	grog/SP	G	--	6.7
21PPP	body	Plain	SP	G	--	6.2
21QQQ	body	Plain	grog	G	--	7.1

UID=unidentified
SP=sandy paste
E SM=exterior smoothed; I SM=interior smoothed; I/E SM=interior/exterior smoothed

Table 6B. Ceramic sherds from the Little Bethlehem site (41AU38). (continued)

Lot No.	Sherd Type	Decoration	Temper/ Paste	Firing Cond.	Surface Treatment	Thickness (mm)
21RRR	body	Plain	grog-bone	G	--	6.3
21SSS	body	Plain	grog	E	--	6.9
21TTT	body	Plain	grog/SP	G	--	8.2
21VVV	body	Plain	grog	B	--	5.5
22	body	Plain	SP	E	I SM	6.7
22I	body	Plain	SP	K	--	5.8
22V	body	Plain	bone	G	I SM	5.8
22W	body	Plain	bone	F	--	4.7
22BB	body	Plain	bone-grog	F	I/E SM	4.4
22DD	body	Plain	SP	B	--	4.6
22EE	body	Plain	SP	B	I/E SM	7.2
22GG	body	Plain	SP	G	I/E SM	5.5
22II	rim	Plain	SP	G	--	4.8
22LL	body	Plain	SP	K	E SM	6.6
22LL	body	Plain	grog	G	--	6.6
22MM	body	Plain	SP	G	Int. Scored	5.1
22NN	body	Plain	SP	G	--	5.1
22OO	body	Plain	SP	G	--	6.7
22PP	body	Plain	SP	E	--	5.3
22QQ	body	Plain	SP	D	--	4.6
23F	rim	Plain	SP	B	--	4.8
23G	body	Plain	SP	E	E SM	7.4
23H	body	Plain	SP	G	--	5.2
23I	body	Plain	SP	G	E SM	6
23J	rim	Plain	SP	L	Int. Scored	5.5
23K	body	Plain	SP	G	I SM	5.2
23L	body	Plain	SP	G	--	5.4
23O	body	Plain	SP	K	--	5.4
25K	base	Plain	SP	G	--	8.2
25L	body	Plain	grog	G	--	7.1
25L	body	Plain	SP	C	--	5.4
25M	body	Plain	grog	G	--	7.3
25P	body	Plain	grog	G	--	6.5
25Q	body	Plain	SP	G	--	6.5
25R	body	Plain	grog	G	--	7.4

UID=unidentified
SP=sandy paste
E SM=exterior smoothed; I SM=interior smoothed; I/E SM=interior/exterior smoothed

Table 6B. Ceramic sherds from the Little Bethlehem site (41AU38). (continued)

Lot No.	Sherd Type	Decoration	Temper/ Paste	Firing Cond.	Surface Treatment	Thickness (mm)
26BB	body	Plain	bone-SP	B	--	5.4
26JJ	body	Plain	bone	C	I SM	3.4
26PP	body	Plain	SP	G	--	5.4
26QQ	body	Plain	SP	G	I SM	5.8
26RR	body	Plain	SP	G	E SM	4.6
26SS	body	Plain	SP	G	I SM	4.7
26TT	body	Plain	bone	G	--	4.8
26VV	body	Plain	bone-grog	F	--	4.5
26YY	body	Plain	bone-SP	F	I SM	3.3
26AAA	body	Plain	bone	F	--	4.3
26CCC	body	Plain	SP	G	--	4.6
26DDD	body	Plain	SP	G	I SM	6.5
26EEE	body	Plain	SP	B	I/E SM	4.4
26GGG	body	Plain	grog	G	--	6.4
26HHH	body	Plain	grog	G	--	6.9
26KKK	body	Plain	grog	E	--	6.9
27K	body	Plain	SP	G	--	7.9
27L	body	Plain	SP	G	I SM	6.5
27M	body	Plain	SP	E	I SM	4.8
27N	rim	Plain	SP	B	--	4.9
27O	body	Plain	SP	A	Int. Scored	5.4
27P	body	Plain	SP	F	--	6.2
27Q	body	Plain	SP	F	--	7.6
27R	body	Plain	bone-grog	F	--	4.4
27S	body	Plain	SP	E	--	6.3
27T	body	Plain	grog	G	--	6.2
27W	body	Plain	SP	E	I/E SM	7
27Y	body	Plain	SP	F	--	7.4
27LL	body	Plain	SP	E	--	4.9
30T	body	Plain	SP	G	--	6.7
30X	body	Plain	grog	A	--	7.7
30W	body	Plain	SP	B	E SM	6.3
30Y	body	Straight Incised line	grog	G	--	7
30Z	body	Plain	grog	B	--	7.6
30LL	body	Plain	SP	F	--	6.2

UID=unidentified
SP=sandy paste
E SM=exterior smoothed; I SM=interior smoothed; I/E SM=interior/exterior smoothed

Table 6B. Ceramic sherds from the Little Bethlehem site (41AU38). (continued)

Lot No.	Sherd Type	Decoration	Temper/ Paste	Firing Cond.	Surface Treatment	Thickness (mm)
31DD	body	Plain	grog	G	--	6.3
31EE	body	Plain	SP	B	--	4.4
31FF	body	Plain	SP	E	I SM	5.4
31GG	body	Plain	SP	E	--	5.7
31HH	body	Plain	SP	G	I/E SM	5.2
31II	body	Plain	bone-SP	F	--	5.3
31JJ	body	Plain	SP	G	--	6.2
31KK	body	Plain	SP	G	--	5.1
31LL	body	Plain	SP	E	--	3.7
31PP	body	Plain	bone-SP	F	--	4.2
31OO	body	Plain	bone-SP	G	E SM	4.5
31QQ	body	Plain	SP	F	--	4
31RR	body	Plain	SP	B	--	7.1
31SS	body	Plain	SP	B	--	5.6
31TT	body	Plain	SP	B	--	6.2
31UU	body	Plain	SP	B	I/E SM	4.7
31VV	body	Plain	SP	G	E SM	5.1
31WW	body	Plain	SP	G	I SM	7.1
31YY	body	Plain	SP	D	--	6.9
31ZZ	body	Plain	SP	G	--	7.4
31AAA	body	Plain	grog	G	--	6
31BBB	body	Plain	SP	G	Int. Scored	6.6
32M	rim	Plain	bone	A	--	4.6
32N	body	Plain	SP	B	I/E SM	5.4
32P	body	Plain	SP	B	--	6.6
32Q	body	Plain	grog/SP	E	--	7.9
32S	body	Plain	SP	K	I/E SM	7.1
34T	rim	Horizontal Incised lines	bone-grog	F	--	4.9
35E	body	Plain	SP	C	--	5.1
35F	body	Plain	SP	F	--	6.7
36D	rim	Plain	grog-SP	L	--	5.4
36E	body	Plain	bone	G	I/E SM	5.3
36F	rim	Plain	SP	D	E SM	5.3
37	body	Plain	bone	G	I SM	6.6

UID=unidentified
SP=sandy paste
E SM=exterior smoothed; I SM=interior smoothed; I/E SM=interior/exterior smoothed

Table 6B. Ceramic sherds from the Little Bethlehem site (41AU38). (continued)

Lot No.	Sherd Type	Decoration	Temper/ Paste	Firing Cond.	Surface Treatment	Thickness (mm)
37H	body	Plain	bone-grog	G	I/E SM	4.6
37I	body	Plain	bone	G	E SM	4.7
37J	body	Plain	bone	E	E SM	4.9
37K	body	Plain	bone-SP	G	--	3.6
37L	body	Parallel Brushed	SP	A	--	4.1
43D	body	Plain	bone-SP	F	E SM	4.6
43F	body	Plain	SP	B	I SM	5.5
43G	body	Plain	SP	B	I/E SM	5.7
43H	body	Plain	SP	E	I SM	6.5
44A-1	body	Plain	SP	C	--	6.4
45A	rim	Diagonal Incised line	bone-grog	C	--	5.1
45B	rim	Plain	bone	F	--	5
45C	body	Plain	SP	G	I/E SM	5.7
50B	base	Plain	SP	G	--	9.4
51D	rim	Horizontal and Vertical Incised lines	grog	F	--	4.3
51Z	body	Plain	SP	G	--	4.7
51AA	body	Plain	SP	G	--	4.8
51BB	body	Plain	SP	G	--	6
51CC	body	Plain	SP	B	--	7
51EE	body	Plain	SP	D	--	3.3
51FF	body	Plain	bone-grog	B	E SM	4.8
51GG	body	Parallel Incised lines	SP	C	--	4.3
51PP	body	Plain	SP	C	--	6.9
51RR	body	Plain	SP	B	I SM	4.9
51SS	body	Plain	SP	B	E SM	4.9
51TT	body	Plain	SP	H	--	6.2
51UU	body	Plain	SP	B	--	4.4
51VV	body	Plain	SP	B	--	6.6
51WW	body	Plain	SP	B	--	4.6
51XX	body	Plain	SP	B	--	4.7
51YY	body	Plain	SP	B	--	5.8
51ZZ	body	Plain	SP	B	I/E SM	5
51AAA	body	Plain	SP	G	--	8.8
51BBB	body	Plain	SP	G	--	7.9
51YYY	body	Plain	SP	G	--	7.5

UID=unidentified
SP=sandy paste
E SM=exterior smoothed; I SM=interior smoothed; I/E SM=interior/exterior smoothed

Table 6B. Ceramic sherds from the Little Bethlehem site (41AU38). (continued)

Lot No.	Sherd Type	Decoration	Temper/ Paste	Firing Cond.	Surface Treatment	Thickness (mm)
52A	body	Plain	SP	A	--	4.8
52B	body	Plain	bone-SP	G	--	5.9
52C	body	Plain	SP	G	I SM	5.9
53D	body	Plain	bone	F	--	4.7
54	rim	Horizontal Incised lines	bone	B	--	5.7
54P	body	Parallel Incised lines	grog	F	--	4
54Q	body	Plain	bone	G	--	5.9
54R	body	Plain	bone	E	--	6.3
54LL	body	Straight Incised line	SP	B	I/E SM	5.1
56G	body	Plain	SP	G	I SM	5
56H	body	Plain	SP	B	Int. Scored	4.6
56I	body	Plain	grog	G	--	6.2
57F	body	Plain	SP	K	--	7.6
57G	body	Plain	bone-SP	G	--	6.1
57H	body	Plain	SP	F	--	5.6
57I	body	Plain	SP	G	I/E SM	6.5
60B	body	Plain	SP	B	I SM	4.8
63	body	Plain	bone-grog	E	I SM	6.3
63B	body	Plain	bone	A	--	6.2
63H	body	Plain	SP	A	--	7
63I	body	Plain	bone	E	I SM	5.9
63J	body	Plain	bone	E	--	6.5
63K	body	Plain	bone	G	--	4.9
63Q	body	Plain	bone-SP	F	--	6.3
64A	body	Plain	SP	G	--	4.9
64B	body	Plain	SP	G	I/E SM	5.1
64D	body	Plain	SP	B	I SM	5.6
64E	body	Plain	SP	G	I SM	4.3
65D	body	Plain	SP	C	--	7.1
65D	body	Plain	SP	G	I SM	6.2
65F	body	Plain	SP	B	I/E SM	4.9
65G	body	Plain	SP	E	--	7.1
65DD	body	Plain	SP	G	I SM	5.4
66B	body	Plain	SP	G	I SM	6.5
66Z	body	Plain	SP	C	--	6.6

UID=unidentified
SP=sandy paste
E SM=exterior smoothed; I SM=interior smoothed; I/E SM=interior/exterior smoothed

Table 6B. Ceramic sherds from the Little Bethlehem site (41AU38). (continued)

Lot No.	Sherd Type	Decoration	Temper/ Paste	Firing Cond.	Surface Treatment	Thickness (mm)
67A	base	Plain	grog	G	--	8.7
68A	body	Plain	grog	E	--	6.4
68X	body	Plain	SP	G	--	6.1
68Y	body	Plain	SP	K	I SM	6
68AA	body	Plain	SP	I	--	6.3
68BB	body	Plain	SP	D	--	6.4
68EE	body	Plain	SP	G	--	8.1
68FF	body	Plain	SP	G	--	7.3
69A	body	Plain	SP	H	--	7.4
69C	body	Plain	SP	G	--	5.4
69O	body	Plain	SP	G	--	5.5
71D	body	Plain	bone-grog	D	--	6.7
72P	body	Plain	SP	G	--	6.3
72Q	body	Plain	SP	G	--	5.4
72R	body	Plain	SP	I	--	6
72S	body	Plain	SP	A	--	5.9
72T	body	Plain	SP	A	E SM	5.4
72U	body	Plain	SP	A	--	6
72V	body	Plain	bone	G	--	5.4
72W	body	Plain	SP	F	--	7.9
72X	body	Plain	SP	G	--	5.8
72X	body	Plain	SP	B	--	6.6
72BB	body	Plain	grog/SP	G	--	5.9
73B	body	Plain	SP	B	--	5.7
74C	body	Plain	SP	I	I/E SM	6.2
128-1/128-2	base	Plain	SP	G	I/E SM	10.1
148	rim	Lip notched	SP	B	I/E SM	5.2
160D	body	Plain	bone-SP	C	--	4.4
201	body	Straight Incised line	SP	B	--	7.1
208	body	Plain	grog	G	--	6
210DD	body	Parallel Incised lines	SP	B	--	7.1
225	body	Plain	SP	B	--	5.1
322	body	Plain	bone-SP	B	I/E SM	6.2
722	body	Plain	SP	B	--	6.4

UID=unidentified
SP=sandy paste
E SM=exterior smoothed; I SM=interior smoothed; I/E SM=interior/exterior smoothed

Table 6B. Ceramic sherds from the Little Bethlehem site (41AU38). (continued)

Lot No.	Sherd Type	Decoration	Temper/ Paste	Firing Cond.	Surface Treatment	Thickness (mm)
UID	body	Plain	grog	E	I/E SM	6.2
UID	body	Plain	grog	F	--	5.6
UID	body	Plain	grog	F	--	5.2
UID	body	Plain	grog	E	--	6.3
UID	body	Plain	grog	E	I SM	6.9
UID	body	Plain	grog-bone	F	--	8.3
UID	body	Plain	SP	B	I/E SM	6.2
UID	body	Plain	SP	B	E SM	6.6
UID	body	Plain	SP	B	--	5.6
UID	body	Plain	SP	D	--	6.4
UID	body	Plain	SP	F	--	6.7
UID	body	Plain	SP	F	--	6.7

UID=unidentified
SP=sandy paste
E SM=exterior smoothed; I SM=interior smoothed; I/E SM=interior/exterior smoothed

The 358 vessel sherds are from seven different temper-paste groups, with the best represented being the sandy paste Goose Creek series (64.2 percent, n=230). Petrographic analysis of four Goose Creek Plain sherds indicates that they came from locally-made ceramic vessels (see Hood 2007). Sherds from grog-tempered and grog-tempered-sandy paste San Jacinto series vessels represent 12.9 percent (n=46) and 1.7 percent (n=6), respectively, of the site assemblage. The remainder of the vessel sherds from the Little Bethlehem site have bone temper, either as the sole inclusion (9.0 percent, n=32), with bone-grog temper (5.3 percent, n=19), bone-hematite temper (0.3 percent, n=1), or have bone temper in a sandy paste (6.7 percent, n=24) (see Table 6B).

Five of the temper-paste groups have rim sherds (n=16), most occurring in the sandy paste wares. All have direct or standing profiles, but with rounded (62.5 percent) or flat (37.5 percent) lips. the majority of the rims with flat lips are present in the bone and grog-tempered wares (57.1 percent), compared to only 22.2 percent of the sandy paste rim sherds (see Table 6B). Base sherds (n=10) are present only in the sandy paste (n=6) and grog-tempered (n=4) sherds; they have rounded bases and are likely from jars.

Only 5.6 percent of the ceramic vessel sherds (n=20) in the Little Bethlehem site ceramic assemblage have decorative elements, including the sandy paste (3.9 percent, n=9), grog (10.9 percent, n=5), grog-sandy paste (33.3 percent, n=2), bone (3.1 percent, n=1), and bone-grog (15.8 percent, n=3) wares; in general, the tempered wares have the highest proportion of decorated sherds. The decorated sandy paste sherds are from Goose Creek Incised vessels with simple geometric parallel (n=4), horizontal (n=1), and straight (n=2) incised lines (cf. Black 1989), a Goose Creek Brushed body sherd with parallel brushing marks, and a lip notched Goose Creek Plain, *var. Burris* vessel.

The grog-tempered and grog-tempered sandy paste decorated sherds are from San Jacinto Incised vessels, and include a rim with a vertical incised panel filled with horizontal incised lines (n=1), and body sherds with parallel incised (n=2), and straight incised (n=4). The basic geometric elements on these sherds suggest they likely date no later than ca. A.D. 1400, after which more complex and diverse incised decorative elements are present on San Jacinto Incised vessels (see Costa et al. 2017).

The bone-tempered and bone-grog-tempered decorated sherds from the Little Bethlehem site also have incised elements. The three rims have either horizontal (n=2) or diagonal (n=1) incised lines. The one decorated bone-grog-tempered body sherd has a single straight incised line.

The sherds from vessels of different temper-paste groups were fired in different ways. The highest proportions of sherds from vessels fired and cooled in a reducing environment (see Figure 2b) include the Goose Creek wares (26.5 percent) and the bone-sandy paste ware (20.8 percent). The grog-tempered, bone-sandy paste, and bone-grog-tempered sherd

have the highest proportion from vessels fired in a reducing environment and cooled in the open air (see Figure 2f-h): 68.4-75.0 percent (see Table 6B). Sherds from vessels that were incompletely oxidized during firing (see Figure 2c-e) are most commonly represented in the bone-tempered sandy paste sherds (20.8 percent). Except for the bone-tempered sherds (21.9 percent), few of the sherds are from vessels that were fired and cooled in an oxidizing environment (see Figure 2a). Lastly, a small proportion of the sandy paste (4.8 percent) and grog-tempered sandy paste (16.7 percent) sherds are from vessels sooted and/or smudged (see Figure 2i-l); the one bone-hematite-tempered sherd in the assemblage also comes from a sooted and/or smudged vessel.

The smoothing of interior, exterior, and interior/exterior vessel surfaces was a common form of vessel modification in the sandy paste (36.9 percent), bone-tempered (40.6 percent), bone-grog-tempered (42.1 percent), and bone-tempered sandy paste (25.0 percent) sherds in the Little Bethlehem site sherd assemblage. This was not the case with the grog-tempered and grog-tempered sandy paste sherds, as only 5.8 percent of these sherds had any form of surface smoothing. Six of the sandy paste sherds (2.6 percent) had been scored on their interior surfaces.

The rim and base sherds among the different temper-paste groups at the Little Bethlehem site are quite comparable in wall thickness. Rim sherds range from 4.3 mm to 5.4 mm in thickness, with mean thicknesses of 4.80 ± 0.38 for Goose Creek series rims, 5.0 ± 0.1 mm for bone-grog-tempered rims, and 5.1 ± 0.4 mm for the bone-tempered rims. The sandy paste and grog-tempered base sherds are 8.98 ± 0.51 mm and 8.88 ± 0.13 mm thick, respectively.

The body sherds from vessels with different temper-paste constituents are much more variable in thickness. The sandy paste body sherds are 5.93 ± 0.87 mm thick, and the grog-tempered and grog-tempered sandy paste body sherds have significantly thicker walls: 6.43 ± 0.65 mm and 6.96 ± 0.53 mm, respectively. The bone-tempered, bone-tempered sandy paste, and bone-grog-tempered body sherds from the Little Bethlehem site, on the other hand, have notably thinner body walls than either the sandy paste or grog-tempered wares: 5.18 ± 0.69 mm, 5.07 ± 0.70 mm, and 5.45 ± 1.02 mm, respectively. The one bone-hematite-tempered body sherd is only 3.9 mm thick.

Summary and Conclusions

Archaeological investigations reported by Hall (1981) on Allens Creek sites in the lower Brazos River valley in the Gulf Coastal Plain recovered 534 ceramic vessel sherds from 10 different sites; except for the Little Bethlehem site (41AU38) with 358 sherds, the other sites have only between 1-76 sherds. Based on the recovery of temporally diagnostic lithic artifacts as well as several radiocarbon dates and TL/OSL dates (see Hood 1981; Feathers 2007), the ceramics are from components that date to pre-A.D. 700 (perhaps as early as ca. 2000 years ago) and post-A.D. 900 eras. Two of the radiocarbon dates from the Leonard K (41AU37) and Little Bethlehem sites indicate that much of the ceramics from these sites postdates A.D. 1480.

The ceramic vessel sherds from the sites as a whole are dominated by sherds from Goose Creek series vessels with a sandy paste (Table 7). The proportion of sandy paste sherds by site ranges from 44.0 percent to 94.1 percent, with 64.6 percent of all the sherds being from Goose Creek series vessels. Grog-tempered and grog-tempered sandy paste sherds account for 15.2 percent and 2.1 percent of the assemblage as a whole, and ranges from 2.2-44.0 percent and 1.7-12.0 percent, respectively in different sites. The bone-tempered sherds account for 9.2 percent of the sherds, with proportions raging from 1.3-32.6 percent, and the bone-tempered sandy paste sherds are present only at 41AU31 and 41AU38, in proportions ranging from 6.5-6.7 percent. The bone-grog-tempered sherds are present only in the assemblages from 41AU37 and 41AU38, and proportions between 1.3-5.3 percent, and the one bone-hematite-tempered sherd (0.3 percent) is in the 41AU38 assemblage (Table 7).

The ceramic sherds from the Allens Creek sites are predominantly from undecorated jars with direct or vertical walls and rounded or flat lips. A small proportion of the sandy paste (5.5 percent), grog-tempered (12.0 percent), and bone-tempered (4.1 percent) sherds have decorative elements. The decorated sandy paste sherds include lip notched Goose Creek Plain, *var. Burris* vessel rims (n=4), as well as sherds from Goose Creek Incised (n=12) and Goose Creek Brushed (n=2) vessels. One sandy paste vessel sherd from the Leonard K site has parallel engraved lines. The grog-tempered decorated sherds in the Allen Creek sites (n=8) are primarily from San Jacinto Incised vessels, and three other sherds have brushed and brushed-incised marks and lines; one of these from the Leonard K site has a lip notched rim. Four of the bone-tempered and bone-grog-tempered sherds have incised decorative elements from unidentified but probably locally made types.

Table 7. The ceramic assemblages from the Allen Creeks sites.

Sites	SP	G	G-SP	B	B-SP	B-G	B-H	N
41AU8	5	--	--	--	--	--	--	5
41AU9	3	--	--	--	--	--	--	3
41AU11	1	--	--	--	--	--	--	1
41AU14	11	11	3	--	--	--	--	25
41AU21	2	--	--	--	--	--	--	2
41AU31	27	1	--	15	3	--	--	46
41AU35	--	--	--	1	--	--	--	1
41AU36	16	1	--	--	--	--	--	17
41AU37	50	22	2	1	--	1	--	76
41AU38	230	46	6	32	24	19	1	358
Totals	345	81	11	49	27	20	1	534
Percent	64.6	15.2	2.1	9.2	5.1	3.7	0.1	100

SP=sandy paste; G=grog-tempered; G-SP=grog-tempered sandy paste; B=bone-tempered; B-SP=bone-tempered sandy paste; B-G=bone-grog-tempered; B-H=bone-hematite-tempered

The majority of the sherds are from vessels that were fired in a low oxygen or reducing environment, either cooled in a reducing environment, or removed from the fire to be cooled in the open air (see Figure 2b, f-h). A small but distinctive set of sherds, primarily from the Goose Creek series, have been sooted or smudged, where carbon was deposited on the surface of vessels (see Shepard 1956:216-220), leaving the interior and/or exterior surfaces blackened. Hamilton (1988:95) suggests that such vessels were "fired mouth down," with organic matter placed inside the vessel to create the sooting/smudging effect.

About 25-40 percent of the ceramic vessel sherds from the different temper-paste groups in the Allens Creek assemblages have been smoothed on interior and/or exterior vessel surfaces. The smoothing of interior vessel surfaces was probably done to lower the permeability and increase the heating effectiveness of particular vessels in cooking tasks (cf. Rice 1996:148), and in the repeated use of these wares.

The earliest ceramics made in this region (taking a Gulf Coastal perspective) are non-tempered and plain sandy paste jars and bowls (Perttula and Ellis 2013:130) with thin walls (ca. 5-6 mm thick) and rounded bases (>8 mm thick). This is followed after ca. A.D. 900 by the manufacture of vessels with grog temper, and then later still by the manufacture of some vessels with bone temper (cf. Aten 1983:291-292 and Figures 14.3 and 14.4; Ellis 2010). These temporal trends in the use of temper for vessel manufacture permit the development of a proposed temporal sequence for the larger vessel sherd assemblages at Allens Creek (Table 8).

In this proposed sequence, the earliest assemblage, predating A.D. 700 and almost exclusively sandy paste Goose Creek Plain sherds, is from the Ernest Witte site (41AU36). The post-ca. A.D. 900-1000 assemblages have considerable amounts of grog-tempered and grog-tempered sandy paste sherds (31.5-56.0 percent) as well as sandy paste sherds, but little use of bone temper (see Table 8). Decorated sandy paste sherds are a notable feature of the sandy paste sherds from the Leonard K site (41AU37). The latest assemblages at Allens Creek, presumed to date after ca. A.D. 1300, have moderate amounts of bone-tempered sherds (15.7-39.1 percent), some decorated with incised elements, as well as sandy paste sherds with incised and brushed decorations and sherds from grog-tempered San Jacinto Incised vessels (see Table 8).

There are several different ceramic wares represented in assemblages in the region around the Allens Creek sites, dating from as early as ca. 2000 years ago to at least 500 years ago. Ceramic vessels are not common on sites in this part of Texas, but the existence of different manufacturing (and decorative) traditions in the region suggests both the development of localized ceramic practices as well as broad scale interactions with neighboring groups (such as ancestral Caddo peoples and Upper Texas Coast peoples) with different ceramic traditions (Perttula and Ellis 2013:130).

Table 8. Proposed temporal sequence for Allens Creek sites with more than 17 sherds.

Sites	SP	G	G-SP	B	B-SP	B-G	B-H
Pre-A.D. 700							
41AU36	94.1*	5.9	--	--	--	--	--
Post-ca. A.D. 900/1000							
41AU37	65.8	28.9	2.6	1.3	--	1.3	--
41AU14	44	44	12	--	--	--	--
Post-ca. A.D. 1300/1400							
41AU38	64.2	12.9	1.7	9	6.7	5.3	0.3
41AU31	58.7	2.2	--	32.6	6.5	--	--

**=percent*
SP=sandy paste; G=grog-tempered; G-SP=grog-tempered sandy paste; B=bone-tempered; B-SP=bone-tempered sandy paste; B-G=bone-grog-tempered; B-H=bone-hematite-tempered

The ceramic wares in the Yegua Creek and Brazos River basins in Lee, Burleson, and Washington counties not far to the north of the Allens Creek sites include sandy paste Goose Creek Plain and Goose Creek decorated sherds (41 percent of the sherds in various collections, see Perttula 2019); bone-tempered plain and decorated sherds (31.4 percent); bone-tempered sandy paste sherds (10 percent); and tempered plain and decorated ancestral Caddo ceramic sherds (17.6 percent). The Goose Creek ceramics, first made ca. 2500 years ago, have a sandy paste, thin walls, floated surfaces, and rounded or conical bases and are associated with the Mossy Grove Culture (Ellis 2013:141 and Figure 1). Decorated sandy paste pottery is generally rare (see Story 1990:Tables 58 and 64), and likely dates mainly after ca. A.D. 900 on area sites. Plain and decorated bone-tempered ceramic wares are apparently present throughout the region before the post-A.D. 1250 manufacture of Leon Plain pottery, as are bone-tempered sandy paste ceramics. Plain bone-tempered sandy paste ceramics have been recovered in pre-A.D. 400 and ca. A.D. 380-800 contexts in the Trinity and Navasota River basins (Perttula and Ellis 2013:125), while at Boriack Bog in Lee County, plain bone-tempered and bone-tempered sandy paste sherds occur together with brushed as well as red slipped or red-filmed sherds in post-A.D. 1200 contexts. Ancestral Caddo vessels tempered with grog and/or bone (and occasionally with a sandy paste, see Perttula 2008:421) that were manufactured in a number of different regions in East Texas were occasionally traded or exchanged with aboriginal hunter-gatherer groups whose territorial range included the Brazos and Colorado River basins, generally between ca. A.D. 900-1800. Post-A.D. 1400 Caddo ceramics are particularly widespread in the region, as at the Reading site (41BU16) on the Brazos River (Roemer and Carlson 1987).

The Cedar Bridge site (41FY74) in Fayette County to the west of the Allens Creek sites, but in the Colorado River basin, has a ceramic sherd assemblage (n=552) dominated by plain bone-tempered sandy paste wares (89+ percent) (Skelton 1977). Sandy paste Goose Creek Plain sherds comprise only 10 percent of the assemblage, and two plain sherds are from grog-tempered vessels. Perttula and Ellis (2013:128) suggest that the ceramics from the Cedar Bridge site "closely resemble those found in Southeast Texas coast assemblages."

Another Fayette County site, the Sandbur site (41FY135) on the Colorado River, has a small sherd assemblage (n=81) from a post-A.D. 1400 component (Kalter et al. 2005). More than 60 percent of the sherds are from bone-tempered vessels, mostly with a sandy paste, along with plain sandy paste sherds. Kalter et al. (2005:219) suggest that the ceramics from the site are "the product of an indigenous population that had developed a tradition influenced by contacts with groups outside the area." Petrographic and instrumental neutron activation analysis of sherds indicate that the ceramics found at the Sandbur site were likely made in the general site vicinity from Colorado River clays.

At 41FB200 in the Brazos River valley in Fort Bend County to the south of Allens Creek, the ceramic assemblage there is dominated by Goose Creek Plain and Goose Creek Incised sherds: 98.2 percent of the assemblage (Ellis and Ellis 1996). Among the Goose Creek series sherds are two with drilled suspension holes and lip notched rims (Goose Creek Plain, *var. Burris*). About 36 percent of the sherds have sooted and/or smudged interior surfaces. A few sherds have grog (1.6 percent) or bone temper (0.2 percent), hinting at post-A.D. 1000 use, but the remainder of the assemblage likely predates ca. A.D. 700.

At the mouth of the Brazos River, the ceramic assemblage at the Jones Lake site (41BO79) in Brazoria County is dominated by grog-tempered (83 percent) San Jacinto Plain and San Jacinto Incised vessel sherds (Nash et al. 1996); this area may be the source of much of the plain and decorated grog-tempered sherds at the Allens Creek sites. Less than 5 percent of the 1700 sherds in the assemblage are from bone-tempered vessels, and another 12 percent of the sherds are from Goose Creek Plain and Goose Creek Incised vessels.

In conclusion, the Allens Creek site ceramic assemblages represent locally produced wares made after ca. 2000 years ago until after ca. 500 years ago; additional petrographic and chemical analyses should be completed to clearly establish the local manufacture of the vessels from these sites, and additional radiocarbon dates from several of the sites would help inestimably in refining the temporal sequence of the different ceramic wares. There is a regionally and distinctively high proportion of sandy paste Goose Creek series vessel sherds (from Goose Creek Plain, Goose Creek Incised, and Goose Creek Brushed vessels) in most of the assemblages, along with the manufacture and use of vessels with either grog (San Jacinto series of upper Texas Coast affiliation) after ca. A.D. 900-100 or bone temper that began to be common after ca. A.D. 1300-1400.

Acknowlegments

Thanks to Marybeth Tomka at the Texas Archeological Research Laboratory at The University of Texas for accessing the collection for this ceramic study. I also appreciate the useful information provided by Linda W. Ellis on ceramic assemblages in the region, and in helping me track down the Hood (2007) dissertation. Lance Trask prepared Figures 1 and 2.

References Cited

Arnold, Dean E.
2000 Does the Standardization of Ceramic Pastes Really Mean Specialization? *Journal of Archaeological Method and Theory* 7:333-375.

Arthur, John W.
2006 *Living with Pottery: Ethnoarchaeology among the Gamo of Southwest Ethiopia*. The University of Utah Press, Salt Lake City.

Aten, Lawrence E.
1983 *Indians of the Upper Texas Coast*. Academic Press, New York.

Black, W. Marshall
1989 *A Study of Decorative Design on Goose Creek and San Jacinto Pottery of Southeast Texas*. report No. 8. Houston Archeological Society, Houston.

Costa, August G., Erin Phillips, and Johnny Pollan
2017 First Record of Diverse Rim Decoration on a Mossy Grove Pot from the Dow-Cleaver site 41BO35, Brazoria County, Texas. Poster presented at the 2017 Annual Meeting of the Texas Archeological Society, Austin.

Ellis, Linda W.
2010 Prehistoric Ceramics of the Gulf Coast. In *Regional Summaries of Prehistoric and Early Historic Ceramics in Texas for the Council of Texas Archeologists*, assembled and edited by Linda W. Ellis and Timothy K. Perttula, pp. 42-57. CTA Ceramics Protocol Committee, Council of Texas Archeologists, Austin.

2013 Woodland Ceramics in East Texas and a Case Study of Mill Creek Culture Ceramics. *Bulletin of the Texas Archeological Society* 84:139-180.

Ellis, Linda W. and G. Lain Ellis
1996 Analysis of Ceramics Recovered from 41FB200. In *Test Excavations at Sites 41FB199, 41FB200, and 41FB202 in Cullinan Park, Fort Bend County, Texas*, by R. G. Moore, Appendix I. Report of Investigations No. 92. Moore Archeological Consulting, Houston.

Ellis, Linda W. and Timothy K. Perttula (assemblers and editors)
2010 *Regional Summaries of Prehistoric and Early Historic Ceramics in Texas for the Council of Texas Archeologists*. CTA Ceramics Protocol Committee, Council of Texas Archeologists, Austin.

Ellis, Linda W., Robert Rogers, Jeffrey R. Ferguson, and Michael D. Glascock
2013 Ceramic Analysis. In *Archeological Investigations at the Santa Maria Creek Site (41CW104), Caldwell County, Texas*, by R. Rogers, Linda W. Ellis, Brandy Harris, Candace Wallace, Haley Rush, Julie Shipp, Marilyn Shoberg, Charles Frederick, Michael D. Glascock, Jeffrey R. Ferguson, Mary Malainey, Chris Heiligenstein, Michael Nash, Boyd Dixon, J. Phil Dering, and Leslie L. Bush, pp. 219-265. Archeological Studies Program Report No. 137. Environmental Affairs Division, Texas Department of Transportation, Austin.

Feathers, James K.
2007 Appendix A: Luminescence Dating of Pottery from the Upper Texas Coastal Plain. In Modeling Hunter-gatherer Ceramic Production and Use: A Test Case from the Upper Texas Coastal Plain, by Larkin N. Hood, pp. 258-270. Ph.D. dissertation, Department of Anthropology, University of Washington, Seattle.

Hall, Grant D.
1981 *Allens Creek: A Study in the Cultural Prehistory of the Lower Brazos River Valley, Texas*. Research Report No. 61. Texas Archeological Survey, The University of Texas at Austin.

Hamilton, Donnie L.
1988 Archeological Investigations at Shy Pond, Brazoria County, Texas. *Bulletin of the Texas Archeological Society* 58:77-145.

Hood, Larkin N.
2007 Modeling Hunter-gatherer Ceramic Production and Use: A Test Case from the Upper Texas Coastal Plain. Ph.D. dissertation, Department of Anthropology, University of Washington, Seattle.

Kalter, Ardi J., Robert M. Rogers, and Michael N. Smith
2005 *Analysis and Reporting for 41FY135, the Sandbur Site, Fayette County, Texas*. Document No. 020388, PBS & J, and Archeological Studies Program Report No. 73, Texas Department of Transportation, Austin.

Nash, Michael A., Linda W. Ellis, Robert Rogers, Patricia E. McCoy, Elizabeth A. Skokan, and Leonard R. Voellinger
1996 *Archaeological Data Recovery on the Jones Lake Site (41BO79), Brazoria County, Texas*. Document No. 16132. PBS & J, Austin.

Perttula, Timothy K.
2013 Caddo Ceramics in East Texas. *Bulletin of the Texas Archeological Society* 84:181-212.

2018 *The Strawberry Hill Site (41SJ160) Ceramic Vessel Sherd Assemblage, San Jacinto County, Texas, and Comparisons to other Mossy Grove Culture Ceramic Assemblages.* Report No. 31. Houston Archeological Society, Houston.

2019 Aboriginal Ceramic Wares from Sites in the Yegua Creek Drainage of the Brazos River Basin, East Central Texas. Report on file, Texas Parks and Wildlife Department, Austin.

Perttula, Timothy K. (editor)
2005 *Archeological Investigations at the Pilgrim's Pride Site (41CP304), a Titus Phase Community in the Big Cypress Creek Basin, Camp County, Texas*. 2 Vols. Report of Investigations No. 30. Archeological & Environmental Consultants, LLC, Austin.

2008 *Lake Naconiche Archeology, Nacogdoches County, Texas: Results of the Data Recovery Excavations at Five Prehistoric Archeological Sites*. 2 Vols. Report of Investigations No. 60. Archeological & Environmental Consultants, LLC, Austin.

Perttula, Timothy K. and Linda W. Ellis
2013 Aboriginal Ceramics Among Groups Living in the Prairie Savanna Region of Texas. *Bulletin of the Texas Archeological Society* 84:113-135.

Rice, Prudence M.
1987 *Pottery Analysis: A Sourcebook*. University of Chicago Press, Chicago.

1996 Recent Ceramic Analysis: 1. Function, Style, and Origins. *Journal of Archaeological Research* 4(2):133-163.

Roemer, Erwin, Jr. and Shawn B. Carlson
1987 *Excavations at 41BU16: State Highway 21 at the Brazos River, Burleson County, Texas*. Contract Reports in Archaeology, Report No. 1. Highway Design Division, Texas State Department of Highways and Public Transportation, Austin.

Shepard, Anna O.
1956 *Ceramics for the Archaeologist*. Publication No. 609. Carnegie Institution of Washington, Washington, D.C.

Skelton, Duford W.
1977 *Archeological Investigations at the Fayette Power Project, Fayette County, Texas*. Research report No. 60. Texas Archeological Survey, The University of Texas at Austin.

Skibo, James M.
1992 *Pottery Function: A Use-Alteration Perspective.* Plenum Press, New York.

Story, Dee Ann
1990 Cultural History of the Native Americans. In *The Archeology and Bioarcheology of the Gulf Coastal Plain, Vol. 1*, by Dee Ann Story, Janice A. Guy, Barbara A. Burnett, Martha D. Freeman, Jermoe C. Rose, D. Gentry Steele, Ben W. Olive, and Karl J. Reinhard, pp. 163–366. Research Series No. 38. Arkansas Archeological Survey, Fayetteville.

Suhm, Dee Ann and Edward B. Jelks (editors)
1962 *Handbook of Texas Archeology: Type Descriptions*. Special Publication No. 1, Texas Archeological Society and Bulletin No. 4, Texas Memorial Museum, Austin.

Teltser, Patrice A.
1993 An Analytic Strategy for Studying Assemblage-Scale Ceramic Variation: A Case Study from Southeast Missouri. *American Antiquity* 58(3):530-543.

Weinstein, Richard A. and Michelle Hutchins
2002 Aboriginal Ceramics. In *Archaeological Investigations at the Guadalupe Bay Site (41CL2): Late Archaic through Historic Occupation along the Channel to Victoria, Calhoun County, Texas*, edited by R. A. Weinstein, pp. 241-360. 2 Vols. Coastal Environments, Inc., Baton Rouge.

AN ARCHEOLOGICAL AND PALEONTOLOGICAL COLLECTION FROM MCFADDIN BEACH (41JF50), JEFFERSON COUNTY, TEXAS

Wilson W. Crook, III

Introduction

In 2019, Mrs. Claudia Eggleston of Channel View, Texas donated an archeological and paleontological collection from McFaddin Beach (41JF50) to the Houston Archeological Society (HAS) through Larry Golden. The collection was donated to the HAS in the name of Mrs. Eggleston's late husband, Earl Eggleston, who passed away in 2005. Mr. Eggleston collected the materials that make up the collection during the early 1980s when it was still legal to collect artifacts from McFaddin Beach. Mr. Eggleston was a road construction superintendent working on Highway 87, which at the time ran from High Island to Port Arthur along the Gulf of Mexico. Earl would search the beach for artifacts during his lunch break and he and Claudia would travel to McFaddin beach and search for artifacts on the weekends. His interest in McFaddin Beach stemmed from a meeting with Dr. Russel Long of Lamar University. Long, a well-known expert on McFaddin Beach, was searching for artifacts to add to his collection. Earl was invited to Dr. Long's office at Lamar to see his collection.

During this time, Earl also met avocational archeologist Paul Tanner, who also was collecting on the beach. Tanner is another person who is well-known for his contributions to the archeology and paleontology of McFaddin Beach. He contributed to the information on the site that is available of Texas Beyond History (www.texasbeyondhistory.net) as well as donating a significant number of McFaddin Beach artifacts to the collections at the Texas Archeological Research Laboratory in Austin. Tanner also played a major role in organizing a technical conference in 1991 to study the artifacts from McFaddin Beach. This conference included such notables as Dee Ann Story, Dennis Stanford, Mike Collins, Tom Hester, Richard Weinstein, Ellen Sue Turner, and Russel Long to name a few.

The artifacts in the Eggleston Collection were recovered all along McFaddin Beach, however, the more significant ones were found in the area known as the "Cattle Pens" (named for the ruins of cow pens nearby) and the "Salt Cedars" area, a grove of trees so named because in October they are completely covered in Monarch butterflies licking the salt which has adhered to the wood.

Larry Golden has known Claudia Eggleston since the 1980s after meeting her at the Antique Junction Store in Pasadena (now closed). She knew that Larry was an avocational archeologist and wanted to give their McFaddin Beach collection to him for the Houston Archeological Society so that interested scientists and archeologists would benefit from studying it in the future. This paper thus serves to describe and document the 19 lithic artifacts and seven vertebrate fossils which make up the Eggleston Collection.

The McFaddin Beach "Site" (41JF50)

McFaddin Beach is a 32 km (20 miles) long stretch of sandy beach in Jefferson County that stretches from High Island in the west to Sea Rim State Park in the east. While this extremely long stretch of beach has received a single state trinomial number, 41JF50, it does not represent a single archeological site. Rather it is recognition of a unique area within the state where thousands of artifacts have been secondarily deposited via wave and storm action from an unknown number of sites that are currently submerged. The Upper Gulf Coast, including the McFaddin Beach area, is constantly being disrupted by currents and storm surges associated with annual tropical storms and hurricanes. As a result, the beach area along this part of the Texas coast is constantly changing shape via both subtraction and accretion of the shoreline (Turner and Tanner 1999; Stright et al. 1999).

Based on excavations on the onshore portion of McFaddin Beach, it is apparent that most if not all the artifacts found along the beach are being sourced from offshore sites now submerged under the waters of the Gulf of Mexico (Long 1977; Turner and Tanner 1994). It has also been determined that the area encompassing the offshore opposite McFaddin Beach was part of a high, interfluvial area between the Trinity River valley to the southwest and the Sabine River to the northeast until relatively recently

in geologic history. During the last glacial maximum (and thus minimum sea levels) some 18,000-26,000 years B.P., sea level was about 125 meters below its present height. At this time, the shoreline with the Gulf of Mexico was as much as 200 km to the south of its present position (Ricklis and Weinstein 2005; Sims et al. 2007). By the time of the Clovis culture, 13,500-12,900 years ago, water levels had risen but were still 65-68 meters below the present sea level with the shoreline being 175 km away from its current position. With continual melting of the continental ice sheets, sea level continued to rise but was still at least 20 meters below the present level by 10,000 years ago. Sea level rise was fairly rapid during the Early Holocene (ca.9000-7000 B.P.) but the Gulf shoreline was still some 50 km to the south (Ricklis and Weinstein 2005). Current estimates are that the entire area that was once an interfluvial high was finally flooded by rising sea levels only about 1500 years ago (ca. A.D. 500) (Sims et al. 2007). The point of this long history of gradual submergence is that an untold number of sites, potentially ranging from a few hundred meters to as far as 175 km away, are potentially contributing to the artifact mix at McFaddin Beach.

In addition to lithic artifacts, McFaddin Beach is also well-known for its abundance in Pleistocene vertebrate fossils. The vertebrate fossils found at McFaddin Beach are similar to other Rancholabrean fauna found in southeast Texas and southern Louisiana. These fossils represent about a 300,000 year-old period at the end of the Pleistocene (Russell 1975). Like the lithic artifacts, the vertebrate fossil assemblage from the beach varies widely in age with much of the fossil material pre-dating the earliest evidence of man in the area (Clovis ca. 13,000 years B.P.). The fossil assemblage is also a highly biased sample, with mainly only the larger mammal species surviving the tumble and re-deposition along the beach. Mammal species most commonly found include mammoth, mastodon, bison, ground sloth, cave bear, saber-tooth cat, llama, whitetail deer, tapir, peccary, and horse (Russell 1975; Long 1977). Aquatic species and those animals that live near the water are also commonly found including alligator, turtles, alligator gar, catfish, beaver, and raccoon (Russell 1975).

The Eggleston Archeological Collection

The archeological component of the Eggleston Collection consists of 19 artifacts which include 15 complete and partial dart points and four other lithic tools. The artifacts range from early Paleoindian (ca. 13,000 B.P.) to Late Archaic (ca. 2350-1250 B.P.) in age. No Late Prehistoric artifacts such as arrow points or ceramics are part of the collection. The collection is also 100 percent lithics; no bone tools are present.

Eighteen of the 19 artifacts (95 percent) are made from various types of chert. One artifact, a Pelican point, is made from silicified palm wood. Of the 18 chert artifacts, nine fluoresce a pale yellow to strong yellow-orange color under both short and long-wave UV radiation. While not an absolute test, this color fluorescence has traditionally been used to assign an Edwards Plateau origin for the chert (Hofman et al. 1991; Hillsman 1992). In this regard, the chert in all nine artifacts that fluoresce yellow or yellow-orange is consistent with known cherts from the eastern side of the Edwards Plateau (Williams and Crook 2013). The remaining cherts are composed of various shades of red, yellow, brown, and black which are common to the so-called “gravel chert” found in southwestern Louisiana and occasionally in southeast Texas (Heinrich 1987). Typically these cherts occur in small (less than 5 cm in diameter) cobbles composed of microcrystalline silica. Color of the gravel cherts varies but is dominated by those of the 10YR hue including weak red (10YR 4/4) to light olive brown, opaque gray, brownish-yellow, and dark yellow-browns (Heinrich 1987). Hues redder than 10YR occur when the material has been heat-treated. A common petrographic feature of gravel chert is the pervasive presence of iron oxides which further oxidize when heated. Most of the gravel cherts have their origin in the Arbuckle and Ouachita Mountains of eastern Oklahoma and southwestern Arkansas and were deposited through fluvial action along the major north-south trending rivers and stream of East Texas and western Louisiana. A key feature of these gravel cherts is that they do not fluoresce any color under either short or long-wave UV radiation (Crook 2020).

Banks (Stright et al. 1999) identified as many as 59 lithic sources for the artifacts at McFaddin Beach, some of which have their outcrops thousands of miles away. All of these identifications were identified based on response to UV light coupled with Banks’ extensive personal collection of samples from chert outcrops across the U.S. (Patterson 2000). The author’s personal study of cherts found in Texas Clovis sites has shown that color and UV light response alone are not unambiguous characteristics that can reliably be used to source cherts as they can vary widely in texture and color across a single outcrop (Crook and Williams 2013; Williams and Crook 2013). Our studies have shown that only detailed trace element geochemical analysis coupled with an extensive geologic database can hope to determine accurately chert sources (Williams and Crook 2013). Thus, while undoubtedly the lithic assemblage at McFaddin Beach is composed of cherts from a number of sources, some of which are probably exotic, this study has confined the identification to probable Edwards chert and probable “local” gravel chert.

A complete listing of all the artifacts in the Eggleston Collection with their physical measurements and colors appears in Appendix I at the end of this paper. Individual descriptions of the artifacts and their typology by chronological age are detailed below.

Paleoindian Period (ca. 13,000-8,000 B.P.)

Five projectile points can be positively identified as belonging to the Paleoindian period. McFaddin Beach is well-known for the high percentage of Paleoindian points that have been found there (Hester et al. 1992; Stright et al. 1999). In her analysis of 880 artifacts from five of the largest collections from McFaddin Beach, Stright et al. (1999) found that 45 percent of the projectile points were defined Paleoindian types. These included San Patrice (53), Scottsbluff (36), Dalton (27), Clovis (21), Plainview (13), Pelican (13), Hell Gap (3), Folsom (2), Angostura (2), and several other late Paleoindian types (Keithville). Since the time of her study, even greater numbers have been reported, especially of Clovis points. In their latest review of the Texas Fluted Point Survey, Bever and Meltzer (2007) reported 97 Clovis points from McFaddin Beach which represents 24 percent of all the Clovis points which had been recorded (measurements and photographs) in the survey up to that date.

There is no good explanation for the unusually large percentage of Paleoindian points from the area, but biased collecting may play a role in their high numbers – significantly higher relative to non-Paleoindian points than anywhere else in Texas (Hester et al. 1992).

Of the five Paleoindian points present in the Eggleston Collection, one is a Clovis, three are Pelican points, and one is probably a Keithville. The Clovis point is made from a butterscotch-colored chert (brownish-yellow (10YR 6/8) to yellow (10YR 7/8) that does not fluoresce under UV light. The chert is almost identical in color to other Clovis points from McFaddin Beach as reported by Hester et al. (1992) and Long (1977, 1986) and probably derives from the yellow-brown cherts found in western Louisiana and East Texas (Banks 1990; Heinrich 1987). The point is almost complete with minor damage to the base, which effects the measurement of the depth of the basal concavity. Maximum length is 73.9 mm, maximum width is 27.4 mm, and maximum thickness is 7.4 mm (Figures 1a-b). The point

Figure 1a. Obverse face of the Clovis point from the Eggleston McFaddin Beach Collection.

Figure 1b. Reverse face of the Clovis point from the Eggleston McFaddin Beach Collection.

Table 1. Eggleston McFaddin Beach (41JF50) Collection Clovis Point Data (all measurements in mm except for weight)

Measurement	Clovis Point	State Mean[1]
Maximum Length	73.9[2]	65
Maximum Width	27.4	28
Width at Base	23.1	23.9
Maximum Thickness	7.4	7.4
Number of Flutes	1	N/A
Length of Obverse Flute	24	25.2
Ave. Width of Obverse Flute	15.4	13.5
Number of Flutes (Reverse)	2	N/A
Length of Reverse Flute	15	25.2
Ave. Width of Reverse Flute	14.9	13.5
Max. Thickness at Flute	5	5.7
Basal Depth	1.9[2]	3.1
Length Basal Grinding (L)	27	26.2
Length Basal Grinding (R)	27.1	26.2
Presence of Basal Grinding	Yes	Yes
Weight (grams)	19.9	N/A
Color	Brownish-Yellow to Yellow 10YR 6/8-7/8	N/A
Lithic Material	Chert	N/A
UV Fluorescence	None	N/A

[1] Based on 408 Clovis points recorded in Texas Clovis Fluted Point Survey (2007).

[2] Point is broken near the base (ears missing) which impacts total length and basal depth.

weighs 19.9 grams. Both lateral edges are extensively ground as is the basal concavity. Complete physical measurements using the 19 point system devised by Bever and Meltzer (2007) are shown in Table 1. As can be seen in the table, the point is a very close match in most dimensions to the State average for all reported complete Clovis points.

The three Pelican points from the Eggleston Collection are shown in Figure 2. Point #1 is made from a light brownish-yellow chert (10YR 6/4) which does not fluoresce under UV light. Maximum length is 45.0 mm with a maximum width of 27.0 mm. Width at the base is 21.1 mm. Maximum thickness is 6.5 mm and the point weighs 8.7 grams. Both lateral edges are extensively ground the entire length of the stem. The point has undergone significant curation, having been resharpened several times which is typical for Pelican points (Gagliano and Gregory 1965; Turner et al. 2011).

The second Pelican point is made from silicified palm wood which has been flaked parallel to the length of the wood such that the rod-like sclerenchyma structures, which were originally part of the woody tissues, appear as streaks in the now silicified wood (Blackwell et al. 1983) (see Figure 2). Silicified palm wood are pieces of fossilized Oligocene and Miocene tree genera, *Palmoxylon*, and are common in Southeast Texas and southern Louisiana (Berry 1916). Total length of the point is 46.5 mm with a maximum width of 26.9 mm. Width at the base of the point is 20.0 mm and the maximum thickness is 6.0 mm. Wight of the point is 9.5 grams. Both lateral edges are heavily ground from the base to about 21.5 mm of both lateral edges. Color of the point is brown (10YR 5/3) to grayish-brown (10YR 5/2) with pale whitish-yellow streaks. The point does not fluoresce under UV light.

The third Pelican point is made from brown chert (7.5YR 4/2-4/3) which fluoresces a strong yellow-orange color under both short and long-wave UV light. Based on this strong fluorescence the chert is believed to have originated from the Edwards Plateau area of central Texas (Hofman et al. 1992; Hillsman 1992). This point has been extensively curated such that its maximum length is now only 27.0 mm. Maximum width is 20.0 mm and the width

Figure 2. Three Pelican points from the Eggleston McFaddin Beach Collection. Point #1 (left) is made from chert; point #2 (center) from silicified palm wood; and point #3 (right) from a gray chert that strongly fluoresces under UV light.

at the base of the point is 15.3 mm. Maximum thickness is 5.0 mm and the point weighs 3.4 grams. Lateral edge grinding is present, from the base to 9.9 mm on the left lateral edge and to 14.0 mm on the right lateral edge.

Pelican points are a small to medium-sized lanceolate point that are contemporary with San Patrice points and date to the Late Paleoindian period (ca. 10,000-8000 B.P.) (Turner and Hester 1985, 1993, 1999; Turner et al. 2011). They are a common Late Paleoindian component in Southeast Texas and southern Louisiana (Gagliano and Gregory 1965; Webb et al. 1971). They are also a well-recognized component of McFaddin Beach assemblages (Turner and Tanner 1994; Stright et al. 1999).

The last point in the collection of probable Paleoindian origin has been identified as a Keithville (Figure 3). Keithville points are small, side-notched points with wide, expanded stems and concave bases. One of their distinguishing features is that the lateral edges are frequently serrated (Webb 1978). Webb et al. (1971) initially called these points "side-notched points, Variety B" and listed them as a variety of San Patrice points. He later changed their name to "Keithville" (Webb 1978) citing their occurrence with both San Patrice and Pelican points in Northeast Texas, Southeast Texas, and western Louisiana.

The Keithville point in the Eggleston Collection is heavily worn from wave action which has destroyed much of its original lateral edge serration. Maximum length is 30.0 mm with a maximum width of 19.9 mm. Thickness is 5.2 mm and the point weighs 3.2 grams. There is a large basal thinning flake on the reverse face which demonstrates the point's close association with San Patrice types. The point is made from a light yellow-brown (10YR 6/4) chert with reddish tinges on both the base and the distal end, probably the result of the chert having

Figure 3. Keithville point from the Eggleston McFaddin Beach Collection.

been heat-treated prior to knapping. This chert does not fluoresce under UV light. The side notches are heavily ground. Keithville points date from the Late Paleoindian period (ca. 10,000-8000 B.P.) (Turner et al. 2011).

Early Archaic Period (ca. 7000-5000 B.P.)

Two projectile points from the Eggleston Collection have been identified from the Early Archaic period. These include a probable Carrollton point and a Bell point.

The Carrollton point is made from a light yellowish-brown (10YR 6/4) to very pale brown (10YR 7/4) chert that fluoresces a pale yellow color under long-wave UV radiation. There are pink to reddish coloration spots across the entire length of the point which are most likely due to the chert having been heat-treated (Figure 4). Maximum length is 45.8 mm and a maximum width of 30.1 mm. Maximum thickness is 7.1 mm and the point weighs 8.9 grams. The length of the stem is 12.8 mm which translates to the hafting element representing 28 percent of the total length of the point. The point has been extensively curated and has damage on the stem which probably alters the above measurements from the point's original shape.

Figure 4. Carrollton point from the Eggleston McFaddin Beach Collection.

In the Upper Trinity watershed, Crook and Harris (1952, 1954) found that Carrollton points averaged 56.4 mm in length. However, in Liberty County in Southeast Texas, Carrollton points were found to average only 42.8 mm, the difference stemming from extensive resharpening of the point to increase its useful life (Crook 2020). Jason Barrett (personal communication, 2020) found that Carrollton points from the Dimond Knoll site (41HR796) in Harris County averaged 46.1 mm in length, very close to that measured for the Carrollton point in the Eggleston Collection.

Type Carrollton points are "Christmas tree" shaped with a triangular blade and rectangular stems with the stem at sharp right angles to the blade. Barbs, such as are seen on Bulverde points, are generally absent. Edge grinding to facilitate hafting can be found on the lateral edges of the stem on all true Carrollton points. This is a key diagnostic feature and distinguishes Carrollton points from other similar shaped dart points such as Bulverde and Dawson (Crook 2020). The point from the Eggleston Collection has been extensively ground on the lateral edges of the stem. While projectile points from McFaddin Beach frequently show a general rounding of all edges due to wave action over the years (Turner and Tanner 1994), the Carrollton point described here shows considerably more smoothing on the stem than on the blade edge which must come from original edge grinding.

Carrollton points are a well-known component of the Early Archaic assemblage from McFadden Beach as recorded by Stright et al (1999) and Turner and Tanner (1994). Paul Tanner noted that he had 12 Carrollton points in his personal collection from McFaddin Beach, more than any other early Archaic projectile point (Turner and Tanner 1994).

Bell points belong to the Calf Creek series of Andice, Bell, and Calf Creek projectile points. All of these points are barbed with broad triangular blades and straight to slightly expanding stems. Johnson (1964) originally called them "Early Barbed" points from the Devil's Mouth site in Val Verde County. Sorrow et al. (1967) was the first to use the term "Bell" from the Stillhouse Hollow reservoir in Central Texas. Since then, they have been described from a number of sites across the Edwards Plateau down to the Gulf Coastal Plain (Wesolowsky et al. 1976; Jelks 1978; Parker and Mitchell 1979; Chandler 1983). Bell points were observed to be coeval with Andice points. Based on a number of complete specimens from San Patricio County, Chandler (1983) gave the following dimensions:

- Length: 35-52 mm (average 42.0)
- Width: 37-45 mm (average 39.0)

- Thickness: 5-7 mm (average 6.0)
- Stem Length: 11-15 mm (average 13.0)
- Stem Width: 16-24 mm (average 20.0)
- Average Stem Length:Width Ratio: 0.65

Bell points were thus observed to be slightly smaller than Andice points with shorter stem lengths that seldom exceeded 15-16 mm (Chandler 1983; Weber and Patterson 1985). Moreover, Bell points were noted to have a more open triangular shape whereas Andice points tended to have more convex lateral edges (Turner et al. 2011).

Figure 5. Bell point from the Eggleston McFaddin Beach Collection.

The Bell point from the Eggleston Collection measures 50.3 mm in length, 35.0 mm in width, and 6.9 mm in maximum thickness which occurs at the stem-blade interface. Weight of the point is 10.4 grams. The point is made from a light gray (10YR 7/2) to very pale brown (10YR 8/2) chert which fluoresces a strong yellow-orange color under UV light (Figure 5). One of the two barbs is broken, which is very common in all of the points of the Calf Creek series. Length of the remaining barb is 13.1 mm and the notching is inclined inward rather than straight (see Figure 5).

Barbed points of the Calf Creek series have a strong tendency to change shape over time with breakage and resharpening. This has caused much confusion as to what diagnostic features actually separate the three point types. Recently, Sergio Ayala (2014) has conducted an intensive study of over 1,000 Andice, Bell, and Calf Creek points (191 complete) from Central, South, and North Central Texas, as well as across Oklahoma in an effort to determine if the three points are indeed valid types and if so, what characterizes each point's typology. His work has determined that there are five key distinguishing traits: (1) maximum length, (2) maximum width, (3) maximum thickness and its location on the point, (4) stem length, and (5) stem width. In particular, Ayala found that Andice stems average about 22 mm in length and the stem length-to-width ratio averages approximately 1.25:1. Bell points have much smaller stem lengths, seldom exceeding 16 mm with an average stem length-to-width ratio of approximately 0.77:1. Calf Creek points have average stem length-to-width ratios of approximately 1:1 with an average stem length of about 17 mm.

The point from the Eggleston Collection has a stem length of just 12.9 mm and a stem width of 20.0 mm, thus producing a stem L:W ratio of 0.65, which fits well with Ayala (2014) and Chandler's (1983) definition for a Bell point. Bell points also tend to have notching which inclines toward the center of the point as in the case of the point from the collection (see Figure 5).

Crook (2020) has shown that both Carrollton and Bell points occur in the Upper Trinity watershed between ca. 7000-5000 B.C. and this would seem a good range for the two points described herein.

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

A total of five projectile points have been identified in the collection which date to the Late Archaic period. These include a single point of each of the following types: Yarbrough, Morhiss, Delhi, Ensor, and Ellis. In addition, there are three artifacts which are clearly Archaic points but due to damage to their stems cannot be matched to a specific dart point type. Each of these types is described below.

The first Late Archaic type is a Yarbrough point which is made of a reddish-brown (5YR 4/4-5/4) to dark reddish-brown (5YR 3/4) chert (Figure 6). This chert does not fluoresce under UV light and is similar to many cherts of this color found in Southeast Texas and southern Louisiana (Banks 1990; Heinrich 1987). Length of the point is 56.1 mm with a maximum width of 23.4 mm and a thickness of 7.0 mm. Weight is 9.7 grams.

Yarbrough points are slender, elongate projectiles that have straight to slightly excurvate lateral edges. The stems are parallel to slightly expanding and the point can have either prominent to small

Figure 6. Yarbrough point from the Eggleston McFaddin Beach Collection.

Figure 7. Morhiss point from the Eggleston McFaddin Beach Collection.

shoulders. Yarbrough points are a common component of the Late Archaic across East Texas and into Southeast Texas (Johnson 1962; Jelks 1962). They are also a recognized component from McFadden Beach (Stright et al. 1999; Turner and Tanner 1994).

A single Morhiss point was identified from the collection largely based on its characteristic thick, rounded base (Figure 7). The point is made from a strong-brown (7.5YR 5/6) to reddish-brown (7.5YR 6/6) colored chert which does not fluoresce under UV light. Maximum length is 54.0 mm with a width of 26.9 mm. The point is very thick with a maximum thickness of 10.1 mm. Weight is 13.3 grams.

Morhiss points are large and heavy dart points with a long, lanceolate blades and a rounded stem. It is common to find asphaltum still adhered to the stem and the point from Eggleston Collection is very dark over most of its base (see Figure 7). Morhiss points are common to the Gulf Coastal Plain (Brown 1983) and are a recognized component of the McFaddin Beach assemblage (Stright et al. 1999; Turner and Tanner 1994).

A single Delhi point is present in the Eggleston Collection (Figure 8). The point is made from yellowish-red (5YR 5/6-5/8) chert which does not fluoresce under UV light. Length is 79.9 mm (with the distal end broken), width is 32.0 mm, and the thickness is 9.0 mm. Weight of the point is 23.8 grams.

Delhi points are long, slender points with slightly convex lateral edges. The shoulders are barbed and the stem is rectangular in shape. They are common to Poverty Point in Louisiana and are a reported component of the McFaddin Beach Archaic point assemblage (Ford and Webb 1956; Turner and Tanner 1994).

One Ensor point is present in the collection which is made from a darkish-gray (10YR 4/2) to grayish-brown (10YR 5/2) chert (Figure 9). This chert fluoresces a strong yellow color under UV light and probably stems from the Edwards Plateau of Central Texas. Length of the point is 66.5 mm with a maximum width of 24.8 mm at the shoulders. Width of the base is 20.2 mm. Maximum thickness is 10.5 mm and the point weighs 14.8 grams. Ensor points are a very common Late Archaic point type from Central Texas but can also be found over East and South Texas as well (Prewitt 1981). They are also reported from McFaddin Beach (Stright et al. 1999).

The last identified Archaic dart point is an Ellis point (Figure 10). This point is made from pale brown (10YR 6/3 to very pale brown (10YR 7/3) chert which fluoresces a pale lemon-yellow color under UV light. Length is 35.9 mm, width is 25.0 mm, and the maximum thickness is 5.1 mm. The point weighs 4.4 grams.

Figure 8. Delhi point from the Eggleston McFaddin Beach Collection.

Figure 9. Ensor point from the Eggleston McFaddin Beach Collection.

Figure 10. Ellis point from the Eggleston McFaddin Beach Collection.

Ellis points have distinctive triangular blades with sharp corners and prominent barbs. The base is typically straight but can be slightly concave. They are a common dart point type in East and North Central Texas (Newell and Krieger 1949; Crook and Hughston 2015) and have also been reported from McFaddin Beach (Stright et al.1999).

As mentioned above, three dart points are present in the site which due to damage could not be identified as to type. These are shown in Figure 11.

The first point (see Figure 11, left) is made from a light gray (2.5Y 7/1) to white (2.5Y 8/1) chert which does not fluoresce under UV light. Dimensions of the point are 61.2 mm x 26.0 mm x 8.1 mm and the point weighs 13.8 grams. The stem has been broken during use and the base of the point has had some resharpening. However, examination under a binocular microscope failed to show any use-wear that would be consistent with its use as a knife and/or a scraper.

The second unidentified point (Figure 11, center) is made from a light bluish-gray (GLEY 6/1-8/1) chert which also does not fluoresce under UV light. Its dimensions are 62.8 mm x 32.9 mm x 8.6 mm. The point weighs 20.5 grams. As can be seen in Figure 11, the stem has been broken during use and

Figure 11. Unidentified dart points from the Eggleston McFaddin Beach Collection.

no efforts were made to repair the point prior to its discard.

The last unidentified point (Figure 11, right) is made from a dark gray (10YR 4/1) chert which does not fluoresce under UV light. Dimensions of the point are 41.0 mm x 23.4 mm x 6.9 mm and the points weighs 7.7 grams. The stem of the point was broken during use and was not repaired.

Other Lithic Artifacts

Four non-projectile point artifacts are in the Eggleston Collection. These are described below.

The first is a large, triangular-shaped biface which is made from a light brownish-gray (10YR 6/2) to light gray (10YR 7/2) chert (Figure 12) which fluoresces a strong yellow-orange color under both short and long-wave UV radiation. Dimensions are 81.0 mm x 43.0 mm x 8.5 mm and the biface weighs 39.4 grams. Examination under a microscope shows the biface to be beveled with edge-wear consistent with its use as a knife. There is also weak polish on both the dorsal and ventral surfaces near the proximal end of the artifact suggesting it was hafted during use. Edge-wear on McFaddin Beach artifacts is problematical as they have undergone extensive polish from prolonged wave action which can both add and subtract to edge/surface wear. This type of large biface/knife was used from the Paleoindian through the Late Prehistoric period so it is impossible to assign a chronological period to this artifact.

A large, crescent-shaped, lunate biface is present in the collection (Figure 13). This biface is made from light gray (2.5Y 7/2) to pale yellow (2.5Y 8/2)

Figure 12. Triangular biface/knife from the Eggleston McFaddin Beach Collection.

Figure 13. Large crescent-shaped lunate biface from the Eggleston McFaddin Beach Collection.

chert which fluoresces a pale yellow color under UV light. Total length of the artifact is 96.9 mm with a maximum width of 32.0 mm (Figure 13). Thickness varies from 6.0 to 10.5 mm as there are several large thinning flake scars on the reverse face. The biface weighs 30.0 grams.

Examination of the biface under high power shows a very bright polish on both the dorsal and ventral surfaces indicating it was likely hafted during use. The curved blade edge has been heavily resharpened a number of times and was probably used and then re-used as a cutting tool. Crescent-shaped bifaces are rare from Texas but when found, are typically associated with the Paleoindian period. However, it is impossible to determine a precise chronological association for this artifact.

A very large, triangular-shaped tool is present in the collection (Figure 14). The artifact is made from a light yellowish-brown (2.5YR 6/3-6/4) colored chert which fluoresces a pale yellow color under UV light. The tool is 95.5 mm in length with a maximum thickness at the distal end of 48.9 mm. Thickness on the elongate proximal end is 22.0 mm. The artifact weighs 75.1 grams.

Examination of the artifact under high powered digital microscope shows polish on both the dorsal and ventral surface of the elongated proximal end which are consistent with the tool have been hafted. The distal end is bifacially flaked with steep flake scars (>60°). There are some minor step fractures associated with the bit edge as well as minor edge crushing. This suggests that the artifact was used as a haft end-scraper.

The last lithic artifact in the collection is a retouched blade made from dark gray (10YR 4/1) to gray (10YR 5/1-6/1) to very pale brown (10YR 8/2) chert (Figure 15). The chert fluoresces a very strong

Figure 14. Large triangular end-scraper from the Eggleston McFaddin Beach Collection.

Figure 15. Retouched blade from the Eggleston McFaddin Beach Collection.

yellow-orange color under UV light. Both the color of the chert and its strong response to UV light suggest this chert originated in the Edwards Plateau of Central Texas. Total length of the blade is 69.9 mm with a maximum width of 26.1 mm. Thickness is 15.0 mm and the artifact weighs 29.8 grams.

In cross-section, the blade is triangular in shape with a very thick side that slopes steeply to a thin edge. The thicker side retains much of the original cobble cortex while the lateral edge retouch has been applied to the thin edge. No obvious use-wear could be determined. The artifact looks like an expedient tool made from a discarded primary cobble flake so as to utilize all parts of a high quality chert cobble.

The Paleontological Collection

In addition to the lithic part of the collection, seven vertebrate fossils are also present. These include six teeth and one toothless mandible. All of the artifacts are highly worn both from wave action. However, enough key features are left to identify the seven fossil as belonging to mammoth (n=2), horse (*Equus sp.*) (n=4), and raccoon (n=1). All of the fossils have darkish coloration. Tannins from organic matter are known to give a dark hue to fossil bones. This also suggests that they may have been originally deposited in a stagnant, oxbow lake environment that was rich in organic material (Turner and Tanner 1994). These fossils are described below.

Mammoth (*Mammuthus sp.*)

Two very large molars are present in the collection; so large that they can only belong to a species of mammoth. Both are very heavily worn to the point that individual species determination is impossible. The first is dark reddish-brown colored (stained from years of burial and submergence in sea water) and is 145.0 mm in length, 75.2 mm in width, with a thickness that ranges between 33.2 mm to 50.1 mm (Figures 16a-b). Weight is in excess of 600 grams (maximum of my set of scales). Based on its size and shape, it appears to be the distal or back part of a mammoth molar which has not yet come into occlusion (eruption) and begun to wear (August G. Costa, personal communication, 2020).

The second mammoth molar is much larger, measuring 209.0 mm x 93.4 mm x 63.1 mm and weighs well in excess of the maximum limit of my scales (Figures 17a-b). The molar is extremely heavily worn and is very friable in its present condition.

Mammoths of several species have been reported from McFaddin Beach but the Columbian mammoth (Mammuthus columbi) is the most common (Russell 1975; Long 1977). Mammoths were present throughout the 300,000 year period covered by the Rancholabrean phase of the Pleistocene. Therefore it is impossible to know if these mammoths' molars are from the terminal part of the Pleistocene, and thus concurrent with man, or are from an earlier age when humans were not present at McFaddin Beach.

Figure 16a. Side view of mammoth molar from the Eggleston McFaddin Beach Collection.

Figure 16b. Top view of mammoth molar from the Eggleston McFaddin Beach Collection.

Horse (*Equus sp.*)

Four specimens of horse (*Equus* sp.) are present in the collection. These include parts of two incisors and two molars. The two incisors are shown in Figure 18. The complete incisor measures 58.0 mm in length with a variable width of 10.1 mm near the root and 19.5 mm at the crown. Thickness varies from 12.0-14.1 mm and the incisor weighs 18.0 grams. The smaller example is broken. It measures 32.5 mm in length, 9.0-15.7 mm (at the crown) in width, and

Figure 17a. Side view of large mammoth molar from the Eggleston McFaddin Beach Collection.

Figure 17b. Top view of large mammoth molar from the Eggleston McFaddin Beach Collection.

12.9-13.2 mm in thickness. Weight is 10.1 grams. The crowns of both incisors are very heavily worn with only a small part of the original dentition present.

Two Equus sp. molars are also present in the collection, one of which is complete and the other is broken above the root. The complete molar has a length of 91.5 mm and a width that ranges from 24.0 mm at the root to 29.0 mm at the crown. Thickness varies from 12.5-16.2 mm. Weight is 62.1 grams (Figure 19a-b). Based on size and the dentition this appears to be an upper molar, either m3 or m4 (August G. Costa, personal communication, 2020; Dr. Gretchen C. Wright, personal communication, 2020).

The second Equus sp. molar is broken part way to the root (Figure 20a-b). Remaining length is 32.2 mm; width is 32.0 mm at the crown and thickness is 14.0 mm. Weight of the fossil is 29.9 grams. The fossil appears to be a lower left molar, possibly deciduous m2 or m3 (August G. Costa, personal communication, 2020).

Figure 18. Two Equus sp. Incisors from the Eggleston McFaddin Beach Collection.

Figure 19a. Side view of Equus sp. Molar from the Eggleston McFaddin Beach Collection.

Figure 19b. Top view of Equus sp. molar showing dentition from the Eggleston McFaddin Beach Collection.

Horse fossils are some of the more common Pleistocene mammal fossils found at McFaddin Beach (Russell 1975; Turner and Tanner 1994). Three species, *Equus fraternus*, *Equus complicatus*, and *Equus pacificus*, have been reported from McFaddin Beach (Russel 1975). Due to the wear on the specimens in the Eggleston Collection, I was unable to unambiguously determine the exact species of any of the horse fossils so they have just been recorded as *Equus sp*.

Figure 20a. Side view of broken Equus sp. Molar from the Eggleston McFaddin Beach Collection.

Raccoon (*Procyon lotor*)

A single highly worn mandible of a small mammal is in the collection. The distal part of the mandible is missing, as are all of the teeth. Remaining length is 53.4 mm with a width of 7.0-8.0 mm. Thickness of the mandible at the teeth sockets is 14.0 mm; 23.0 mm at the top of the coronoid process. Total weight of the fossil is 10.2 grams and the mandible has been heavily stained a deep red-brown color (Figures 21a-b).

Most small mammals are identified by the diagnostic size, shape, and pattern of their teeth (Romer 1945). Unfortunately, these are missing in this fossil; however, based on the missing dentition, it appears the mandible originally had a configuration of two molars and four premolars. The size is too small for a canid (coyote) or a large cat (jaguar), both of which are known from McFaddin Beach (Russel 1975). It is also too large for a small, ground burrowing mammal. The only other mammal that fits a 4-2 premolar-molar pattern are members of the family *Procyonidae*; and the only known member of this family that is a common member of the McFaddin Beach assemblage is the American raccoon, *Procyon lotor* (Romer 1945; Russell 1975). Raccoons are near aquatic animals which supports the assumption that these fossils were deposited in a near river or oxbow type of environment which was adjacent to a topographic high plain.

A composite listing of the fossil assemblage and their measurements is included in Appendix II.

Conclusions and Discussion

The Eggleston Collection is a small but highly representative assemblage of the range and types of lithic and vertebrate fossils that can be found on McFaddin Beach. It is noteworthy how closely the

Figure 20b. Top view of Equus sp. molar showing dentition from the Eggleston McFaddin Beach Collection.

Figure 21a. Side view of broken mandible of Procyon lotor from the Eggleston McFaddin Beach Collection.

collection mirrors the larger compilation made by Stright et al. (1999). In her study of nearly 900 artifacts from five of the larger collections from McFaddin Beach, she determined that 45 percent of the artifacts were of Paleoindian age, only 7 percent were from the Early Archaic, 14 percent were from the Middle Archaic, 32 percent from the Late Archaic, and just 2 percent from the Late Prehistoric period (Stright et al. 1999). Thus clearly the largest representation of artifacts comes from two time periods – the Paleoindian and the Late Prehistoric. In the Eggleston collection, five of the 12 identifiable dart points are Paleoindian in age (42 percent) with another five from the Late Archaic (42 percent). The remaining 16 percent are from the Early Archaic.

Likewise, two of the three genera represented in the collection, *Mammuthus sp*. and *Equus sp*., are some of the more common fossils reported from the area with the third species, *Procyon lotor*, being reported from the larger fossil collections (Russell 1975).

Thus as a teaching assemblage, the Eggleston Collection is a highly representative example of the materials to be found at McFaddin Beach (41JF50) in particular and from Southeast Texas as a whole. They will undoubtedly serve to educate young Texans for many years in the future about the exciting fields of archeology and paleontology that are right here on out doorstep.

Acknowledgments

The author is grateful to Larry Golden who provided the background material for the Eggleston Collection. I am also grateful to Ms. Laura Nightengale, former curator (now retired) of the collections curated at the Texas Archeological research Laboratory in Austin, for showing and letting me study the artifacts from their McFaddin Beach collection back in 2013. This study was invaluable in being able to identify the artifact types present in the Eggleston collection. With regard to the identification of the fossil specimens in the Eggleston Collection, I am grateful to the assistance given to me by August G. Costa and my daughter, Dr. Gretchen C. Wright.

Figure 21b. Top view of Procyon lotor mandible showing teeth sockets from the Eggleston McFaddin Beach Collection.

References

Ayala, Sergio J.
2014 *Technology and Typology of the Calf Creek Horizon*. Presentation at the 79th Annual Meeting of the Society of American Archeology, April 23-27, 2014, Austin, Texas.

Banks, Larry
1990 *From Mountain Peaks to Alligator Stomachs: A Review of Lithic Resources in the Trans-Mississippian South, the Southern Plains, and Adjacent Southwest*. Memoir No. 4, Oklahoma Anthropological Society, Norman.

Berry, Edward W.
1916 The Flora of the Catahoula Sandstone. *United States Geological Survey Professional Paper* 98:227-251.

Bever, Michael R. and David J. Meltzer
2007 Exploring Variation in Paleoindian Life Ways: The Third Revised Edition of the Texas Clovis Fluted Point Survey. *Bulletin of the Texas Archeological Society*, 78:65-100.

Blackwell, Will H., Martha J. Powell, and George H. Dukes
1983 Fossil Wood from Bayou Pierre and White Oak Creek, South-Central Mississippi. *Mississippi Geology* 4:1-6.

Brown, David O.
1983 *The Berger Bluff Site (41GD30A): Excavations in the Upper Deposits, 1979*. Center for Archeological Research, University of Texas at San Antonio, Archeological Survey report No. 115.

Chandler, Charles K.
1983 Notes on Some Bell Points from San Patricio County, Texas. *La Tierra* 10(3):7-10.

Crook, Wilson W. Jr. and r. King Harris
1952 Trinity Aspect of the Archaic Horizon: The Carrollton and Elam Foci. *Bulletin of the Texas Archeological and Paleontological Society* 23:7-38.

1954 Traits of the Trinity Aspect Archaic: Carrollton and Elam Foci. *The Record* 12(1):1-16. Dallas Archeological Society, Dallas.

Crook, Wilson W., III
2020 *The Carrollton Phase Archaic: A Redefinition of the Chronology, Composition, and Aerial Distribution of the Early Archaic Horizon Along the Trinity River, Texas*. Report No. 35, Houston Archeological Society, Houston.

Crook, Wilson W. III and Thomas J. Williams
2013 The Presence of Gault-Ft. Hood Chert at the Brushy Creek Clovis Site (41HU74), Hunt County, Texas. Paper presented at the Paleoamerican Odyssey Conference, October 17-19, Santa Fe.

Ford, James A. and Clarence H. Webb
1956 *Poverty Point: A Late Archaic Site in Louisiana*. Anthropology papers of the American Museum of Natural History, No. 46, Part 1.

Gagliano, Sherwood M. and Hiram F. Gregory, Jr.
1965 A Preliminary Study of Paleo-Indian Points in Louisiana. *Louisiana Studies* 4(1):62-67.

Hester, Thomas R., Michael B. Collins, Dee Ann Story, Ellen S. Turner, Paul Tanner, Kenneth M. Brown, Larry D. Banks, Dennis Stanford, and Russell J. Long
1992 Paleoindian Archaeology at McFaddin Beach, Texas. *Current Research in the Pleistocene* 9: 20-22.

Heinrich, Paul V.
1987 Lithic Resources of Western Louisiana. *Louisiana Archeology Bulletin* 11:165-190.

Hillsman, Mathew J.
1992 *Evaluation of Visible and Ultraviolet Excited Attributes of Some Texas and Macroscopically Similar New Mexico Cherts*. Unpublished Masters' Thesis. Department of Anthropology, Eastern New Mexico University.

Hofman, Jack L., Lawrence C. Todd, and Michael B. Collins
1991 Identification of Central Texas Edwards Chert at the Folsom and Lindenmeier Sites. *Plains Anthropologist* 36(137):281-395.

Jelks, Edward B.
1962 *The Kyle Site: A Stratified Central Texas Aspect Site in Hill County, Texas*. The University of Texas, Department of Anthropology, Archeology Series No. 5.

1978 Diablo Range. In *Chronologies in New World Archeology*, edited by R. E. Taylor and Clement W. Meighan, pp. 71-111. Academic Press, New York.

Johnson, LeRoy
1962 The Yarbrough and Miller Sites in Northeast Texas, with a Preliminary Definition of the LaHarpe Aspect. *Bulletin of the Texas Archeological Society* 32:141-284.

1964 The Devil's Mouth Site: A Stratified Campsite at Amistad Reservoir, Val Verde County, Texas. *Archeology Series, No. 6*. Department of Anthropology, The University of Texas, Austin.

Long, Russell J.
1977 *McFaddin Beach*. The Patillo Higgins Series of Natural History and Anthropology No. 1, Spindletop Museum, Lamar University.

1986 Two Clovis Points From McFaddin Beach, Texas. *Ohio Archaeologist* 26(1):9.

Newell, H. Perry and Alex D. Krieger
1949 *The George C. Davis Site, Cherokee County, Texas*. Memoirs of the Society for American Archeology, No. 5.

Parker, Wayne and Jim L. Mitchell
1979 Notes on Some Bell Points from a Site in Crosby County, Texas. *La Tierra* 6(2):26-27.

Patterson, Leland W.
2000 Comments on a Study of McFaddin Beach Artifacts. *La Tierra* 27(4):15-19.

Prewitt, Elton R.
1981 Cultural Chronology in Central Texas. *Bulletin of the Texas Archeological Society* 52:65-89.

Ricklis, Robert A. and Richard A. Weinstein
2005 Sea-Level Rise and Fluctuation along the Texas Coast: Exploring Cultural- Ecological Correlates. In *Gulf Coast Archeology: The Southeastern United States and Mexico*, edited by Nancy M. White, pp. 108-154. University Press of Florida.

Romer, Alfred S.
1945 *Vertebrate Paleontology*. University of Chicago Press, Chicago.

Russell, Jeffrey D.
1975 *Identification of Pleistocene Fossils From McFaddin Beach, Texas*. Unpublished Master's Thesis. Department of Biology, Lamar University, Beaumont.

Simms, Alexander, Kurt Lambeck, Anthony Purcell, John B. Anderson, and Antonio B. Rodriguez
2007 Sea Level History of the Gulf of Mexico since the Last Glacial Maximum with Implications for the Melting History of the Laurentide Ice Sheet. *Quaternary Science Reviews* 26(7-8):920-940.

Sorrow, William M., Harry J. Shafer, and Richard E. Ross
1967 Excavations at Stillhouse Hollow Reservoir. *Papers of the Texas Archeological Salvage Project, No. 11*. The University of Texas, Austin.

Stright, Melanie J., Eileen M. Lear, and James F. Bennett
1999 *Spatial Data Analysis of Artifacts Redeposited by Coastal Erosion: A Case Study of McFaddin Beach, Texas*. U.S. Department of the Interior, Minerals Management Service, Washington, D.C. (2 volumes).

Turner, Ellen S. and Paul Tanner
1994 The McFaddin Beach Site on the Upper Texas Coast. *Bulletin of the Texas Archeological Society* 65:319-336.

Turner, Ellen Sue and Thomas R. Hester
1985 *A Field Guide to Stone Artifacts of Texas Indians.* Gulf Publishing, Lanham, Maryland.

1993 *A Field Guide to Stone Artifacts of Texas Indians.* 2nd Edition. Gulf Publishing, Lanham, Maryland.

1999 *A Field Guide to Stone Artifacts of Texas Indians.* 3rd Edition. Gulf Publishing, Lanham, Maryland.

Turner, Ellen Sue, Thomas R. Hester, and Richard L. McReynolds
2011 *Stone Artifacts of Texas Indians.* Taylor Trade Publishing, Lanham, Maryland.

Webb, Clarence H.
1978 Changing Archeological Methods and Theory in the Transmississippi South. In *Texas Archeology*, edited by Kurt D. House, pp. 27-45. SMU Press, Dallas.

Webb, Clarence H., Joel L. Shiner, and E. Wayne Roberts
1971 The John Pearce Site (16CD56): A San Patrice Site in Caddo Parish, Louisiana. *Bulletin of the Texas Archeological Society* 42:1-49.

Weber, Carey D. and Leland W. Patterson
1985 A Quantitative Analysis of Andice and Bell Points. *La Tierra* 12(2):21-27.

Wesolowsky, Al B., Thomas R. Hester, and Douglas R. Brown
1976 Archeological Investigations at the Jetta Court Site (41TV151), Travis County, Texas. *Bulletin of the Texas Archeological Society* 47:25-87.

Williams, Thomas J. and Wilson W. Crook, III
2013 Geochemical Analysis of Primary Chert Outcrops from the Edwards Plateau: A Methodological Approach for the Use of pXRF in Material Sourcing. Paper presented at the 84th Annual Meeting of the Texas Archeological Society, October 25-27, Del Rio.

Papers from the Study of the Andy Kyle Collection

A LATE PLEISTOCENE HORSE (*Equus Sp.*) BONE FROM THE WOOD SPRINGS SITE (41LB15), LIBERTY COUNTY, TEXAS

Wilson W. Crook, III

Introduction

One of the more prolific sites represented in the Andy Kyle Archeological Collection currently curated at the Sam Houston regional Library and Research Center is the Wood Springs site (41LB15) located in central Liberty County. Artifacts from the Wood Springs site range from Paleoindian to Late Prehistoric in age, with an extensive representation from the Paleoindian, Early Archaic, Late Archaic, Woodland, and Late Prehistoric Periods (Crook et al. 2017). This includes the first identified occurrence of a Clovis occupation in Liberty County. As such, the Wood Springs site represents the longest periods of continuous occupation in the Kyle Collection.

Occupational material at Wood Springs covers at least 0.5 acres and possibly as much as 5 acres or more (Sheldon Kindall, personal communication, 2017; Houston Daniel, personal communication, 2018). Construction of the natural gas pipeline and an asphalt road, both of which transect the site at right angles, has disturbed much of original site stratigraphy such that Paleoindian, Archaic, Woodland, and Late Prehistoric materials are now found alongside each other on the surface. While cultural material from Clovis to the Late Prehistoric occur at the site, Wood Springs is notable for an abundance of artifacts from the Early Archaic to basal Middle Archaic – ca. 7000-5000 B.P. (Crook 2018, 2020), from the Woodland period – ca. 2000-1400 B.P. (marked by Gary and Kent points and plain ceramics) (Patterson 1991, 1996), and from the Late Prehistoric period – ca. 1400-500 B.P. (marked by Alba, Catahoula, Friley, and Perdiz points, and both locally manufactured and imported Caddo ceramics) (Suhm and Krieger 1954; Suhm and Jelks 1962; Kindall and Patterson 1986; Patterson 1991, 1996; Aten 1983). The site is also notable for its relative abundance of Paleoindian projectile points (n=35) including Clovis, Dalton, San Patrice, Pelican, Scottsbluff, Angostura, and Wilson types (Crook et al. 2017; Crook 2017a, 2017b, 2017c).

With regard to the late Pleistocene occupation at the site, several mammalian bones and teeth have been recovered from the site including Mammoth (*Mammuthus sp.*), mastodon (*Mammut sp.*), and bison (*Bison sp.*) (Crook et al. 2017; Crook 2017c). Recently, a single horse (*Equus sp.*) bone was recovered following significant flooding and erosion of the site by Tropical Storm Imelda in 2019. This brief paper serves to record the discovery and adds to the known late-Pleistocene geographic distribution of the genus *Equus* in North America.

Figure 1. Wood Springs Creek, Liberty County, Texas.

The Wood Springs Site (41LB15)

The Wood Springs site is located approximately three kilometers northwest of Liberty, Texas on the west and east sides of a small stream known as Wood Springs Creek or Atascosito Springs (Figure 1). This stream is fed by several perennial springs and is a minor tributary of the Trinity River two kilometers to the west. The site lies on either side of a small road that bisects the site from north-to-south (Figure 2). A natural gas pipeline right-of-way crossing bisects the site from west-to-east with the intersection of the pipeline and the asphalt road serving as a marker for the approximate middle of the occupation (Elton R. Prewitt, personal communication, 2018). The site was one of the many locations from which Mr. Andy Kyle collected artifacts between 1946-1986. Wood Spring's location was originally described and registered by Elton R. Prewitt in 1973 as part of the Louisiana Loop Survey. The site was subsequently investigated by Sheldon Kindall and other members of the Houston Archeological Society during their research on the Andy Kyle Archeological Collection during the mid-1980s (Kindall and Patterson 1986). A small elevated bridge has been constructed across Wood Springs Creek (see Figure 2). The site occurs on either side of Wood Springs Creek and while artifacts have been found on both sides, the northern bank has produced significantly more than the southern side of the creek. In particular, on the north side of the creek, a large borrow pit was excavated for the support ramp for the bridge crossing Wood Springs Creek. This area, known locally as "Marshall's Pit", continues to produce artifacts today especially after every significant rain/flood event (Figure 3).

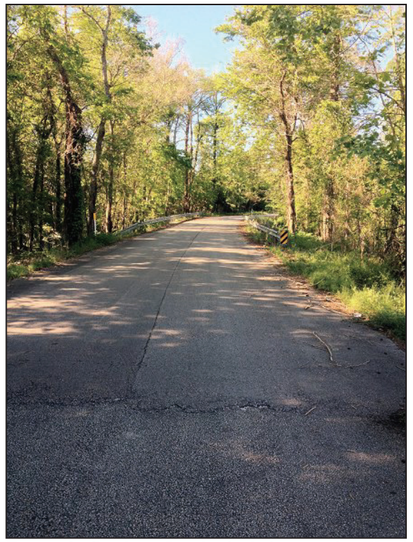


Figure 2. Sandune Road which bisects the Wood Springs site from north-to-south. The small bridge over Wood Springs Creek is in the center of the photo.

Figure 3. The area of Marshall's Pit on the north side of Wood Springs Creek. The majority of the artifacts recovered from the site over the past two years including all of the Pleistocene mammal bones have come from this northern side of the site.

Geology

While no formal excavation has taken place at the Wood Springs site, the site's stratigraphy has been partially determined by a number of shovel tests conducted over the past 47 years. Elton Prewitt conducted a series of shovel tests at the site in 1973 and the Houston Archeological Society dug a similar set of small test pits in 1986 (Elton R. Prewitt, personal communication, 2019; Kindall and Patterson 1986). More recently, the author excavated several test pits across the northern part of the site to confirm the stratigraphy. Soils covering the area of the Wood Springs site belong to the Spurger-Bienville-Kennefick complex, specifically a mix of Spurger and Kennefick soils (Griffen 1996). The typical soil profile at the site consists of about 8 cm of a pale brown (10YR 7/3) to light gray (10YR 7/2) loamy fine sand. This is underlain by a fine-grained brown sandy loam (10YR 3/4-3/3) that in places has yellow to reddish mottles. This sand forms a small terrace that sits above Wood Springs Creek which is a minor tributary of the Trinity River. The Trinity River is presently located about two kilometers to the west of the site. However, examination of the site location using Google Earth shows a series of filled-in meander cutoffs to the west between the site and the current channel of the Trinity River. These paleo oxbow cutoffs clearly indicate that the Trinity River has moved westward over time and at one period in the past, the river was fairly close (<0.5 km) to the site. With abundant fresh water springs and being near the confluence of Wood Springs Creek and the Trinity River, the area would have been an ideal location for both game animals as well as humans.

Arrow points and pottery can be found in the upper 30-45 cm; below this level are both Woodland period and Archaic occupations. A single early Archaic Carrollton point was recovered by the author at a depth of 100-125 cm. The artifact horizon extends to a depth of at least 125 centimeters (no test pits have been dug below this depth). The deepest horizons are exposed in the area of the so-called Marshall Pit and this is the location that many of the Clovis artifacts as well as all of the Pleistocene mammal bones have been recovered.

Fossil *Equus Sp.* Bone

The bone described herein was discovered in October, 2019 on the bank of Wood Springs Creek. Recent major flooding due to Tropical Storm Imelda must have deposited the bone from upstream, possibly close to the source springs for which the creek is named. The bone was identified as the middle phalanx or short pastern bone from a horse by Dr. Gretchen C. Wright, a noted veterinary surgeon from the Dallas area. Following the guide of von den Driesch (1976) and Peters (1987), the dimensions of the bone are shown in Table 1. The bone itself is shown in Figures 4-6. Dr. Wright noted that the dimensions are quite small, roughly 60 percent the size of an average modern horse (Dr. Gretchen C. Wright, personal communication, 2019). Thus the bone likely came from a juvenile animal. The bone was not burned and no cut marks or other forms of cultural modification were observed. The surface was highly polished which indicates that it had probably lain submerged in Wood Springs Creek for a considerable amount of time.

The toe of a horse is an extremely complex structure and consists of four bones: the long pastern (proximal phalanx), the short pastern (middle phalanx), the coffin bone (distal phalanx) and caudal to the latter, the navicular bone. The latter two bones and about one-half of the short pastern are enclosed within the hoof. The rounded ends of the head of the short pastern bone allows the hoof to twist or move from side to side to adjust for uneven ground. Horses are also able to "lock" the short pastern-coffin bone

Table 1. Physical Measurements of Wood Springs Equus Phalanx Bone based on the guide of Van den Driesch (1976).

Equid Measurement	Wood Springs Specimen
Greatest Length	44.1
Greatest Breadth of Proximal End	48.5
Breadth of Facies Articularis Proximalis	42.5
Depth of Proximal End	33.5
Smallest Breadth of the Diaphysis	41.2
Greatest Breadth of the Distal End	41
Weight	72.1 gm

All measurements in mm except for weight

Figure 4. Ventral surface of the middle phalanx (short pastern) bone of Equus sp. from the Wood Springs site, Liberty County, Texas. The base (proximal end) of the bone is in the foreground. The depressions represent the area where the proximal phalanx (long pastern) bone joins the short pastern.

Figure 5. Dorsal surface of the middle phalanx Equus sp. bone from the Wood Springs site. The base of the bone is closest to the scale and the head is toward the top of the photo. The head joins distal phalanx or "coffin" bone which is enclosed in the hoof.

process which allows them to relax their leg muscles enabling them to stand for long periods of time (Dr. Gretchen C. Wright, personal communication, 2019). Synovial spaces between these bones are supported by tendons, ligaments, and the laminae of the hoof wall. There are no muscles in the foot. The short pastern and the coffin bones are the weight-bearing bones of the foot while the navicular bones serves as a fulcrum for the deep digital flexor tendon that runs down the back of the leg and attaches to the back of the coffin bone. There are also many soft tissue structures that support the bones of the foot. These include the deep digital flexor that runs from near the front limb (carpus) or hind limb (hock) to the coffin bone (Figure 7 - blue). Small ligaments also surround the navicular bone (Figure 7 – green).

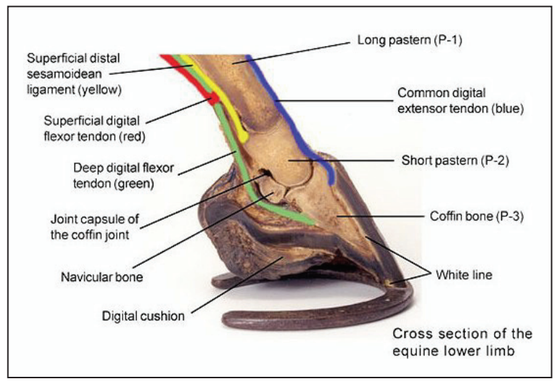


Figure 7. Cut-away of a modern horse hoof showing toe bone and tendon structure (after www.Equinelogicwordpress.com).

Figure 6. Ventral surface of the middle phalanx bone from the Wood Springs site. The lighter colored areas in the body of the bone are known as flexor tuberosity and are where major ligaments such as the collateral sesamoid ligament attach.

Conclusions and Discussion

Horse bones are well represented in Pleistocene deposits across Texas (Quinn 1957) and are a common occurrence in many late Pleistocene archeological sites across North America (Pichardo 2000). However, while common, they are never abundant, typically with only a few individuals found in any one site (Kooyman et al. 2001). The exception to this is the Wally's Beach site in Alberta, Canada where the remains of seven horses and a single camel have been recovered in direct association with Paleoindian tools (Waters et al. 2015). To date, Wally's Beach remains the only unambiguous direct evidence of horse hunting at the end of the Pleistocene although the many dated horse bones at Clovis sites (second only to mammoth in number) suggest that horse was a frequent prey species for early man in North America (Grayson 1984). The lack of direct evidence of human hunting and butchering of horse is in direct contrast with evidence from the Upper Paleolithic in Europe where large numbers of horses were killed at single hunting events (Olsen 1989). Woodward (1991) has suggested that this disparity is due to late Pleistocene North American equids living in smaller, more widely distributed groups.

In terms of terminal age of equids in North America, Meltzer and Mead (1983) report the youngest reliable age at 10,370 ± 350 B.P. from Jaguar Cave in Idaho. Kurten and Anderson (1980) suggest that equids may have survived into the Early Holocene at 8,000 B.P. Toomey (1993) and Toomey et al. (1992) reported dates for *Equus* bones from Hall's Cave in Kerr County, Texas of 9200-8700 B.P. However, he further stated that additional dates are needed to confirm the Early Holocene survival of Central Texas equids. While the specific genus of horse cannot be determined from a middle phalanx bone alone (Azzaroli 1983; Eisemann and Bayloc 2000; Winans 1985, 1989), the presence of a confirmed Pleistocene horse bone from the Wood Springs site to the known late Pleistocene distribution of equids in Texas.

A similar occurrence of a single equid left central tarsal in association with late Pleistocene material was reported from the Wilson-Leonard site (41WM235) in Williamson County (Collins 1998; Baker et al. 2002; Bousman et al. 2004). As at Wood Springs, no cut marks or other modification was observed. The bone was found in association with bison as well as minor turtle, snake, woodrat, gopher, muskrat, rabbit and whitetail deer (Collins 1998; Baker et al. 2002).

While the single horse bone from Wood Springs cannot be unambiguously associated with the presence of early man in Liberty County, it does help to additionally define the Late Pleistocene environment for the region. Toomey (1993) notes that all late Pleistocene equids in North America were cursorial grazers that preferred open grasslands to more forested environments. The presence of mammoth and bison bones at Wood Springs (Crook 2017c) further suggests that during the late Pleistocene the area was considerably farther from the Gulf Coast than today and was mostly a grassland ecotone with riparian woodlands occurring along the major streams. As was the case with the other mammals present at Wood Springs, the perennial nature of the springs was a likely draw for small groups of equids. Whether the specimen recovered from the site was killed by Paleoindian hunters or died of natural causes or an animal predator remains conjecture.

Acknowledgments

The author is grateful to Ms. Alana Inman, Manager of the Sam Houston Regional Library and Research Center in Liberty, Texas for inviting the Houston Archeological Society to participate in the development of the new prehistory exhibit at the Center and thus affording us the opportunity to study in detail all the artifacts contained in the Andy Kyle Archeological Collection. Alana not only provided

open access to study the collection but also allowed for the study of artifacts outside the Center. I am especially grateful to my daughter, Dr. Gretchen C. Wright, who patiently explained the anatomy of the horse toe bone structure to her father.

References Cited

Azzaroli, Augusto and Michael R. Voorhies
1993 The Genus *Equus* in North America: The Blancan Species. *Paleographia Italica* 80:175-798.

Aten, Lawrence E.
1983 *Indians of the Upper Texas Coast*. Academic Press, New York.

Baker, Barry W., Michael B. Collins, and C. Britt Bousman
2002 Late Pleistocene Horse (*Equus sp*.) from the Wilson-Leonard Archeological Site, Central Texas. *Current Research in the Pleistocene* 19:97100.

Bousman, C. Britt, Barry W. Baker, and Anne C. Kerr
2004 Paleoindian Archeology in Texas. In *The Prehistory of Texas,* edited by Timothy K. Perttula, pp. 15-100. Texas A&M University Press.

Collins, Michael B.
1998 *Wilson-Leonard: An 11,000 Year Archeological Record of Hunter-Gatherers in Central Texas*, Volume 5. Texas Archeological Research Laboratory, University of Texas, Austin.

Crook, Wilson W., III
2017a Additional Clovis Discoveries from the Wood Springs Site (41LB15), Liberty County, Texas. *The Profile* 6(9):6-7. Newsletter of the Houston Archeological Society, Houston.

2017b New Clovis Discoveries from the Wood Springs Site (41LB15), Liberty County, Texas. *The Newsletter of The Friends of the Texas Archeological Research Laboratory*, September, pp. 5, 11.

2017c The First Reported Occurrence of Clovis Artifacts from Liberty County, Texas. *Bulletin of the Texas Archeological Society* 88:157-169.

2018 The Occurrence of Carrollton Phase Archaic Materials in Southeast Texas. In, *Neither Snow, Nor Rain, Nor Heat, Nor Dark of Night, Shall Stay These Couriers: Essays Honoring Jay C. Blaine*, edited by S. Alan Skinner and Molly A. Hall, pp. 87-96. Texas Archeological Society.

2020 *The Carrollton Phase Archaic: A Redefinition of the Chronology, Composition, and Aerial Distribution of the Early Archaic Horizon Along the Trinity River, Texas*. Report No. 35, Houston Archeological Society, Houston **(in press).**

Crook, Wilson W., III, Robert J. Sewell, Linda C. Gorski, and Louis F. Aulbach
2017 *The Andy Kyle Archeological Collection*. Report of the Houston Archeological Society, No. 29:13-56. Houston.

Eisenmann, Vasiliev and Michael Baylac
2000 Extant and Fossil *Equus* (Mammalia, Perissodactyla) Skulls: A Morphometric Definition of the Subgenus *Equus*. *Zoologica Scripta* 29:89-100.

Griffen, Kirby L.
1996 *Soil Survey of Liberty County, Texas*. United States Department of Agriculture, Soil Conservation Service, in cooperation with the Texas Agricultural and Experiment Station and the Harris County Flood Control District.

Grayson, Donald K.
1984 Archeological Associations with Extinct Pleistocene Mammals in North America. *Journal of Archeological Science* 11:213-221.

Kindall, Sheldon and Leland W. Patterson
1986 The Andy Kyle Archeological Collection, Southeast Texas. *The Journal* 86:14-21. Houston Archeological Society, Houston.

Kooyman, Brian, Margaret E. Newman, Christine Chaney, Murray Lobb, Shayne Tolman, Paul McNeil. and L. V. Hills
2001 Identification of Horse Exploitation of Clovis Hunters Based on Protein Analysis. *American Antiquity* 66(4):686-691.

Kurten, Bjorn and Elaine Anderson
1980 *Pleistocene Mammals of North America*. Columbia University Press, New York.

Meltzer, David J. and James I. Mead
1983 The Timing of Late Pleistocene Mammalian Extinctions in North America. *Quaternary Research* 19:130-135.

Olsen, Sandra L.
1989 Solutre: A Theoretical Approach in the reconstruction of Upper Paleolithic Hunting Strategies. *Journal of Human Evolution* 18:295-327.

Patterson, Leland W.
1991 Dart Point Chronologies of Southeast Texas. *The Journal* 101:1-5. Houston Archeological Society, Houston.

1996 *Southeast Texas Archeology*. Report No. 12. Houston Archeological Society, Houston.

Peters, Joris
1987 Cuboscaphoids, Naviculo-Coboids, Language Barriers and the Use of Osteological Nomenclature in Archeozoological Studies. *Archaeozoologica* 1(2):43-46.

Pichardo, Mario
2000 Valsequillo Biostratigraphy III: Equid Species in Paleoindian Sites. *Anthropologischer Anzeiger* 58(3):273-298.

Quinn, James H.
1957 *Pleistocene Equidae of Texas*. Bureau of Economic Geology, Report of Investigations No. 33. The University of Texas, Austin.

Suhm, Dee Ann, Alex D. Krieger, and Edward B. Jelks
1954 An Introductory Handbook of Texas Archeology. *Bulletin of the Texas Archeological Society* 25.

Suhm, Dee Ann, and Edward B. Jelks
1962 *Handbook of Texas Archeology: Type Descriptions.* Published by the Texas Archeological Society, Special Publication Number One and the Texas Memorial Museum, Bulletin Number 4.

Toomey, Rickard S., III
1993 *Late Pleistocene and Holocene Faunal and Environmental Change at Hall's Cave, Kerr County, Texas*. Unpublished Ph.D. Dissertation. Department of Geological Sciences, The University of Texas, Austin.

Toomey, Rickard S., III, Jeffrey A. Huebner, and Tomas W. Boutton
1992 Stable Carbon Isotope Ratios of *Equus sp.* and *Bison antiquus* from the Late Pleistocene Deposits at Hall's Cave, Kerr County, Texas. *Current Research in the Pleistocene* 9:112-114.

Von den Driesch, Angela
1976 *A Guide to the Measurement of Animal Bones from Archeological Sites*. Bulletin No. 1. Peabody Museum of Archeology and Ethnology. Harvard University, Cambridge.

Waters, Michael R., Thomas W. Stafford, Jr., Brian Kooyman, and Len V. Hills
2015 Late Pleistocene Horse and Camel Hunting at the Southern Margin of the Ice-Free Corridor: Reassessing the Age of Wally's Beach, Canada. *Proceedings of the* N*ational Academy of Sciences* 112(14):4263-4267.

Winans, Melissa C.
1985 *Revision of North American Fossil Species of the Genus Equus (Mammalia Perissodactyla Equidae)*. Unpublished Ph.D. Dissertation. Department of Geological Sciences. The University of Texas, Austin.

1989 A Quantitative Study of North American Fossil Species of the Genus Equus. In *The Evolution of Perissodactyls*, edited by Donald R. Prothero and Robert M. Schoch, pp. 262-297. Clarendon Press, New York.

Woodward, Susan L.
1991 Late Pleistocene North American Equids: Why a Widespread Large Mammal may be Sparsely represented in Early Archeological Sites. In *Beamers, Bobwhites, and Blue Points: Tributes to the Career of Paul W. Parmalee*, edited by James R. Purdue, Walter E. Klippel, and Bonnie W. Styles, pp. 261-272. Illinois State Museum Scientific Papers Vol. 21, Springfield.

A LARGE, HEAVILY CURATED ANGOSTURA POINT FROM THE SAVOY SITE (41LB27), LIBERTY COUNTY, TEXAS

Wilson W. Crook, III

Introduction

In 2017, the Houston Archeological Society (HAS) was asked by the Texas Historical Commission to assist the Sam Houston Regional Library and Research Center in Liberty, Texas to create a new interactive museum exhibit on the prehistory of Southeast Texas using the extensive Andy Kyle Archeological Collection. The collection was given to the Center by the late Mr. Andy Kyle and consists of well over 50,000 artifacts collected from 95 sites in nine Southeast Texas counties. The artifacts within the Kyle Collection range from Clovis (ca. 13,000 B.P.) to Late Prehistoric (ca. 500 B.P.) in age. One of the more prolific sites represented in the collection is the Savoy site (41LB27) located in northeastern Liberty County. Artifacts from the Savoy site range from Paleoindian to Late Prehistoric, with an extensive Late Archaic and Woodland period collection (Crook et al. 2017).

Recently, several previously unknown boxes of material from the Savoy site were located by Ms. Alana Inman, Director of the Sam Houston Regional Library. In these boxes were a large number of both Woodland period ceramic sherds and a box of ground stone artifacts. Inside one box of sherds was a large sack labeled "Stone Field" and "One Spot". This sack contained 58 sherds from a single, large oval-shaped bowl. Examination of the decoration on the exterior of the sherds showed it to be type Mabin Stamped, *var. Joe's Bayou*; an Early Woodland pottery type previously known only from two sites in eastern Louisiana and three sites in western Mississippi – all located along the Mississippi River (Richard A. Weinstein, personal communication 2018). The box of ground stone artifacts contained mostly small one-hand grinding stones and nutting stones, largely constructed from local sandstone. However, three artifacts were made from non-local stone. Close examination showed two of these ground stone artifacts to be broken bannerstones and the other to be a broken boatstone. All were made of material not local to Texas. Also in one box was a sack of lithic artifacts which consisted of a number of dart points along with scrapers and a large amount of lithic debitage. One of the dart points was a large, heavily curated Angostura point. As Paleoindian artifacts are very scarce from the site (n=13), this short paper serves to describe the artifact and document its occurrence.

The Savoy Site (41LB27)

The Savoy site is located approximately 4.2 km southwest of the community of Moss Hill in northeastern Liberty County. The site is bisected by County Road 2099 and hand written notes left by Mr. Kyle in the boxes of artifacts indicate that both the Mabin Stamped, *var. Joe's Bayou* bowl, the two bannerstones, the boatstone, and the sack of lithic artifacts including the Angostura point were found on the part of the site that occurs south and west of CR 2099, known as the "Stone Field" after the property's original owner (Figure 1). The north and eastern side of the site is owned by the Savoy family for whom the site was named. Mr. M. L. Stone owned the land on the other side of the road. Andy Kyle would designate cultural material from Mr. Stone's part of the site as "Savoy site – Stone Field". The Savoy site is part of a series of four sites that occur parallel to one another along a 600 meter southeast-to-northwest stretch of land. Site 41LB26 lies 215 meters to the southeast; site 41LB28 is 225 meters to the northwest; and site 41LB29 is 400 meters to the northwest. All four sites contain similar cultural material predominantly from the Late Archaic, Woodland, and Late Prehistoric periods. The Savoy site, in particular, contains cultural material from the Paleoindian and Early Archaic periods as well (Kindall and Patterson 1986; Crook et al. 2017; Crook 2018, 2020b). The nearest source of permanent water to the Savoy site is Knight's Bayou, which is located 1.2 km to the west. Knight's Bayou is a tributary of the Trinity River which lies 2.5 km to the west of the site.

The site was originally recorded in 1973 by the University of Texas during the Louisiana Loop Survey (Elton Prewitt, personal communication, 2019). A second survey was conducted in the mid-1980s by members of the HAS in conjunction with Mr. Andy

Figure 1. Photograph of the Stone Field the Savoy (41LB27) site, Liberty County as it appears today.

200+ cm of a very fine-grained dark yellowish-bbrown (10YR 3/4-4/6) loamy sand (Griffen 1996). Based on data from both Prewitt's 1973 survey and the 2014 TRC survey of the site, the artifact horizon extends to at least one meter or more in depth with cultural material present from the surface to the base of the test pit. No test pits were dug below this depth.

Artifacts from the site represent the following archeological periods: (1) Paleoindian – ca. 12,000-8,500 B.P. (marked by Dalton, San Patrice, Pelican, Angostura, and Wilson points), (2) Early Archaic – ca. 8500-6000 B.P. (marked by Gower, Carrollton, Trinity, and Bulverde points plus Clear Fork gouges and Waco sinkers), (3) Middle to Late Archaic – 6,000-2,500 B.P. (marked by Evans, Ellis, Yarbrough, Kent, Ellis, Ensor, and Gary points, (4) Woodland (Early Ceramic) – 2,500-1,300 B.P. (marked by Gary and Kent points and both plain and decorated ceramics), and (5) Late Prehistoric 1,300-500 B.P. (marked by Alba, Catahoula, Friley, and Perdiz points, and both locally manufactured sandy-paste and imported Caddo ceramics) (Crook et al. 2017; Crook 2018, 2020b; Suhm and Krieger. 1954; Suhm and Jelks 1962; Turner and Hester 1985, 1993, 1999; Turner et al. 2011).

Kyle who showed them where his artifacts were found (Kindall and Patterson 1986). A third exploration of the area was conducted in 2014 by TRC Environmental Corporation as part of a pipeline right-of-way survey. TRC conducted 21 shovel tests over both the north and southern portions of the site. Nine of the 21 shovel tests contained cultural materials including a Gary point, an Alba point, and numerous ceramic sherds (TRC notes on file with the Texas Archeological Research Laboratory).

Occupational material at the Savoy site covers at least 0.7 acres today, however, based on information given to the HAS by Mr. Kyle, this area represents only about 20 percent of the original site size. Much of the site was destroyed by the construction of County Road (CR) 2099 coupled with farming and house construction in the area (Sheldon Kindall, personal communication, 2017). Soils covering the area of the Savoy site belong to the Spurger-Bienville-Kennefick complex, specifically a mix of Bienville and Kennefick soils (Griffen 1996). The typical soil profile at the site consists of about 13 cm of a dark brown (10YR 3/3) loamy fine sand underlain by

Savoy Site Angostura Projectile Point

A single large Angostura projectile point was recovered by Mr. Kyle from the surface of the Savoy site. The point is complete but has been extensively used and resharpened, especially the distal end. Complete physical measurements of the artifact are presented in Table 1 below.

The Angostura point is very large (80.5 mm) and somewhat crudely made (figures 2a-b). It has been extensively resharpened over time such that the stem now accounts for about 60 percent the length of the point. Maximum thickness (36.2 mm) occurs at the junction of the stem and the blade. The point is only 25.1 mm thick near the base. The base is largely straight but is slightly concave in one point. Both lateral edges are heavily ground from the base to the stem-blade junction. There is some evidence that the point originally was constructed using oblique parallel to collateral flaking however, extensive curation of the point has all but obliterated most of the original flake scars. This is especially true of the distal end which appears to have been resharpened multi-

Table 1. Physical Measurements of the Savoy Angostura Point.

Characteristic	Angostura Point
Maximum Length	80.5
Maximum Width	36.2
Minimum Width (Base)	25.1
Maximum Thickness	15
Minimum Thickness	9.5
Length Grinding (Left)	48.1
Length Grinding (Right)	46.8
Base Shape	Straight to Slightly Concave
Weight (gm)	41.6
Evidence of Resharpening	Yes
Lithic Material	Chert (Heat Treated)
Color	Very Pale Brown (10YR 7/4) to Light Yellowish-Brown (10YR 6/4) to Light Red (10R 6/6) to White
UV Fluorescence	Mostly none; one spot fluoresces pale yellow

All measurements in mm except for weight.

ple times. The point is made of a multi-colored chert which varies from very pale brown (10YR 7/4) to light yellowish-brown (10YR 6/4) over much of the artifact. There is one spot of white on the reverse face which also contains a micro cavity which is lined with quartz crystals. The material has been extensive heat-treated and a light red (10R 6/6) coloration is now present over much of the body. The point does not fluoresce under UV light except for the white spot which fluoresces a very pale yellow. Based on this observation, the chert does not appear to be of local origin or from the Edwards Plateau. Similar colored chert is found in as "gravel chert" in western Louisiana and this is probably the origin of the lithic material (Heinrich 1987).

The "gravel cherts" cherts of western Louisiana typically occur in small (less than 5 cm in diameter) cobbles composed of microcrystalline silica. Color

Figures 2a-b. Obverse (Figure 2a) and reverse (Figure 2b) views of the large Angostura point from the Savoy (41LB27) site, Liberty County.

of the gravel cherts varies but are dominated by those of the 10YR hue including weak red (10YR 4/4) to light olive brown, opaque gray, brownish-yellow and dark yellow-browns (Heinrich 1987). Hues redder than 10YR occur when the material has been heat-treated. A common petrographic feature of gravel chert is the pervasive presence of iron oxides which further oxidize when heated. Most of the gravel cherts have their origin in the Arbuckle and Ouachita Mountains of eastern Oklahoma and southwestern Arkansas and were deposited through fluvial action along the major north-south trending rivers and stream of East Texas and western Louisiana.

Angostura points from archeological contexts in Texas are well-known to have been extensively curated, frequently used not only as projectile points and knives, but also as hafted woodworking tools in the latter part of their useful life (Anderson 2013). In this regard, the Angostura point described herein was examined at high magnification (40-180 x) using a Dino Lite AM4111-T digital microscope. This study confirmed the extensive edge grinding on the lateral edges of the stem and showed some polish on both the dorsal and ventral surfaces of the stem which could be attributed to the artifact having been hafted during use (Keeley 1980). The lateral edges of the blade also show minor edge crushing which could be the result of use against a hard substance such as bone and/or wood (Keeley 1980). However, the edge crushing is very minor as compared to some known woodworking tools in the region such as the East Fork Biface. So the observation that the point may have been used on word or bone remains problematic.

Conclusions and Discussion

Angostura projectile points are one of the most numerous points from the Paleoindian period in Texas and have been found in every major physiographic province (Bousman and Oksanen 2012). Despite this widespread occurrence, little has been written about the type largely due to its lack of well-dated, stratigraphic occurrence as the vast majority of Angostura points are surface finds (Anderson 2013). The Angostura point type was originally described by Jack Hughes (1949) from the Ray Long (39FA65) site in western South Dakota. He referred to them as "Long Points" after the site's land owner. Hughes described the points as "large lanceolate specimens with narrow, straight to concave bases, fine sometimes oblique flaking, and ground near edges and bases" (Hughes 1949:270). Richard Wheeler (1954) did follow-up work at the Ray Long site and changed the name to "Angostura" after the Angostura Reservoir where the site was located. His description however, was made on projectile points from northern Nebraska as no complete specimens were recovered from the Ray Long site. After these initial descriptions were published, Angostura points were recognized all across the Great Plains and south into most of Texas (Suhm and Krieger 1954; Suhm and Jelks 1962). Wheeler (1995) rejected all but one of the specimens illustrated by Suhm and Krieger (1954) on the basis that they did not conform to the "true" Angostura type of the Great Plains. This has led to a long-standing disagreement between Plains archeologists and those in Texas as to what actually constitutes an Angostura point. There has even been an attempt to label most Angostura points found in Texas as "Texas Angosturas" (Elton R. Prewitt, personal communication, 2018). More recently, Bonnie Pitblado (2007) published a description of the point type from specimens recovered from southern Colorado. She described Angostura points as "a lanceolate biface with parallel or collateral flaking, and with laterally ground edges that converge to a narrow, concave base" (Pitblado 2007:315). Anderson (2013) attempted to reconcile these differences as well as pull together all the disparate age dates into a single concise document. The point described herein, while a bit thicker in the central body than most reported Angostura points, contains most of the features that characterize the type as previously described.

Anderson (2013) studied Angostura points from five well-dated occurrences in the Balcones Escarpment of Central Texas including the Armstrong (41CW34), Gault (41BL323), Richard Beene (41BX831), Wilson-Leonard (41WM235), and Woodrow Heard (41UV88) sites. Her analysis of firmly dated contexts for Angostura points in these sites shows the following chronology:

Armstrong (41CW34)	9540-9452 B.P.
(Schroeder and Oksanen 2002)	
Gault (41BL323)	9460 + 300 B.P.
(Anderson 2013)	
	9100 + 510 B.P.
(Waters et al. 2011)	
	8740 + 280 B.P.
(Anderson 2013)	
Richard Beene (41BX831)	9774-9498 B.P.
(Bousman and Oksanen 2012)	
	10,161-9601 B.P.
(Bousman and Oksanen 2012)	
Wilson-Leonard (41WM235)	10,190-9731 B.P.
(Bronk Ramsey 2009)	

Given the above dates, Anderson (2013) and Bronk Ramsey (2009) conclude an age range of roughly 9880 to 8800 B.P. for the point type although this could extend several centuries both earlier and later as there are other dates from as early as ca. 10,200 B.P. and as late as 8000 B.P. This establishes Angostura points as being Late Paleoindian in origin and extending into the Early Archaic. The latter is borne out by the coeval occurrence of Angostura points with Gower and Hoxie Archaic points at the Wilson-Leonard site (Bousman 1998; Dial et al. 1998; Bousman et al. 2002; Bousman et al. 2004). The author also found an Angostura point at roughly the same stratigraphic interval as a Gower point and slightly below a Carrollton point at the Dowdy Ferry (41DL332) site in Dallas County (Crook 2007, 2020a). An Angostura point was also found in association with Carrollton phase Archaic material at the Post Oak (41DL429) site in Dallas County (Crook 2020a).

In her comprehensive study of the point type, Anderson (2013) found that Texas examples of Angostura points roughly fit the general, original description of the point as put forth by Hughes (1949), Wheeler (1954, 1995), and Pitblado (2007). However, she also noted that most Texas Angostura points have been extensively curated and maintained (Bleed 1986). Points are typically reworked until the central mass is simply too thick to be effectively resharpened. At this point, the artifact was either discarded or more commonly recycled into another tool, either a knife, perforator, or a woodworking tool (Anderson 2013). The above observations clearly fit the Savoy point which has been reworked numerous times and then perhaps used as either a knife or a cutting tool on either wood or bone.

Acknowledgments

The author is grateful to Ms. Alana Inman, Manager of the Sam Houston Regional Library and Research Center in Liberty, Texas for inviting the Houston Archeological Society to participate in the development of the new prehistory exhibit at the Center and thus affording us the opportunity to study in detail all the artifacts contained in the Andy Kyle Archeological Collection. Alana not only provided open access to study the collection but also allowed for the study of artifacts outside the Center.

References Cited

Anderson, Jennifer B.
2013 *The Angostura Anomaly: A Comprehensive Analysis of this Unique Projectile Point Type*. Unpublished Master's Thesis. Department of Anthropology, Texas State University, San Marcos.

Bleed, Peter
1986 The Optimal Design of Hunting Weapons: Maintainability or Reliability. *American Antiquity* 51(4):737-747.

Bousman, C. Britt
1998 Late Paleoindian Archeology. In *Wilson Leonard: An 11,000-year Archeological Record of Hunter-Gatherers in Central Texas,* Vol. I: Introduction, Background, and Syntheses, edited by Michael B. Collins, pp. 161-210. Texas Archeological Research Laboratory, The University of Texas at Austin and Texas Department of Transportation, Environmental Affairs Division, Austin.

Bousman, C. Britt, Barry W. Baker, and Anne C. Kerr
2004 Paleoindian Archeology in Texas. In *The Prehistory of Texas,* edited by Timothy K. Perttula, pp. 15-97. Texas A&M University Press, College Station, TX.

Bousman, C. Britt, Michael B. Collins, Paul Goldberg, Thomas Stafford, Jan Guy, Barry W. Baker, D. Gentry. Steele, Marvin Kay, Anne Kerr, Glen Fredlund, Phil Dering, Vance Holliday, Diane Wilson, Wulf Gose, Susan Dial, Paul Takac, Robin Balinsky, Marilyn Masson, and Joseph F. Powell
2002 The Paleoindian-Archaic Transition in North America: New Evidence from Texas. *Antiquity* 76(294):980.

Bousman, C. Britt and Eric R. Oksanen
2012 The Protoarchaic in Central Texas and Surrounding Areas. In *From the Pleistocene to the Holocene: Human Organization and Cultural Transformations in Prehistoric North America,* edited by C. Britt Bousman and Bradley Vierra, pp. 197-232. Texas A&M University Press, College Station.

Bronk Ramsey, Christopher
2009 Bayesian Analysis of Radiocarbon Dates. *Radiocarbon* 51(1):337-360.

Crook, Wilson W., III
2007 The Dowdy Ferry Site: A Multi-Component Archaic Campsite in Southeastern Dallas County, Texas. *The Journal* 131:9-25. Houston Archeological Society, Houston.

2018 The Occurrence of Carrollton Phase Archaic Materials in Southeast Texas. In, *Neither Snow, Nor Rain, Nor Heat, Nor Dark of Night, Shall Stay These Couriers: Essays Honoring Jay C. Blaine*, edited by S. Alan Skinner and Molly A. Hall, pp. 87- 96. Texas Archeological Society.

2020a *The Carrollton Phase Archaic: A Redefinition of the Chronology, Composition, and Aerial Distribution of the Early Archaic Horizon Along the Trinity River, Texas*. Report No. 35. Houston Archeological Society, Houston.

2020b *The Wood Springs Site (41LB15): A 13,000 Year Occupation in Liberty County, Texas*. Report No. 36. Houston Archeological Society, Houston (in press).

Crook, Wilson W., III, Robert J. Sewell, Linda C. Gorski and Louis F. Aulbach
2017 The Andy Kyle Archeological Collection. *Report of the Houston Archeological Society*, No. 29:13-56. Houston.

Dial, Susan W., Anne C. Kerr, and Michael B. Collins
1998 Projectile Points. In *Wilson-Leonard: An 11,000-year Archeological Record of Hunter-Gatherers in Central Texas,* Vol. II: Chipped Stone Artifacts, edited by Michael B. Collins, pp. 313-446. Texas Archeological Research Laboratory, The University of Texas at Austin and Texas Department of Transportation, Environmental Affairs Division, Austin.

Griffen, Kirby L.
1996 *Soil Survey of Liberty County, Texas*. United States Department of Agriculture, Soil Conservation Service, in cooperation with the Texas Agricultural and Experiment Station and the Harris County Flood Control District.

Heinrich, Paul V.
1987 Lithic Resources of Western Louisiana. *Louisiana Archeology Bulletin* 11:165-190.

Hughes, Jack T.
1949 Investigations in Western South Dakota and Northeastern Wyoming. *American Antiquity* 14(4):266-277.

Keeley, Lawrence H.
1980 *Experimental Determination of Stone Tool Uses: A Microwear Analysis.* University of Chicago Press, Chicago.

Kindall, Sheldon and Leland W. Patterson
1986 The Andy Kyle Archeological Collection, Southeast Texas. *The Journal* 86:14-21. Houston Archeological Society, Houston.

Pitblado, Bonnie L.
2007 Angostura, Jimmy Allen, FoothillsMountain. Clarifying Terminology for Late Paleoindian Southern Rocky Mountain Spear Points. In *Paleoindian Archaeology. From the Dent Site to the Rocky Mountains.* edited by Robert H. Brunswig and Bonnie L. Pitblado, pp. 311-337. University Press of Colorado, Boulder.

Schroeder, Eric A. and Eric R. Oksanen
2002 Data Recovery at the Armstrong Site (41CW54) Caldwell County, Texas. In *Cultural Resources Report No. 0284,* Vol. I: Background, Methods, and Site Context, Paul Price Associates, Inc., Austin.

Suhm, Dee Ann and Alex D. Krieger, with the collaboration of Edward B. Jelks
1954 An Introductory Handbook of Texas Archeology. *Bulletin of the Texas Archeological Society* 25:1-562.

Suhm, Dee Ann and Edward B. Jelks (editors)
1962 *Handbook of Texas Archeology: Type Descriptions.* Special Publication No. 1, Texas Archeological Society and Bulletin No. 4, Texas Memorial Museum.

Turner, Ellen Sue and Thomas R. Hester
1985 *A Field Guide to Stone Artifacts of Texas Indians.* Gulf Publishing, Lanham, Maryland.

1993 *A Field Guide to Stone Artifacts of Texas Indians.* 2nd Edition. Gulf Publishing, Lanham, Maryland.

1999 *A Field Guide to Stone Artifacts of Texas Indians.* 3rd Edition. Gulf Publishing, Lanham, Maryland.

Turner, Ellen Sue, Thomas R. Hester, and Richard L. McReynolds
2011 *Stone Artifacts of Texas Indians.* Taylor Trade Publishing, Lanham, Maryland.

Waters, Michael R., William A. Dickens, Michael B. Collins, Charlotte D. Pevny, and David L. Carlson
2011 *Clovis Lithic Technology: Investigation of a Stratified Workshop at the Gault Site, Texas.* Texas A & M University Press, College Station.

Wheeler, Richard P.
1954 Selected Projectile Point Types of the United States: II. *Bulletin of the Oklahoma Anthropological Society* 2:1-6.

1995 Archeological Investigations In Three Reservoir Areas In South Dakota and Wyoming: Part 1 Angostura Reservoir. In *Reprints In Anthropology,* 46:372-450. J & L Reprint Company, Lincoln, NE.

UNUSUAL ENGRAVED SHERDS FROM THE GUM SLOUGH SITE (41LB58), LIBERTY COUNTY, TEXAS

Wilson W. Crook, III, Louis F. Aulbach, Linda C. Gorski, Larry Golden, Geoffrey F. Mills, Erin Philips, Sandra E. Rogers, and Robert J. Sewell

Introduction

Over the past several years, the Houston Archeological Society (HAS) has been working with the Sam Houston Regional Library and Research Center in Liberty, Texas in analyzing the contents of the extensive Andy Kyle Archeological Collection. The collection was given to the Center by the late Mr. Andy Kyle and consists of well over 50,000 artifacts collected from 95 sites in nine Southeast Texas counties. The artifacts within the Kyle Collection range from Clovis (ca. 13,000 B.P.) to Late Prehistoric (ca. A.D. 1500) in age (Crook et al. 2017). One of the last boxes to be studied contained material from the Gum Slough (41LB58) site in Liberty County (Figure 1). Artifacts from the Gum Slough site range from Late Archaic to Late Prehistoric in age, with the predominant component being from the Woodland or Early Ceramic period.

The Gum Slough site assemblage within the Andy Kyle Collection consists of some 234 lithic artifacts, 968 ceramic sherds, plus 11 pieces of bone and two fragments of shell. An additional 527 pieces of lithic debitage complete the artifact assemblage. Within the ceramic component, sandy and silty-paste plain sherds represent 94 percent of all pottery at the site. These likely belong to the general Goose Creek Plain family of ceramics, either Goose Creek Plain, *var. Goose Creek* or Goose Creek Plain, *var. Dimond Knoll*. The remaining sherds are mainly grog-tempered, with grog-tempered plain pottery being the principal form present (Baytown Plain). Four sandy-paste sherds with minor added grog-temper were observed which had an unusual engraved cross-hatched decorative pattern which could not be readily matched to any published type. This paper documents the occurrence of this unusual, apparently hitherto undescribed pottery type with the hope that its description will prompt others in the Texas archeological community to contact the author and assist in the identification of the type and its distribution.

Figure 1. HAS members analyzing the contents of the Gum Slough site collection at the Sam Houston Regional Library and Research Center. Back table, left-to-right: Geoff Mills and Bob Sewell. Front table, left-to-right: Dr. Erin Philips, Larry Golden, and Dub Crook (standing). (Photo: Linda Gorski)

The Gum Slough Site (41LB58)

The Gum Slough site is located approximately 2.2 km south of Liberty in south-central Liberty County. The site is adjacent a minor tributary of the Trinity River known as Gum Slough (or Gum Slosh Slough). At the present time, the site's location is 1.3 km east of the Trinity River, however observation of the area on Google Earth shows an old, now filled-in cutoff of the Trinity immediately west of the site. Thus, during the site's occupation, it was probably located near the confluence of the Trinity River and Gum Slough. The South Liberty Oil Field is located in the same immediate area and the site has been known by either the name "South Liberty Oil Field" site or the "Gum Slough" site (Kindall and Patterson 1986). Both names and site location are on file at the Texas Archeological Research Laboratory (TARL) in Austin. The site's trinomial designation is 41LB58. Surface elevation at the site is approximately 26 feet.

The site was originally recorded in the late 1980s by members of the Houston Archeological Society in their initial work on the artifacts contained in the Andy Kyle Archeological Collection. Gum Slough was visited by Sheldon Kindall and Leland Patterson and the location recorded with TARL. Several shovel tests were conducted to determine the depth of occupation. No excavations have taken place at the site and all of Mr. Kyle's collection reportedly came from the surface. The site is located in a densely wooded area which consists of a combination of loblolly pines, sweetgums, and red oak (Figure 2). Soils covering the area of the Gum Slough site belong to the Spurger-Bienville-Kennefick complex, specifically the Spurger fine sandy loam (Griffen 1996). The typical soil profile at the site consists of about 8 cm of a dark brown loamy fine sand underlain by 140+ cm of a very fine-grain dark yellowish-brown loamy sand (Griffen 1996).

Artifacts from the site represent the following archeological periods: (1) Late Archaic – 4,000-2,000 B.P. (marked by Ellis, Yarbrough, Kent, Ensor, and Gary points) (Patterson 1991, 1996), (2) Woodland period – 2,000-1,400 B.P. (marked by Gary and Kent points and both plain and decorated ceramics) (Patterson 1991, 1996), and (3) Late Prehistoric 1,400-900 B.P. (marked by Alba, Catahoula, and Friley points (Crook et al. 2017; Suhm and Krieger 1954; Suhm and Jelks 1962; Turner and Hester 1985, 1993, 1999; Turner et al. 2011). A tabulation of all the artifacts, both lithic and ceramic, from the Gum Slough site in the Andy Kyle collection is shown in Tables 1 and 2.

After it was determined that the four sherds from the Gum Slough site were of a previously unknown type, an extensive search was conducted in all of the material from the Gum Slough site in the Andy Kyle Archeological Collection for similar pottery. Despite repeated searches, no additional sherds outside of those described herein were found. Not only are these four sherds unique to the Gum Slough site, but no similar sherds were found in the tens of thousands of ceramic sherds from the other 94 sites represented in the Kyle Collection.

Figure 2.Location of the Gum Slough (41LB58) site, Liberty County as it appears today.

Table 1. Gum Slough (South Liberty Oil Field) (41LB58) Lithic Artifacts

Lithic Artifacts - Tool Type	Chert	Quartzite	Silicified Wood	Other	Total
Dart Points					
Yarbrough	1	3	1	--	5
Gary	18	25	14	--	57
Kent	5	2	5	--	12
Delhi	--	--	1	--	1
Ellis	8	1	3	1[1]	13
Ensor	2	--	1	--	3
Unidentified	22	17	14	--	53
Arrow Points					
Alba	5	--	--	1[1]	6
Catahoula	2	2	1	--	5
Friley	--	2	1	--	3
Unidentified	4	2	2	--	8
Biface	9	1	20	--	30
Scraper (all types)	11	5	6	--	22
Reworked Gary End-Scraper	--	--	1	--	1
Worked Flake	8	--	4	--	12
Perforator	1	--	1	--	2
Hammerstone	--	1	--	--	1
Total Lithic Artifacts	96 (43%)	61 (26%)	75 (32%)	2 (1%)	234
Bone (unworked)					11
Shell (unworked)					2
Debitage	407	81	38	1[2]	527

[1] *Jasper*
[2] *Quartz*

Ceramic Sherd Description

Although none of the four engraved sherds found by Mr. Kyle at the Gum Slough site can be refitted, based on the curvature of the largest sherd they appear to have come from a ovoid to circular-shaped bowl. The diameter of the orifice of the bowl based on the curvature of the largest sherd is approximately 165-180 mm. Two of the sherds are rim sherds (Figure 3 – left and middle) with the other two (Figure 3 – right hand side top and bottom) being wall sherds. All four contain the same cross-hatch decoration which is bounded by a prominent engraved line parallel to and 5 mm below the rim. Vertical lines are separated by a series of horizontal lines, evenly spaced at about 3 mm. Thinner vertical lines then connect the horizontal lines, typically in a series of couplets (Figure 4). Each of the rim sherds further display a fine-grain interlocking "X"-shape pattern on the surface of the rim (Figure 5). Details of the four engraved sherds are shown in Table 3.

One of the body sherds (see Figure 3 – right hand bottom) shows a discontinuation of the engraved pattern some distance below the rim. Based on the largest rim sherd which has decoration all the way to the bottom of the sherd (see Figure 4), this discontinuation of the engraving has to be at least 65 mm below the rim. Specific attributes of the sherds are provided below:

Table 2. Gum Slough (South Liberty Oil Field) (41LB58) Ceramic Artifacts[1]

Ceramic Type	Body Sherds	Rim Sherds	Basal Sherds	Comments
Sandy Paste Plain	813	31	5	
Sandy Paste Plain with Inflection Point	3	--	--	
Sandy Paste Incised	2	1	--	One rim sherd with line parallel to rim and punctations
Sandy Paste with Perforation	3	1	--	1 sandy paste body; 1 silty paste body; 1bone tempered body
Sandy Paste with Red Film	3	--	--	
Silty Paste Plain	40	10	--	One rim sherd is lip notched
Multi-temper with Hematite	3	--	--	
Bone Tempered Plain	3	1	--	
Grog Tempered Plain	35	7	1	
Grog Tempered Plain with Bone	1	--	--	
Grog Tempered Incised	2	3	--	Four sherds have unique cross-hatch decoration starting 5 mm below the rim
TOTAL	908	54	6	Total Sherds = 968

[1] All sandy, silty, and bone-tempered sherds probably belong to the general Goose Creek/Baytown/San Jacinto ceramic family. Sandy/Silty- paste ceramics (94%); Grog-tempered (5%); Bone/Multi-tempered (1%).

Figure 3. Exterior surface of four engraved sherds from the Gum Slough site.

Figure 4. Largest of the four engraved sherds from the Gum Slough site showing the extensive cross hatch decoration.

Table 3. Measurements of Four Engraved Sherds from the Gum Slough (41LB58) Site, Liberty County, Texas

Sherd Number / Type	Length (mm)	Width (mm)	Rim Thickness (MM)	Wall Thickness (mm)	Decoration
1 (Rim Sherd)	64.8	64	7	7.8	Engraved line 5 mm below rim; intricate cross-hatch pattern consisting of both vertical and horizontal lines spaced 3 mm apart; very fine "x" engraved pattern on top surface of rim
2 (Rim Sherd)	30	39.5	6.3	7.5	Same as above
3 (Body Sherd)	37.2	35	--	7.8	Cross-hatch engraved pattern of vertical and horizontal lines spaced 3 mm apart
4 (Body Sherd)	40	37.5	--	7.3	Cross-hatch pattern as described above for upper X mm; exterior surface is undecorated below this point

SITE NAME OR SITE NUMBER: Gum Slough (South Liberty Oil Field) site (41LB58), Liberty County, Texas

VESSEL NUMBER: N/A; the four sherds are currently curated at the Sam Houston Regional Library and Research Center, Liberty County, Texas

VESSEL FORM: Ovoid to circular-shaped bowl

PASTE: Fine-grained sandy clay paste admixed with minor grog as temper. The use of clay in the form of grog as a temper in an oxidizing environment would have led to lighter-colored vessels (tan to light brown) and allowed for a longer firing period, thus producing a harder ceramic vessel (Rice 1987; Teltser 1993).

RIM AND LIP FORM: Straight (direct); no indication of rim being everted or inverted; rims are slightly thinner than the rest of body. Lip form is flat and contains very fine, interlocking "X" shaped engraved pattern.

EXTERIOR SURFACE COLOR: Very Pale Brown (10YR 7/4-7/3)

INTERIOR SURFACE COLOR: Generally the same as the exterior; in places the interior surface is slightly darker (10YR 5/1 Gray) due to the presence of fire mottling or clouding

CORE COLOR: Darker than interior or exterior surfaces indicating firing in a low oxygen, reducing, environment then pulled from the fire to cool; sherd cores are typically Gray (10YR 5/1 to) to Dark Gray (10YR 6/1) in color

WALL THICKNESS (IN MM): Rim, 6.3-7.0 mm; Body, 7.3-7.8 mm. The base is probably flat but can

Figure 5. Surface of the lip (rim) of the largest engraved sherd from the Gum Slough site. Note the fine "X" shaped pattern engraved into the rim.

only be assumed as no basal sherds of the vessel are present; the thickness change from thicker to thinner (body to rim) suggests the vessel was built from the base upwards to the rim (Krause 2007).

INTERIOR SURFACE TREATMENT: Smoothed

EXTERIOR SURFACE TREATMENT: Smoothed and decorated (engraved)

ESTIMATED VESSEL HEIGHT (IN CM): Unknown

ESTIMATED ORIFICE DIAMETER (IN CM): 165-180 mm (based on extrapolation of curvature of two rim sherds)

BASE DIAMETER (IN CM) AND SHAPE OF BASE: Unknown but probably less than the orifice diameter based on angle of rim and body sherds

DECORATION (INCLUDING MOTIF AND ELEMENTS WHEN APPARENT): Single engraved horizontal line (1 mm in width) around the lip of the bowl 5 mm below the rim. Parallel lines below evenly spaced at about 3 mm apart. The horizontal lines are interconnected by a series of vertical lines in the form of closely spaced pairs (1-2 mm), separated by about a 3 mm space to the next pair (see Figure 4). The lip of the vessel is decorated in a series of very fine engraved "X" shapes (see Figure 5). Details of the engraved decoration from photomicrographs at 40-80x can be seen in Figures 6 and 7.

TYPE AND VARIETY: Unknown, but likely a variety of Upper Gulf Coast grog-tempered pottery (Baytown, San Jacinto) as a similar form of incised decoration has been reported from Baytown and Galveston Bay (Black 1989)

Figure 6. Details of decorative horizontal and vertical engraving at 80x.

Figure 7. Detail of X-shaped engraving on top surface of the rim (40x).

Discussion

By ca. A.D. 1000, some of the Late Prehistoric ceramic wares in Southeast Texas were being made with grog (crushed fired pottery) temper, a technology possibly borrowed from western Louisiana as the ceramics closely resemble the Coles Creek and Plaquemine traditions of the Lower Mississippi Valley (Aten 1983; Aten and Bollich 2002; Crook et al. 2017). Grog tempering represents a specific attempt on the part of potters in Southeast Texas to slow the oxidation process of ceramic vessels during firing. This creates darker-colored vessels in a reducing firing environment or lighter tan, orange, and brown colors in an oxidizing environments, both of which allow the ceramic to be fired longer thus producing a harder vessel (Rice 1987; Teltser 1993). Since grog has expansion coefficients comparable to the coefficients of the clay paste most commonly seen in Caddo pottery vessels, this would have contributed to the ability of fired vessels to further withstand heat-related stresses, as well as increasing their overall strength (Rice 1987). Grog-tempered ceramics also have stylistic and cultural affiliations with ancestral Caddo groups in the Neches/Angelina and Sabine River basins as well as with coastal Texas groups that made grog-tempered ceramic wares (Aten 1983; Aten and Bollich 2002; Story 1990; Ricklis 2004; Perttula 2018). Grog-tempered ceramics have reported incised, punctated, and incised-punctated decorative elements. In the Upper Gulf Coast, these grog-tempered ceramic types are broadly classified as Baytown if plain (undecorated) and San Jacinto if incised. San Jacinto Incised ware has decorative patterns which are almost identical to those seen in Goose Creek Incised. Typical decorative patterns include a series of horizontal incised lines below the vessel lip which are intersected by vertical or diagonal lines that extend from the rim down the vessel body (Aten and Bollich 2002). In fact, Weinstein has argued that San Jacinto Plain and Incised wares are merely an outgrowth of the local sandy-paste Goose Creek ceramic tradition to which grog has been added based on influences from the east in Louisiana (Richard A. Weinstein, personal communication, 2019).

The type described herein does not seem to correspond to any published types as the decorative elements are clearly engraved rather than being incised. Engraved grog-tempered pottery of Caddo origin (Holly Fine Engraved, Poynor Engraved) is known from other sites in Liberty County (Crook et al. 2017; Crook 2020 (in Press). It is possible that the sherds described herein were simply mimicking a technique observed from trade ware and applying it to locally-made ceramics. It is hoped that by publication of this paper and description, that other occurrences of engraved sandy-paste grog-tempered pottery may be identified from sites along the Upper Gulf Coast.

Acknowledgments

The author is grateful to Ms. Alana Inman, Manager of the Sam Houston Regional Library and Research Center in Liberty, Texas for inviting the Houston Archeological Society to participate in the development of the new prehistory exhibit at the Center and thus affording us the opportunity to study in detail all the artifacts contained in the Andy Kyle Archeological Collection. Alana not only provided open access to study the collection but also allowed for the study of artifacts outside the Center. I am also grateful to my HAS colleagues, Geoff Mills, Robert Sewell, Larry Golden, Dr. Erin Phillips, Linda Gorski, and Louis Aulbach, who helped me go through and identify the Gum Slough ceramic collection present in the Andy Kyle Collection. Special thanks are given to Bob Sewell who assisted the lead author in examining the sherds under a Dino-Lite AM4111-T digital microscope at 40-60X and taking the photomicrographs that appear in this paper.

References Cited

Aten, Lawrence E.
1983 *Indians of the Upper Texas Coast*. Academic Press, New York.

Aten, Lawrence E. and Charles N. Bollich
2002 *Late Holocene Settlement in the Taylor Bayou Drainage Basin: Test Excavations at the Gaulding Site (41JF27), Jefferson County, Texas*. Studies in Archeology 40, Texas Archeological Research Laboratory, The University of Texas at Austin, and Special Publication 4, Texas Archeological Society, Austin.

Black, W. Marshall
1989 *A Study of Decorative Designs on Goose Creek and San Jacinto Pottery of Southeast Texas*. Report No. 8, Houston Archeological Society, Houston.

Crook, Wilson W., III, Robert J. Sewell, Linda C. Gorski and Louis F. Aulbach
2017 *The Andy Kyle Archeological Collection*. Report No. 29. Houston Archeological Society, Houston.

Griffen, Kirby L.
1996 *Soil Survey of Liberty County, Texas*. United States Department of Agriculture, Soil Conservation Service, in cooperation with the Texas Agricultural and Experiment Station and the Harris County Flood Control District.

Kindall, Sheldon and Leland W. Patterson
1986 The Andy Kyle Archeological Collection, Southeast Texas. *The Journal* 86:14-21. Houston Archeological Society, Houston.

Krause, Richard A.
2007 A Potter's Tale. In *Plains Village Archaeology: Bison-hunting Farmers in the Central and Northern Plains*, edited by Stanley A. Ahler and Marvin Kay, pp. 32-40. University of Utah Press, Salt Lake City.

Patterson, Leland W.
1991 Dart Point Chronologies of Southeast Texas. *The Journal* 101:1-5. Houston Archeological Society, Houston.

1996 *Southeast Texas Archeology*. Report No. 12, Houston Archeological Society, Houston.

Perttula, Timothy K.
2018 *The Strawberry Hill Site (41SJ160) Ceramic Vessel Sherd Assemblage, San Jacinto County, Texas and Comparison to other Mossy Grove Culture Ceramic Assemblages*. Report No. 31, Houston Archeological Society, Houston.

Rice, Prudence M.
1987 *Pottery Analysis: A Sourcebook*. University of Chicago Press, Chicago.

Ricklis, Robert A.
2004 The Archeology of the Native American Occupation of Southeast Texas. In *The Prehistory of Texas*, edited by Timothy K. Perttula, pp. 181-202. Texas A&M University Press, College Station.

Story, Dee Ann
1990 Culture History of the Native Americans. In *The Archeology and Bioarcheology of the Gulf Coastal Plains*, by Dee Ann Story, Janice A. Guy, Barbara A. Barnett, Martha D. Freeman, Jerome C. Rose, D. Gentry Steele, Ben W. Olive and Kevin J. Reinhard, pp. 163-165. Research Series No. 38, Arkansas Archeological Survey, Fayetteville.

Suhm, Dee Ann and Alex D. Krieger, with the collaboration of Edward B. Jelks
1954 An Introductory Handbook of Texas Archeology. *Bulletin of the Texas Archeological Society* 25:1-562.

Suhm, Dee Ann and Edward B. Jelks (editors)
1962 *Handbook of Texas Archeology: Type Descriptions.* Special Publication No. 1, Texas Archeological Society and Bulletin No. 4, Texas Memorial Museum.

Teltser, Patrice A.
1993 An Analysis Strategy for Studying Assemblage-Scale Ceramic Variation: A Case Study from Southeast Missouri. *American Antiquity* 58(3):530-543.

Turner, Ellen Sue and Thomas R. Hester
1985 *A Field Guide to Stone Artifacts of Texas Indians.* Gulf Publishing, Lanham, Maryland.

1993 *A Field Guide to Stone Artifacts of Texas Indians.* 2nd Edition. Gulf Publishing, Lanham, Maryland.

1999 *A Field Guide to Stone Artifacts of Texas Indians.* 3rd Edition. Gulf Publishing, Lanham, Maryland.

Turner, Ellen Sue, Thomas R. Hester, and Richard L. McReynolds
2011 *Stone Artifacts of Texas Indians.* Taylor Trade Publishing, Lanham, Maryland.

THE OCCURRENCE OF A HOLLY FINE ENGRAVED CERAMIC FROM THE WOOD SPRINGS SITE (41LB15), LIBERTY COUNTY, TEXAS

Wilson W. Crook, III

Introduction

In 2017, the Houston Archeological Society (HAS) was asked by the Texas Historical Commission to assist the Sam Houston Regional Library and Research Center in Liberty, Texas in creating a new interactive museum exhibit on the prehistory of Southeast Texas using the extensive Andy Kyle Archeological Collection. This collection was donated to the Center by the late Mr. Andy Kyle, a longtime resident of Liberty County, and consists of well over 50,000 artifacts collected from 95 sites in nine Southeast Texas counties (Figure 1). The area encompassed by the collection covers 8,064 square miles (5,160,160 acres). Artifacts within the Kyle Collection range from Clovis to Late Prehistoric in age.

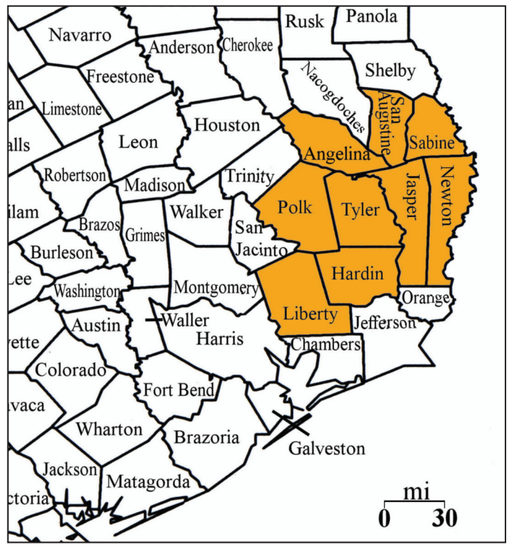


Figure 1. Map of Southeast Texas showing the nine counties represented in the Andy Kyle Archeological Collection.

One of the more prolific sites represented in the collection is the Wood Springs site (41LB15) located in central Liberty County. Artifacts from the Wood Springs site range from Paleoindian (Clovis) to Late Prehistoric in age, with an extensive representation from the Paleoindian, Early Archaic, Late Archaic, Woodland, and Late Prehistoric Periods (Crook et al. 2017). As such, the Wood Springs site, along with the Savoy (41LB27) and Moss Hill (41LB65) sites, represent the three longest-term occupations in the Kyle Collection. Given the importance of the Wood Springs site to both Liberty County prehistory as well as all of Southeast Texas, it was decided to document the site and its artifacts in a comprehensive report. As part of this research, every ceramic sherd collected from the site has been studied. This work revealed the presence of a number of sherds which have been identified as having a Caddo origin, including Crockett Curvilinear Incised (n=51), Maydelle Incised (n=1), Poynor Engraved (n=1), and a large rim sherd of Holly Fine Engraved. As Holly Fine Engraved is a well-known Early Caddo trade item, this brief paper serves to both document the occurrence as well as add to the known distribution of this ceramic type.

The Wood Springs Site (41LB15)

The Wood Springs site is located approximately three kilometers northwest of Liberty, Texas on either side of a small stream known as Wood Springs Creek or Atascosito Springs (Figure 2). This stream is fed by several perennial springs and is a minor tributary of the Trinity River two kilometers to the west. The site straddles a small asphalt road that bisects the occupational area from north-to-south (Figure 3). A natural gas pipeline right-of-way crossing bisects the site from west-to-east with the intersection of the pipeline and the asphalt road serving as a marker for the approximate middle of the

Figure 2. Wood Springs Creek, Liberty County, Texas.

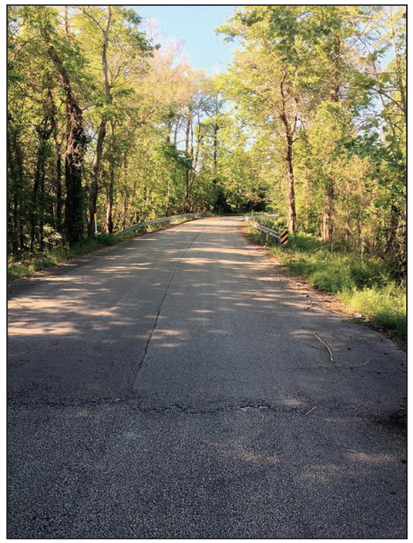


Figure 3. Sandune Road which bisects the Wood Springs site from north-to-south. The small bridge over Wood Springs Creek is in the center of the photo.

occupation (Elton R. Prewitt, personal communication, 2018). A small elevated bridge has been constructed across Wood Springs Creek (see Figure 3). The site occurs on either side of Wood Springs Creek and while artifacts have been found on both sides, the northern bank has produced significantly more than the southern side of the creek (Elton R. Prewitt, personal communication, 2018; Andy Kyle field notes).

Wood Springs was one of the many sites from which the late Mr. Andy Kyle collected artifacts between 1946-1986. Wood Springs' location was originally described and registered by Elton R. Prewitt in 1973 as part of the Louisiana Loop Survey. The site was subsequently investigated by Sheldon Kindall and other members of the Houston Archeological Society during their research on the Andy Kyle Archeological Collection during the mid-1980s (Kindall and Patterson 1986).

Occupational material at Wood Springs covers at least 0.5 acres and possibly as much as 5 acres or more (Sheldon Kindall, personal communication, 2017; Houston Daniel, personal communication, 2018). Based on artifacts collected by Mr. Kyle and more recently by members of the HAS, the Wood Springs site represents a long-term occupation that extends from the early Paleoindian period (Clovis) through the Late Prehistoric. Construction of the natural gas pipeline and the asphalt road, both of which transect the site at right angles, has disturbed much of original site stratigraphy such that Paleoindian, Archaic, Woodland, and Late Prehistoric materials are now found alongside each other on the surface.

While no formal excavation has taken place at the Wood Springs site, the site's stratigraphy has been partially determined by a number of shovel tests and test pits conducted over the past 47 years. Elton Prewitt conducted a series of shovel tests at the site in 1973 and the Houston Archeological Society dug a similar set of small test pits in 1986 (Elton R. Prewitt, personal communication, 2019; Kindall and Patterson 1986). More recently, the author has excavated several test pits across the northern part of the site to confirm the stratigraphy. Soils covering the area of the Wood Springs site belong to the Spurger-Bienville-Kennefick complex, specifically a mix of Spurger and Kennefick soils (Griffen 1996). The typical soil profile at the site consists of about eight centimeters of a pale brown (10YR 7/3) to light gray (10YR7/2) loamy fine sand. This is underlain by a fine-grained brown sandy loam (10YR3/4-3/3) that in places has yellow to reddish mottles. This sand forms a small terrace that sits above Wood Springs Creek which is a minor tributary of the Trinity River. The Trinity River is presently located about two

kilometers to the west of the site. Arrow points and pottery can be found in the upper 30-45 centimeters; below this level are both Woodland period and Archaic occupations. No Paleoindian artifacts have been recovered in any of the test pits. The artifact horizon extends to a depth of at least 125 centimeters; no test pits have been dug below this depth.

Ceramic Sherd Description

The Holly Fine Engraved sherd is part of the rim of probably a carinated bowl (see Suhm and Jelks 1962:Plate 39a and Plate 40a). Maximum length of the sherd is 89.5 mm with a depth of 43.9 mm on one end but only 23 mm at the other end of the sherd (Figure 4a-b). Thickness varies from 6.5 mm near the rim to 7.5-8.0 mm over the body. Based on the curvature of the sherd, the diameter of the orifice of the vessel would have been approximately 140-150 mm. The sherd has a dark grayish-brown to very dark gray exterior (2.5Y 3/2-3/1) with a much lighter yellowish-brown to brown interior (10YR 4/4-4/3) (Figure 4a). The interior of the sherd also shows some fire mottling either from use or the firing process (Figure 4b). Decorative elements consist of a single horizontal line below the rim with finely engraved diagonal opposed and vertical lines extending downward along the wall of the vessel (see Figure 4a). The decorative engraved lines are evenly spaced about 2.5 mm apart.

After it was determined that the sherd belong to the type Holly Fine Engraved, an extensive re-look was conducted of all of the boxes from the Wood Springs site in the Andy Kyle Archeological Collection. Despite repeated searches for additional examples of Holly Fine Engraved, no additional sherds outside of the rim sherd described herein were found. Moreover, no additional sherds with a similar decoration were found in any of the collections from the other 94 sites and literally tens of thousands of ceramic sherds within the Andy Kyle Collection. Specific attributes of the Holly Fine Engraved sherd are provided below:

SITE NAME OR SITE NUMBER: Wood Springs (41LB15), Liberty County, Texas

VESSEL NUMBER: N/A; single rim sherd curated at the Sam Houston Regional Library and Research Center, Liberty County, Texas

VESSEL FORM: Probably a carinated bowl (see Suhm and Jelks 1962:Plate 39a and 40a); sherd curvature is too large to have come from a bottle

PASTE: Fine-grained sandy clay with minor grog as added temper. The use of clay as a temper would have led to lighter-colored vessels (tan to light brown) and allowed for a longer firing period, thus producing a harder ceramic vessel (Rice 1987; Teltser 1993).

Figures 4a-b. Exterior and interior of large rim sherd of Holly Fine Engraved from the Wood Springs site, Liberty County, Texas.

RIM AND LIP FORM: Rounded and flush with the rim; rim thickness is 6.5 mm which is slightly thinner than the rest of the body (7.5-8.0 mm).

EXTERIOR SURFACE COLOR: Very Dark Grayish-Brown (2.5Y 3/2) to Very Dark Gray (2.5Y 3/1)

INTERIOR SURFACE COLOR: Yellowish Brown (10YR 4/4) to Brown (10YR 4/3) with some places darker due to the presence of fire mottling or clouding.

CORE COLOR: Lighter than exterior but darker than interior surface of the sherd (Grayish-Brown (2/5Y 5/2) to Dark Grayish-Brown (2.5Y 4/2). The slightly lighter color of the core may indicate that the sherd was incompletely oxidized (Teltser 1993). Alternatively, after extended firing had burned off all organics, the fire may have been smothered to cause reduction and resulting in a darkening of the exterior surface (Aten and Bollich 2002).

WALL THICKNESS (IN MM): Rim, 6.5 mm; Body, 7.5-8.0 mm (thicker toward the base of the sherd). The base is unknown but the bases of Holly Fine Engraved bowls are generally slightly convex to flat (Suhm and Krieger 1854; Suhm and Jelks 1962). Thickness data from the one sherd suggests the vessel was built from the base upwards to the rim (Krause 2007).

INTERIOR SURFACE TREATMENT: Well smoothed

EXTERIOR SURFACE TREATMENT: Well smoothed and decorated

ESTIMATED VESSEL HEIGHT (IN MM): Unknown

ESTIMATED ORIFICE DIAMETER (IN MM): 140-150 mm based on extrapolation of the curvature one the one sherd.

BASE DIAMETER (IN CM) AND SHAPE OF BASE:Unknown but less than the orifice diameter based on known examples of Holly Fine Engraved vessels (Suhm and Krieger 1954; Suhm and Jelks 1962).

DECORATION (INCLUDING MOTIF AND ELEMENTS WHEN APPARENT): Very finely engraved lines set 2.5 mm apart extending to the maximum depth of the sherd (43.9 mm). The design consists of a horizontal line 4.5-5 mm below the rim with finely engraved lines in sets running diagonally opposed and vertically parallel to one another (see Figure 4a).

TYPE AND VARIETY: Holly Fine Engraved

Discussion

Holly Fine Engraved is a Formative and Early Caddo period ceramic which dates to approximately A.D. 900-1200, based mainly on radiocarbon dates from the George C. Davis site (41CE19) in East Texas (Newell and Krieger 1949; Story and Valastro 1977; Perttula et al. 2016). Large numbers of Holly Fine Engraved ceramics have been recovered from the George C. Davis (41CE19) site in East Texas as well as north of George C. Davis to the Red River and beyond (Perttula 2002; Descantes et al. 2004). Holly Fine Engraved was extensively traded and exchanged throughout North America and has been found at Cahokia in Missouri, at Spiro in Oklahoma, possibly at Moundville in Alabama, and as far away as South Dakota (Timothy K. Perttula, personal communication, 2019; Perttula 2002). This sherd was obtained via trade and/or exchange and probably originated from a Caddo site close to Wood Springs such as George C Davis.

Other ceramics of Caddo origin identified from the Wood Springs site include Crockett Curvilinear Incised, Maydelle Incised, and Poynor Engraved. Holly Fine Engraved and Crockett Curvilinear Incised are contemporaneous types from the Formative and Early Caddo periods. Crockett Curvilinear was also extensively produced at the George C. Davis site and traded throughout East Texas and the neighboring states (Perttula 2002, 2013). Both of the vessels present in the Kyle Collection from the Wood Springs site possibly came from the same point of origin. Maydelle Incised and Poynor Engraved belong to the later Frankston phase and their presence shows a continuing contact with the ancestral Caddo people of East Texas over a number of centuries during the Late Prehistoric period (Perttula 2011, 2013).

The Wood Springs site has been occupied by aboriginal peoples from as early as ca. 13,000 years B.P. through the end of the Late Prehistoric period ca. 400 years ago. This represents one of the longest continuous occupations in Liberty County and Southeast Texas (Crook et al. 2017). The prolific fresh water springs which give rise to Wood Springs Creek are one of the reasons for the long-term occupation present at the site. Another possible reason for the site's long, continuous habitation could be its location near the junction of two ancient trade trails (Figure 5). Jason Barrett (2018) has been working to

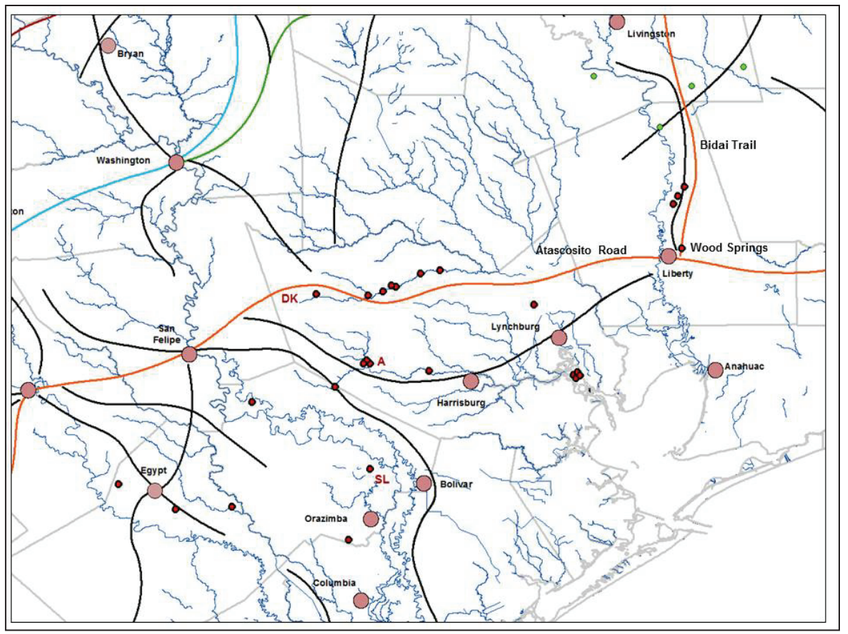


Figure 5. Map of major known Indian trails through Southeast Texas. Wood Springs is the red dot immediately northeast of the town of Liberty. (Map courtesy of Jason W. Barrett)

plot the location of Southeast Texas sites which have long-term occupations that range from Paleoindian to Late Prehistoric onto maps of known historic and prehistoric trade routes. When the location of Wood Springs is added to Barrett's map it plots very near the junction of a major east-west trail ("Atascosito Road") and a north-south trail ("Bidai Trail") that runs from Nacogdoches south to Liberty County through the Big Thicket (see Figure 5). This ideal location could also help to explain some of the exotic materials present at the site such as the Holly Fine Engraved sherd and other Caddo ceramics.

Acknowledgments

The author is grateful to Ms. Alana Inman, Manager of the Sam Houston Regional Library and Research Center in Liberty, Texas for inviting the Houston Archeological Society to participate in the development of the new prehistory exhibit at the Center and thus affording us the opportunity to study in detail all the artifacts contained in the Andy Kyle Archeological Collection. Alana not only provided open access to study the collection but facilitated our research on artifacts, such as the ceramic vessel described in this paper, by also allowing for the study of artifacts outside the Center. I also would like to thank the late Mr. Houston Daniel who gave the author permission to excavate several small test pits on his property which covers the northwest part of the site. In addition, the author would like to thank Tim Perttula for his advice and help in determining the identification of the ceramic sherd described herein and his editing and greatly improving the content of this paper. I would also like to thank my wife, Ginny Crook, who took the artifact photos that appear in this paper.

References Cited

Aten, Lawrence E. and Charles N. Bollich
2002 *Late Holocene Settlement in the Taylor Bayou Drainage Basin: Test Excavations at the Gaulding Site (41JF27), Jefferson County, Texas*. Studies in Archeology 40, Texas Archeological Research Laboratory, The University of Texas at Austin, and Special Publication 4, Texas Archeological Society, San Antonio.

Barrett, Jason W.
2018 Searching for Ancient Long-Distance Trade Trails in Southeast Texas. Paper presented at the 89th Annual Meeting of the Texas Archeological Society, October 26-28, 2018, San Antonio.

Crook, Wilson W., III, Robert J. Sewell, Linda C. Gorski, and Louis F. Aulbach
2017 *The Andy Kyle Archeological Collection*. Report No. 29. Houston Archeological Society, Houston.

Descantes, Christophe, Darrel Creel, Robert J. Speakman, Samuel Wilson, and Michael D. Glascock
2004 Instrumental Neutron Activation Analysis of Pottery from the George C. Davis Site (41CE19), Texas. *North American Archeologist* 25(2):121-138.

Griffen, Kirby L.
1996 *Soil Survey of Liberty County, Texas*. United States Department of Agriculture, Soil Conservation Service, in cooperation with the Texas Agricultural and Experiment Station and the Harris County Flood Control District, Washington D.C.

Kindall, Sheldon and Leland W. Patterson
1986 The Andy Kyle Archeological Collection, Southeast Texas. *The Journal* 86:14-21. Houston Archeological Society, Houston.

Krause, Richard A.
2007 A Potter's Tale. In *Plains Village Archaeology: Bison-hunting Farmers in the Central and Northern Plains*, edited by Stanley A. Ahler and Marvin Kay, pp. 32-40. University of Utah Press, Salt Lake City.

Newell, H. Perry and Alex D. Krieger
1949 *The George C. Davis Site, Cherokee County, Texas*, with Appendix "Maize from the Davis site: It's Nature and Interpretation" by Volney Jones. Memoirs of the Society of American Archeology No. 5.

Perttula, Timothy K.
2002 Archaeological Evidence for the Long-Distance Exchange of Caddo Indian Ceramics in the Southern Plains, Midwest, and Southeastern United States. In *Geochemical Evidence for Long-Distance Exchange*, edited by Michael D. Glascock, pp. 89-107. Bergin and Garvey, Westport, Connecticut.

2011 The Ceramic Artifacts from the Lang Pasture Site (41AN38) and the Place of the Site within an Upper Neches River Basin Caddo Ceramic Tradition. In *Archeological Investigations at the Lang Pasture Site (41AN38) in the Upper Neches River Basin of East Texas*, assembled and edited by Timothy K. Perttula, David B. Kelley, and Robert A. Ricklis, pp. 145-320. Archeological Studies Program Report No. 129, Texas Department of Transportation, Environmental Affairs Division, Austin.

2013 Caddo Ceramics in East Texas. *Bulletin of the Texas Archeological Society* 84:181-212.

Perttula, Timothy K., Arlo McKee, Bo Nelson, Mark Walters. Tom Middlebrook, and Kevin Stingley
2016 *Archeological Investigations at the George C. Davis Site (41CE19), Cherokee County, Texas, in Search of Mission San Francisco de Tejas, also known as Mission San Francisco de los Nechas*. Report of Investigations No. 145, Antiquities Permit 7414, Archeological & Environmental Consultants, LLC, Austin.

Rice, Prudence M.
1987 *Pottery Analysis: A Sourcebook*. University of Chicago Press, Chicago.

Story, Dee Ann and Salvatore Valastro, Jr.
1977 Radiocarbon Dating and the George C. Davis Site, Texas. *Journal of Field Archeology* 4(1):63-89.

Suhm, Dee Ann and Alex D. Krieger, with the collaboration of Edward B. Jelks
1954 An Introductory Handbook of Texas Archeology. *Bulletin of the Texas Archeological Society* 25:1-562.

Suhm, Dee Ann and Edward B. Jelks (editors)
1962 *Handbook of Texas Archeology: Type Descriptions.* Special Publication No. 1, Texas Archeological Society and Bulletin No. 4, Texas Memorial Museum.

Teltser, Patrice A.
1993 An Analysis Strategy for Studying Assemblage-Scale Ceramic Variation: A Case Study from Southeast Missouri. *American Antiquity* 58(3):530-543.

THE OCCURRENCE OF A CROCKETT CURVILINEAR INCISED CERAMIC VESSEL FROM THE WOOD SPRINGS SITE (41LB15), LIBERTY COUNTY, TEXAS

Wilson W. Crook, III

Introduction

In 2017, the Houston Archeological Society (HAS) was asked by the Texas Historical Commission to assist the Sam Houston Regional Library and Research Center in Liberty, Texas in creating a new interactive museum exhibit on the prehistory of Southeast Texas using the extensive Andy Kyle Archeological Collection. This collection was donated to the Center by the late Mr. Andy Kyle, a long-time resident of Liberty County, and consists of well over 50,000 artifacts collected from 95 sites in nine Southeast Texas counties (Figure 1). The area encompassed by the collection covers 8,064 square miles (5,160,160 acres). Artifacts within the Kyle Collection range from Clovis to Late Prehistoric in age.

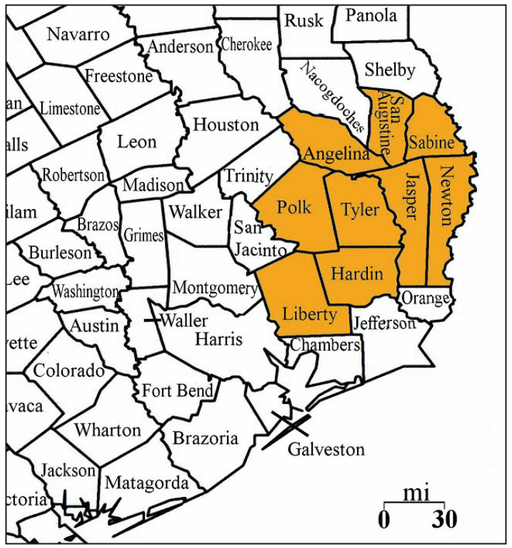


Figure 1. Map of Southeast Texas showing the nine counties represented in the Andy Kyle Archeological Collection.

One of the more prolific sites represented in the collection is the Wood Springs site (41LB15) located in central Liberty County. Artifacts from the Wood Springs site range from Paleoindian to Late Prehistoric in age, with an extensive representation from the Paleoindian , Early Archaic, Late Archaic, Woodland, and Late Prehistoric Periods (Crook et al. 2017. As such, the Wood Springs site, along with the Savoy (41LB27) and Moss Hill (41LB65) sites, represent the three longest-term occupations in the Kyle Collection. Given the importance of the Wood Springs site to both Liberty County as well as all of Southeast Texas, it was decided to document the site and its artifacts in a comprehensive report. As part of this research, every ceramic sherd collected from the site has been studied. This work revealed the presence of a number of sherds which have been identified as having a Caddo origin. One sack within the Kyle Collection from the site contained 51 sherds which presumably came from the same vessel as it was Mr. Kyle's habit to keep discoveries of like sherds separated from the rest of the pottery collected from the site. Decorative incising on the rim identified these sherds as belong to a vessel of Crockett Curvilinear Incised. This identification was confirmed by Tim Perttula in 2019 (Timothy K. Perttula, personal communication, 2019). As Crockett Curvilinear Incised is a well-known Early Caddo trade item, this brief paper serves to both document the occurrence as well as add to the known distribution of this ceramic type.

The Wood Springs Site (41LB15)

The Wood Springs site is located approximately three kilometers northwest of Liberty, Texas on both sides of a small stream known as Wood Springs Creek or Atascosito Springs (Figure 2). This stream is fed by several perennial springs and is a minor tributary of the Trinity River two kilometers to the west. The site

Figure 2. Wood Springs Creek, Liberty County, Texas.

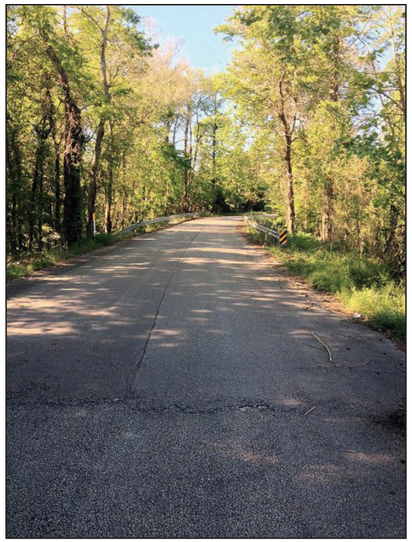


Figure 3. Sandune Road which bisects the Wood Springs site from north-to-south. The small bridge over Wood Springs Creek is in the center of the photo.

lies on either side of a small road that bisects the occupational area from north-to-south (Figure 3). A natural gas pipeline right-of-way crossing bisects the site from west-to-east with the intersection of the pipeline and the asphalt road serving as a marker for the approximate middle of the occupation (Elton R. Prewitt, personal communication, 2018). A small elevated bridge has been constructed across Wood Springs Creek (see Figure 3). The site occurs on either side of Wood Springs Creek and while artifacts have been found on both sides, the northern bank has produced significantly more than the southern side of the creek.

Wood Springs was one of the many sites from which the late Mr. Andy Kyle collected artifacts between 1946-1986. Wood Springs' location was originally described and registered by Elton R. Prewitt in 1973 as part of the Louisiana Loop Survey. The site was subsequently investigated by Sheldon Kindall and other members of the Houston Archeological Society during their research on the Andy Kyle Archeological Collection during the mid-1980s (Kindall and Patterson 1986). A small elevated bridge has been constructed across Wood Springs Creek (see Figure 3). The site occurs on either side of Wood Springs Creek and while artifacts have been found on both sides, the northern bank has produced significantly more than the southern side of the creek (Elton R. Prewitt, personal communication, 2018; Andy Kyle field notes).

Occupational material at Wood Springs covers at least 0.5 acres and possibly as much as 5 acres or more (Sheldon Kindall, personal communication, 2017; Houston Daniel, personal communication, 2018). Based on artifacts collected by Mr. Kyle and more recently by members of the HAS, the Wood Springs site represents a long-term occupation that extends from the early Paleoindian period (Clovis) through the Late Prehistoric. Construction of the natural gas pipeline and the asphalt road, both of which transect the site at right angles, has disturbed much of original site stratigraphy such that Paleoindian, Archaic, Woodland, and Late Prehistoric materials are now found alongside each other on the surface.

While no formal excavation has taken place at the Wood Springs site, the site's stratigraphy has been partially determined by a number of shovel tests and test pits conducted over the past 47 years. Elton Prewitt conducted a series of shovel tests at the site in 1973 and the Houston Archeological Society dug a similar set of small test pits in 1986 (Elton R. Prewitt, personal communication, 2019; Kindall and Patterson 1986). More recently, the author has excavated several test pits across the northern part of the site to confirm the stratigraphy. Soils covering the

area of the Wood Springs site belong to the Spurger-Bienville-Kennefick complex, specifically a mix of Spurger and Kennefick soils (Griffen 1996). The typical soil profile at the site consists of about 8 cm of a pale brown (10YR 7/3) to light gray (10YR7/2) loamy fine sand. This is underlain by a fine-grained brown sandy loam (10YR3/4-3/3) that in places has yellow to reddish mottles. This sand forms a small terrace that sits above Wood Springs Creek which is a minor tributary of the Trinity River. The Trinity River is presently located about two kilometers to the west of the site. Arrow points and pottery can be found in the upper 30-45 cm; below this level are both Woodland period and Archaic occupations. No Paleoindian artifacts have been recovered in any of the test pits. The artifact horizon extends to a depth of at least 125 centimeters; no test pits have been dug below this depth.

Ceramic Sherd Description

The sherds of Crockett Curvilinear Incised were in a separate bag within the Kyle collection from the site and thus are presumed to have been found together as this was Mr. Kyle's custom regarding collecting pottery. Even though a large number of sherds are present (n=51), the body sherds have been highly weathered with extremely rounded edges which prohibit reconstruction. The vessel is extremely thin in the body (5-6 mm) which thickens slightly toward the rim (5.5-7 mm). Temper is fine to coarse grog that is slightly lumpy. The vessel has been extensively used and is heavily fire-mottled (Figure 4). Color ranges from light brownish-gray to pale brown near the rim to dark brown to black over the body. The interior of the vessel has been highly smoothed (polished); the lip is plain rounded. A scroll-like incised decorative pattern has been incised between two parallel horizontal lines below the rim. The upper line is 8-10 mm below the rim with the lower line 20-24 mm below that. Between the horizontal lines is a finely incised scroll pattern that is filled with curved lines (see Suhm and Jelks 1954: Plate 16H) (Figure 5). Based on the shape of some of the body sherds coupled with the curvature of the rim sherds, the shape of the vessel was probably a carinated bowl with a slightly rounded, convex base.

After it was determined that the sack of sherds belong to the Caddo type Crockett Curvilinear Incised, an extensive re-look was conducted of all of the boxes from the Wood Springs site in the Andy Kyle Archeological Collection . Despite repeated searches for additional examples of Crockett Curvilinear Incised, no additional sherds outside of the small collection (n=51) described herein were found. Moreover, no additional sherds with a similar decoration were found in any of the collections from the other 94 sites and literally tens of thousands of ceramic sherds within the Andy Kyle Collection. Specific attributes of the Crocket Curvilinear Incised sherds are provided below:

SITE NAME OR SITE NUMBER: Wood Springs (41LB15), Liberty County, Texas

VESSEL NUMBER: N/A; the 51 sherds which appear to come from a single vessel are curated at the

Figure 4. Interior of body sherds of the Crockett Curvilinear Incised vessel from the Wood Springs site, Liberty County, Texas. Showing extensive fire mottling.

Figure 5. Exterior of rim sherds of the Crockett Curvilinear Incised vessel from the Wood Springs site, Liberty County, Texas.

Sam Houston Regional Library and Research Center, Liberty County, Texas.

VESSEL FORM: Large carinated bowl; curvature of the rim sherds is too large to have come from a jar.

PASTE: Fine to coarse-grained clay (grog) that is slightly lumpy in texture. The use of clay as a temper in an oxidizing environment would have led to lighter-colored vessels (tan to light brown) and allowed for a longer firing period, thus producing a harder ceramic vessel (Rice 1987; Teltser 1993).

RIM AND LIP FORM: Rounded and flush with the rim; rim thickness is 5.5-7 mm which is slightly thicker than the rest of the body (5-6 mm).

EXTERIOR SURFACE COLOR: Color ranges from light yellowish-brown (2.5Y 6/3) to light brownish gray (10YR 6/3) to pale brown (10YR 6/2) near the rim to dark grayish-brown (10YR 5/2) to black over the body. Extensive fire mottling or clouding is present over much of the vessel.

INTERIOR SURFACE COLOR: Very dark gray (10YR 3/1) to Very Dark Grayish-Brown (10YR 3/2) to Black (10YR 3/1).

CORE COLOR: Slightly lighter than exterior but darker than interior surface of the sherd (Grayish-Brown (2/5Y 5/2) to Dark Grayish-Brown (2.5Y 4/2). The slightly lighter color of the core may indicate that after extended firing had burned off all organics, the fire may have been smothered to cause reduction and resulting in a darkening of the exterior surface (Aten and Bollich 2002). Conversely, the bowl may have simply been incompletely oxidized.

WALL THICKNESS (IN MM): Rim, 6.5 mm; Body, 7.5-8.0 mm (thicker toward the base of the sherd). The base is unknown but Holly Fine Engraved bowls are generally slightly convex to flat on some jars. Thickness data from the one sherd suggests the vessel was built from the base upwards to the rim (Krause 2007).

INTERIOR SURFACE TREATMENT: Highly smoothed (polished)

EXTERIOR SURFACE TREATMENT: Smoothed and decorated

ESTIMATED VESSEL HEIGHT (IN MM): Unknown

ESTIMATED ORIFICE DIAMETER (IN MM): Greater than 300 mm based on extrapolation of the curvature of the rim sherds.

BASE DIAMETER (IN CM) AND SHAPE OF BASE: Unknown but less than the orifice diameter based on known examples of Crockett Curvilinear Incised (Suhm and Krieger 1954; Suhm and Jelks 1962); the base is convex.

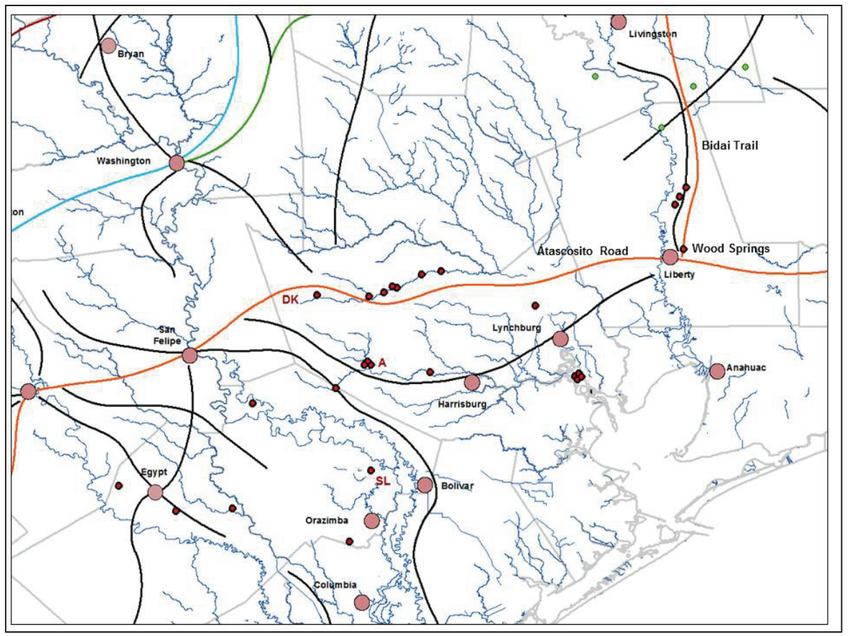


Figure 6. Map of major known Indian trails through Southeast Texas. Wood Springs is the red dot immediately northeast of the town of Liberty. (Map courtesy of Jason W. Barrett)

DECORATION (INCLUDING MOTIF AND ELEMENTS WHEN APPARENT): A scroll-like pattern has been incised between two parallel horizontal lines below the rim. The upper line is 8-10 mm below the rim with the lower line 20-24 mm below that. Between the horizontal lines is a finely incised scroll pattern that is filled with curved lines (see Suhm and Jelks 1954: Plate 16H).

TYPE AND VARIETY: Crockett Curvilinear Incised

Discussion

Crockett Curvilinear Incised is a Formative and Early Caddo period ceramic which dates to approximately A. D. 900-1200, based mainly on radiocarbon dates from the George C. Davis site (41CE19) in East Texas (Newell and Krieger 1949; Story and Valastro 1977; Perttula et al. 2016). Large numbers of Crockett Curvilinear Incised ceramics have been recovered from the George C. Davis (41CE19) site in East Texas suggesting that this site may have been a place of significant manufacture and a potentially a center of dispersal for trade/exchange (Perttula 2002). Crockett Curvilinear Incised ware was extensively traded and exchanged throughout East Texas to southwestern Arkansas and eastern Oklahoma. It has also been found at the Chupek site near Waco in the Middle Brazos (Newell and Krieger 1949). Trade sherds have also been reported from the Greenhouse site in central Louisiana (Ford 1951). The vessel described herein was definitely obtained via trade and/or exchange and potentially from a nearby East Texas site such as George C Davis.

Other ceramics of Caddo origin identified from the Wood Springs site include Holly Fine Engraved, Maydelle Incised, and Poynor Engraved. Crockett Curvilinear Incised and Holly Fine Engraved are contemporaneous types from the Formative and Early Caddo periods. Holly Fine engraved was extensively produced at the George C. Davis site and traded not only throughout Texas and the neighboring states but also as far as the Great Plains (Perttula 2002, 2013). Both of the vessels present in the Kyle Collection from the Wood Springs site possibly came from the same point of origin. Maydelle Incised and Poynor Engraved belong to the later Frankston phase and their presence shows a continuing contact with

the ancestral Caddo people of East Texas over a number of centuries during the Late Prehistoric period (Perttula 2011, 2013).

The Wood Springs site has been occupied by aboriginal peoples from as early as ca. 13,000 years B.P. through the end of the Late Prehistoric period ca. 400 years ago. This represents one of the longest continuous occupations in Liberty County and Southeast Texas (Crook et al. 2017). The prolific fresh water springs which give rise to Wood Springs Creek are one of the reasons for the long-term occupation present at the site. Another possible reason for the site's long, continuous habitation could be its location near the junction of two ancient trade trails (Figure 6). Jason Barrett (2018) has been working to plot the location of Southeast Texas sites which have long-term occupations that range from Paleoindian to Late Prehistoric onto maps of known historic and prehistoric trade routes. When the location of Wood Springs is added to Barrett's map it plots very near the junction of a major east-west trail ("Atascosito Road") and a north-south trail ("Bidai Trail") that runs from Nacogdoches south to Liberty County through the Big Thicket (see Figure 6). This ideal location could also help to explain some of the exotic materials present at the site such as the Crockett Curvilinear vessel and other Caddo ceramics.

Acknowledgments

The author is grateful to Ms. Alana Inman, Manager of the Sam Houston Regional Library and Research Center in Liberty, Texas for inviting the Houston Archeological Society to participate in the development of the new prehistory exhibit at the Center and thus affording us the opportunity to study in detail all the artifacts contained in the Andy Kyle Archeological Collection. Alana not only provided open access to study the collection but facilitated our research on artifacts, such as the ceramic vessel described in this paper, by also allowing for the study of artifacts outside the Center. I also would like to thank the late Mr. Houston Daniel who gave the author permission to excavate several small test pits on his property which covers the northwest part of the site. In addition, the author would like to thank Tim Perttula for his advice and help in determining the identification of the vessel described herein. I would also like to thank my wife, Ginny Crook, who took the artifact photos that appear in this paper.

References Cited

Aten, Lawrence E. and Charles N. Bollich
2002 *Late Holocene Settlement in the Taylor Bayou Drainage Basin: Test Excavations at the Gaulding Site (41JF27), Jefferson County, Texas*. Studies in Archeology 40, Texas Archeological Research Laboratory, The University of Texas at Austin, and Special Publication 4, Texas Archeological Society, San Antonio.

Barrett, Jason W.
2018 Searching for Ancient Long-Distance Trade Trails in Southeast Texas. Paper presented at the 89th Annual Meeting of the Texas Archeological Society, October 26-28, 2018, San Antonio.

Crook, Wilson W., III, Robert J. Sewell, Linda C. Gorski, and Louis F. Aulbach
2017 *The Andy Kyle Archeological Collection*. Report No. 29. Houston Archeological Society, Houston.

Ford, James A.
1951 *Greenhouse: A Troyville-Coles Creek Period Site in Avoyelles Parish, Louisiana*. Volume 44, Part 1. Anthropological Papers of the American Museum of Natural History, New York.

Griffen, Kirby L.
1996 *Soil Survey of Liberty County, Texas*. United States Department of Agriculture, Soil Conservation Service, in cooperation with the Texas Agricultural and Experiment Station and the Harris County Flood Control District, Washington D.C.

Kindall, Sheldon and Leland W. Patterson
1986 The Andy Kyle Archeological Collection, Southeast Texas. *The Journal* 86:14-21. Houston Archeological Society, Houston.

Newell, H. Perry and Alex D. Krieger
1949 *The George C. Davis Site, Cherokee County, Texas*, with Appendix "Maize from the Davis site: It's Nature and Interpretation" by Volney Jones. Memoirs of the Society of American Archeology No. 5.

Perttula, Timothy K.
2002 Archaeological Evidence for the Long-Distance Exchange of Caddo Indian Ceramics in the Southern Plains, Midwest, and Southeastern United States. In *Geochemical Evidence for Long-Distance Exchange*, edited by Michael D. Glascock, pp. 89-107. Bergin and Garvey, Westport, Connecticut.

2011 The Ceramic Artifacts from the Lang Pasture Site (41AN38) and the Place of the Site within an Upper Neches River Basin Caddo Ceramic Tradition. In *Archeological Investigations at the Lang Pasture Site (41AN38) in the Upper Neches River Basin of East Texas*, assembled and edited by Timothy K. Perttula, David B. Kelley, and Robert A. Ricklis, pp. 145-320. Archeological Studies Program Report No. 129, Texas Department of Transportation, Environmental Affairs Division, Austin.

2013 Caddo Ceramics in East Texas. *Bulletin of the Texas Archeological Society* 84:181-212.

Perttula, Timothy K., Arlo McKee, Bo Nelson, Mark Walters. Tom Middlebrook, and Kevin Stingley
2016 *Archeological Investigations at the George C. Davis Site (41CE19), Cherokee County, Texas, in Search of Mission San Francisco de Tejas, also known as Mission San Francisco de los Nechas*. Report of Investigations No. 145, Antiquities Permit 7414, Archeological & Environmental Consultants, LLC, Austin.

Rice, Prudence M.
1987 *Pottery Analysis: A Sourcebook*. University of Chicago Press, Chicago.

Story, Dee Ann and Salvatore Valastro, Jr.
1977 Radiocarbon Dating and the George C. Davis Site, Texas. *Journal of Field Archeology* 4(1):63-89.

Suhm, Dee Ann and Alex D. Krieger, with the collaboration of Edward B. Jelks
1954 An Introductory Handbook of Texas Archeology. *Bulletin of the Texas Archeological Society* 25:1-562.

Suhm, Dee Ann and Edward B. Jelks (editors)
1962 *Handbook of Texas Archeology: Type Descriptions.* Special Publication No. 1, Texas Archeological Society and Bulletin No. 4, Texas Memorial Museum.

Teltser, Patrice A.
1993 An Analysis Strategy for Studying Assemblage-Scale Ceramic Variation: A Case Study from Southeast Missouri. *American Antiquity* 58(3):530-543.

A POSSIBLE CERAMIC WARP WEIGHT FROM THE SAVOY SITE (41LB27), LIBERTY COUNTY, TEXAS

Wilson W. Crook, III

Introduction

Over the past two years, the Houston Archeological Society (HAS) has been working with the Sam Houston Regional Library and Research Center in Liberty, Texas to assess the contents of the extensive Andy Kyle Archeological Collection currently curated at the Center. The collection was donated to the Center by the late Mr. Andy Kyle and consists of well over 50,000 artifacts collected from 95 sites in 9 Southeast Texas counties. One of the more prolific sites represented in the collection is the Savoy site (41LB27) located in northeastern Liberty County. Artifacts from the Savoy site range from Middle Archaic to Late Prehistoric, with an extensive collection from the Woodland period (Crook et al. 2017).

A number of exotic items are present in the site collections including two broken bannerstones made from lithic material not native to Texas, a broken boatstone, and a large partial bowl of the rare Lower Mississippian ceramic type Mabin Stamped, *var. Joe's Bayou*. Recently, several previously unknown boxes of material from the Savoy site were located by Ms. Alana Inman, Director of the Sam Houston Regional Library. In these boxes was a small, cone-shaped ceramic artifact which could not be readily identified. The artifact has been shown to a number of colleagues both from Texas and Louisiana without any success in identification. A brief description of the artifact was published in the Newsletter of the Texas Archeological Research Laboratory (Crook 2019) asking for assistance in its identification and functional use. This solicited a response from Dr. Sharon Bramblett of the University of Texas who is an expert in ancient weaving technology. She identified the object as a possible warp weight used to maintain tension on warp threads on a weaving loom (Sharon K. Bramblett, personal communication, 2019). This short paper serves to describe the artifact and postulate on its function.

The Savoy Site (41LB27)

The Savoy site is located approximately 4.2 km southwest of the community of Moss Hill in northeastern Liberty County. The site is bisected by County Road 2099 and hand written notes left by Mr. Kyle in the boxes of artifacts in the collection indicate that the unknown ceramic artifact described herein was found on the part of the site that occurs south of CR 2099, known locally as the "Stone Field" after the property's original owner. The Savoy site is part of a series of four sites that occur parallel to one another along a 600 meter southeast-to-northwest stretch of land. Site 41LB26 lies 215 meters to the southeast; site 41LB28 is 225 meters to the northwest; and site 41LB29 is 400 meters to the northwest. All four sites contain similar cultural material ranging from the Middle Archaic to the Woodland period and into the Late Prehistoric period as well (Kindall and Patterson 1986; Crook et al. 2017). The nearest source of permanent water to the Savoy site is Knight's Bayou, which is located 1.2 km to the west. Knight's Bayou is a tributary of the Trinity River which currently lies 2.5 km to the west of the site.

The Savoy site was originally recorded in 1973 by the University of Texas during the Louisiana Loop Survey (Elton R. Prewitt, personal communication, 2019). A second survey was conducted in the mid-1980s by members of the HAS in conjunction with Mr. Andy Kyle who showed them where his artifacts were found (Kindall and Patterson 1987; Sheldon Kindall, personal communication, 2017). A third exploration of the area was conducted in 2014 by TRC Environmental Corporation as part of a pipeline right-of-way survey. TRC conducted 21 shovel tests over both the north and southern portions of the site. Nine of the 21 shovel tests contained cultural materials including a Gary point, an Alba point, and numerous ceramic sherds (TRC notes on file with the Texas Archeological Research Laboratory).

Occupational material at the Savoy site covers at least 0.7 acres today, however, based on information given to the HAS by Mr. Kyle, this area represents only about 20 percent of the original site size. Much of the site was destroyed by the construction of CR 2099 coupled with subsequent farming and house construction in the area (Sheldon Kindall, personal communication, 2017). Soils covering the area of the

Savoy site belong to the SpurgerBienville-Kennefick complex, specifically a mix of Bienville and Kennefick soils (Griffen 1996). The typical soil profile at the site consists of about 13 cm of a dark brown loamy fine sand underlain by 200+ cm of a very fine-grain dark yellowish-brown loamy sand (Griffen 1996). The artifact horizon extends to at least one meter or more in depth.

Artifacts from the site generally represent the following archeological periods: (1) Paleoindian – 12,000-8500 B.P. (marked by a few Dalton, San Patrice, Pelican, and Angostura points), (2) Early Archaic – 8500- 6000 B.P. (as distinguished by a minor Carrollton phase Archaic occupation including Gower, Carrollton, Trinity, Bulverde, and Dallas points along with Clear Fork gouges and Waco sinkers) (Crook 2018, 2020), (3) Late Archaic – 4000-2500 B.P. (marked by Ellis, Yarbrough, Kent, Ensor, and Gary points), (4) Woodland phase – 2500-1300 B.P. (marked by Gary and Kent points and both plain and decorated sandy-paste ceramics), and (5) Late Prehistoric 1300-500 B.P. (marked by Alba, Catahoula, Friley, and Perdiz points, and both locally manufactured and imported Caddo ceramics) (Patterson 1991, 1996; Crook et al. 2017; Suhm and Krieger 1954; Suhm and Jelks 1962; Turner and Hester 1985, 1993, 1999; Turner et al. 2011).

Figure 1. Side view of the unknown cone-shaped artifact from the Savoy site.

The Ceramic Artifact

As mentioned above, the artifact in question is a cone-shaped ceramic made from a sandy clay paste. It appears that the object is intentionally made and has not been repurposed from a broken sherd. It has been well-fired and is not friable, unlike most of the Goose Creek type ceramics from the site. Color varies from very pale brown (10YR 7/3-7/4) to pale brown (10YR 6/3). Length of the cone is 36.0 mm (Figure 1). Width is 15.0 mm at the wide end tapering to 6.1 mm at the pointed end. A small perforation approximately 1.5 mm in diameter transits through the entire length of the artifact (Figure 2).

At the wide end of the cone, the end is recessed to a depth of about 8 mm. Examination under a under high power (20-80x) Dino-Lite AM4111-T digital microscope shows the walls of the recessed end are slightly darkened and there is some unknown black residue on one side (Figure 3). No other wear was observed. To date, none of the darkened material has been removed for potential chemical analysis.

Discussion

The cone-shaped ceramic artifact described herein is not only unique among all the artifacts recovered from the Savoy site, it is also completely unique among the entire Andy Kyle Archeological collection. Most of the artifacts collected by Mr. Kyle from the Savoy site were found on the surface so any artifact association with the object is unknown. However, given the composition of the ceramic and the fact that similar sandy paste ceramics have been recovered from the site, it is likely that the cone-shaped object is Woodland in age. Elton Prewitt (personal communication, 2019) postulated that the object was of Mississippian origin which is certainly possible given the presence of bannerstones made from exotic materials and the Mabin Stamped, *var. Joe's Bayou* bowl from the same area of the site.

As to function, this remains problematical. The most common suggestions given to the author by colleagues is that it is either a perforated ornament of some type or a type of tubular pipe. Neither explanation is convincing, especially give the very small diameter (1.5 mm) of the perforation. More recently, Sharon Bramblett of the University of Texas offered a possible explanation that the artifact could be a warp weight from a weaving loom.

Figure 2. Tapered end of the cone-shaped artifact showing the central perforation.

Prehistoric production of textiles was a time-consuming process that required a number of very specific tools. These were typically made of clay (repurposed pot sherds), bone, or stone. Spindle whorls are a consistent, albeit minor artifact from many Caddo sites, especially those where a thousand or more ceramic sherds have been recovered (Timothy K. Perttula, personal communication, 2014). Webb (1959) reported a large number of spindle whorls from the Belcher Mound site in Caddo Parish, Louisiana. Most were constructed from lower side-wall or basal pottery sherds, and were typically 50-63 mm in diameter with a single central perforation. Similar artifacts were reported from the George C. Davis site (41CE19) in Cherokee County, Texas (Newall and Krieger 1949). The artifacts recovered from the Davis site varied from 50-70 mm in diameter. Perforated ceramic disks have also been reported from a number of sites throughout the Caddo occupational area, notably at Lang Pasture (41AN38) (Perttula 1992, 2005; Perttula et al. 2011). The author found similar artifacts at two Late Prehistoric sites along the East Fork of the Trinity River (Crook 2014, 2016). Perttula et al. (2011) has suggested that Caddo women were processing fibers to produce textiles from at least the 14th and 15th centuries A.D. and probably earlier. Materials that could have been used for textiles include animal hair and various plant fibers such as mulberry, hemp, milkweed, nettle, and the bark of trees (Alt 1999; Perttula 2002; Perttula et al. 2011).

Textile tools are typically divided into categories based on what part of the chain of production they are used. This is so researchers can divide areas of archeological sites into processing of raw materials, yarn and textile production, dying, and weaving and textile finishing (ARTEX 2019). The principal textile tools used in antiquity continued to be used through time with very little change in the basic technologies of spinning and weaving. The spindle and the loom first appeared during Neolithic times

Figure 3. Recessed end of the unknown cone-shaped ceramic artifact from the Savoy site in Liberty County. The central perforation is in the center of the photo and the blackened wall can be seen on the lower right side. Photomicrograph taken at 40x.

and remained an essential element in almost every household until the Industrial revolution in the 19th century (ARTEX 2019).

The loom was the main technological invention that facilitated the weaving of warp threads into a cloth. In this process, one of the essential components of the process is that the warp or vertical threads need to be taut in order that the weft or transverse threads can be inserted in between the warps. Tautness of the vertical warp threads is maintained by the attachment of small loom weights, also known as "warp weights". In Greece and Rome, the most common shape for a warp weight was a pyramidal or conical-shaped pieces of clay, each with a small central perforation to push the thread through and then hold it in place by a knot (ARTEX 2019). The size and weight of the warp weights depends on the diameter of the warp threads. Likewise, the distance between loom weights depends on the density of the cloth with the wider the loom weight spacing, the more open the cloth. To produce a very fine and dense fabric, weavers used fine loom weights. Examples from both ancient Greece and Rome are virtually identical to the one recovered from the Savoy site.

It can probably never be fully proved that the Savoy artifact is indeed a prehistoric warp or loom weight. However, it shape, size, and weight are identical with known warp weights from prehistory and we know that spinning and weaving threads for fabric was practiced in East Texas during the Late Prehistoric period. Therefore, the artifact's function as a warp weight cannot be ruled out.

Acknowledgments

The author is grateful to Dr. Sharon K. Bramblett of the University of Texas for her insight that the artifact could be a warp weight used in the weaving of textiles. Special thanks is extended to Ms. Alana Inman, Manager of the Sam Houston Regional Library and Research Center in Liberty, Texas for inviting the Houston Archeological Society to participate in the development of the new prehistory exhibit at the Center and thus affording us the opportunity to study in detail all the artifacts contained in the Andy Kyle Archeological Collection. Alana not only provided open access to study the collection but also allowed for the study of artifacts outside the Center. I am also grateful to HAS colleague, Robert Sewell, who helped me take the high resolution digital photomicrograph which appears in this paper.

References Cited

Alt, Susan M.
1999 Spindle Whorls and Fiber Production at Early Cahokian Settlements. *Southeastern Archaeology* 18(2):124-134.

ARTEX
2019 *Textile Tools*. Hellenic Center for Research and Conservation of Archeological Textiles. https://artextiles.org/en/content/textile-tools. Accessed September 5, 2019.

Crook, Wilson W., III
2014 A Ceramic Spindle Whorl from the Sister Grove Creek Site (41COL36), Collin County, Texas. *The Journal* 133:17-21. Houston Archeological Society, Houston.

2016 A Large Spindle Whorl from the Upper Farmersville Site (41COL34), Collin County, Texas. *Archeological Journal of the Texas Prairie Savannah* 6(1):21-26.

2018 The Occurrence of Carrollton Phase Archaic Materials in Southeast Texas. In, *Neither Snow, Nor Rain, Nor Heat, Nor Dark of Night, Shall Stay These Couriers: Essays Honoring Jay C. Blaine*, edited by S. Alan Skinner and Molly A. Hall, pp. 87- 96. Texas Archeological Society.

2020 *The Carrollton Phase Archaic: A Redefinition of the Chronology, Composition, and Aerial Distribution of the Early Archaic Horizon Along the Trinity River, Texas*. Report No. 35, Houston Archeological Society, Houston (in press).

Crook, Wilson W., III, Robert J. Sewell, Linda C. Gorski and Louis F. Aulbach
2017 *The Andy Kyle Archeological Collection*. Report of the Houston Archeological Society, 29:13-56. Houston.

Griffen, Kirby L.
1996 *Soil Survey of Liberty County, Texas*. United States Department of Agriculture, Soil Conservation Service, in cooperation with the Texas Agricultural and Experiment Station and the Harris County Flood Control District.

Kindall, Sheldon and Leland W. Patterson
1986 The Andy Kyle Archeological Collection, Southeast Texas. *The Journal* 86:14-21. Houston Archeological Society, Houston.

Newell, H. Perry and Alex D. Krieger
1949 *The George C. Davis Site, Cherokee County, Texas*, with Appendix "Maize from the Davis site: It's Nature and Interpretation" by Volneyh Jones. Memoirs of the Society of American Archeology No. 5.

Patterson, Leland W.
1991 Dart Point Chronologies of Southeast Texas. *The Journal* 101:1-5. Houston Archeological Society, Houston.

1996 Southeast Texas Archeology. *Report of the Houston Archeological Society* No. 12, Houston.

Perttula, Timothy K.
1992 *The Caddo Nation: Archaeological & Ethnohistoric Perspectives*. University of Texas Press, Austin.

2002 Archaeological Evidence for the Long-Distance Exchange of Caddo Indian Ceramics in the Southern Plains, Midwest, and Southeastern United States. In *Geochemical Evidence for Long-Distance Exchange*, edited by Michael D. Glascock, pp. 89-107. Bergin and Garvey, Westport, Connecticut.

2005 1938-1939 WPA Excavations at the Hatchel Site (41BW3) on the Red River in Bowie County, Texas. *Southeastern Archaeology* 24(2):180-198.

Perttula, Timothy K., David B. Kelley and Robert A. Ricklis (editors)
2011 Archeological Investigations at the Lang Pasture Site (41AN38) in the Upper Neches River Basin of East Texas. *Archeological Studies Program Report No. 129*, Environmental Affairs Division, Texas Department of Transportation, and Technical report No. 174202, TRC Environmental Corporation, Austin, Texas.

Suhm, Dee Ann and Alex D. Krieger, with the collaboration of Edward B. Jelks
1954 An Introductory Handbook of Texas Archeology. *Bulletin of the Texas Archeological Society* 25:1-562.

Suhm, Dee Ann and Edward B. Jelks (editors)
1962 *Handbook of Texas Archeology: Type Descriptions.* Special Publication No. 1, Texas Archeological Society and Bulletin No. 4, Texas Memorial Museum.

Turner, Ellen Sue and Thomas R. Hester
1985 *A Field Guide to Stone Artifacts of Texas Indians.* Gulf Publishing, Lanham, Maryland.

1993 *A Field Guide to Stone Artifacts of Texas Indians.* 2nd Edition. Gulf Publishing, Lanham, Maryland.

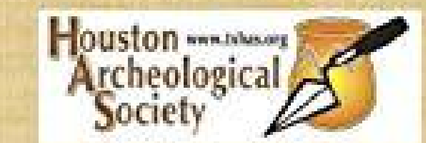
1999 *A Field Guide to Stone Artifacts of Texas Indians.* 3rd Edition. Gulf Publishing, Lanham, Maryland.

Turner, Ellen Sue, Thomas R. Hester, and Richard L. McReynolds
2011 *Stone Artifacts of Texas Indians.* Taylor Trade Publishing, Lanham, Maryland.

Webb, Clarence H.
1959 *The Belcher Mound: A Stratified Caddoan Site in Caddo Parish, Louisiana*. Memoirs No. 16. Society for American Archaeology, Salt Lake City.

Proof

Copyrighted Material



Copyrighted Material