



**Houston Archeological Society Monthly Meeting
Thursday, January 19, 2022, 6:00 p.m.
Trini Mendenhall Community Center, 1414 Wirt Road**

Lindisfarne, an Anglo-Saxon and Viking site in Britain, presented by Heather Para, Ph.D.



Greetings All! We hope everyone had a lovely holiday season and New Year! Here at the Houston Archeological Society, we are gearing up for a fantastic year of speakers and events. Our first meeting for 2023 will take place IN PERSON and via ZOOM (for members) and YouTube Live (for the general public) on THURSDAY, JANUARY 19, 2023, starting at 6:00 p.m. Please note the new, earlier start time! Due to changes in Harris County facilities operations, our host location, Trini Mendenhall Center, has new hours for 2023, which means that our meetings will now START AT 6:00 p.m. with some time for socializing before our business meeting begins at 6:30. Our presenter will address the group from 6:45 – 7:30 p.m.

Our first HAS meeting of 2023 will feature Dr. Heather Para, who is the Exhibits and Collections Manager for the Museum of the Coastal Bend at Victoria College. She will present on the ongoing work at Lindisfarne, an Anglo-Saxon and Viking site in Britain. Lindisfarne is where the Kings of Northumbria established an important religious center, where resident monks created the Lindisfarne Gospels, and where skilled artisans forged the treasures that adorned the altars of early Medieval Europe. It's also where Vikings launched a series of devastating raids in the eighth, ninth, and tenth centuries. The early medieval monastery that once stood there was lost to time. In 2014, the commercial archaeology company DigVentures joined forces with experts from Durham University and unearthed the first concrete evidence of the lost monastery. This presentation will discuss what this project has discovered, and what the archaeology tells us about life before, during, and after Vikings arrived on the Holy Island of Lindisfarne.

Dr. Heather Para is the Exhibits & Collections Manager for the Museum of the Coastal Bend at Victoria College. Para holds a Ph.D. in Archaeology from the University of Wales Trinity St. David. Para taught at the post-secondary level for ten years and has also worked in museums for a decade. Her archaeological work has been primarily in Britain and has also taken her to Greece and coastal Alaska. In her current role, Para oversees an ongoing excavation at 41VT141, the McNeill Ranch Site, and manages the museum's archaeology lab where materials for the site are processed.

Come join us on January 19 for this exciting talk! The YouTube Stream can be found at <https://youtu.be/vFwDX5vX-K8>. For more information about this program or about the Houston Archeological Society, please contact Frank Kozar, at president@txhas.org.

President's Message – Frank Kozar



Working as an avocational archeologist when you're not degreed in archeology or anthropology (I was an air traffic controller in another life!) can be challenging, especially when trying to research a particular site, whether historic or prehistoric. Sometimes you're just looking for some general background information, but it can be frustrating. It must have been an excruciatingly slow process before the advent of the internet and Google, traipsing around to local or university libraries, town halls, and land offices looking for information to help move along your project investigation or final report. In Texas, we are fortunate to have a

state-sponsored website that professionals, avocational archeologists, and the general public can use to study the prehistory of Texas: Texas Beyond History (TBH; texasbeyondhistory.net). I was lucky to have discovered this site many years ago through my love of history and my curiosity about the settling of my chosen home state of Texas - by Europeans over the past 500 years, and indigenous peoples many thousands of years earlier. When did the first Spanish (or French) settle here? What were the six flags over Texas? Where did the Caddo originate? All these are good questions worthy of lengthy discourse. The Texas Archeological Research Laboratory (TARL), with editors Steve Black and Susan Dial, launched TBH in October 2001, and the staff members have nurtured it along through its growing pains. Today it is a unique educational tool full of site exhibits, articles, images, and children's sections for the education of young and old alike, serving as a particularly useful resource for educators. When you have some free time, I encourage you to investigate this very valuable website to use as a portal to the history of our area and state.

Happy New Year! Frank Kozar, HAS President

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Houston Archeological Society - Monthly Meeting - December 15, 2022

The December meeting took the form of a Christmas Party. There was a very generous spread of refreshments before the presentation, which gave members the opportunity to catch up with each other before being treated to a photo slide show roundup of HAS activities throughout 2022. A Zoom link enabled members far and wide to join in the meeting.

Welcome to our HAS Monthly Meeting/Holiday Party - Frank Kozar called the very casual meeting to order at 6:30 p.m.

Treasurers Report (Robert Sewell) - Bob Sewell reported amounts in the HAS checking and savings accounts. If any member is interested in more information about HAS finances, please discuss with Bob.

Membership (Robert Sewell) - We are going to round the year out with 201 members which is pretty good. Hopefully we will increase this next year. The maximum membership was pre-pandemic and stood at around 250.

Publications (Louis Aulbach) - Louis Aulbach was present to hand out journals.

Newsletter (Betsy Wittenmyer) - Bob thanked Betsy for doing a great job with the newsletter. Betsy asked members to keep sending articles, as contributions from the HAS community are what make a great newsletter. Please consider contributing.

New Business - Proposed Speaker Line Up for 2023 (Frank Kozar and Sarah Chesney) - It is anticipated that most of our 2023 meetings will be held in person. Meetings will begin at 6:00 p.m. to allow us to be out of the building in good time before 8:00 p.m., which will be the new closing time for the facility as of January. Our first meeting in 2023 is on Thursday, January 19.

Speakers who would have to travel considerable distances to present are being given the option to share their presentations remotely. A member asked if it would be possible to project these remote, online presentations onto the big screen in the Trini Hall, because some members would prefer to come to meet in person. Frank stated it is possible, but we would need some tech help. Sarah Chesney has organized the following speakers:

January - Heather Para, Exhibits and Collections Manager at the Museum of the Coastal Bend. The Vikings of Britain and the Holy Island of Lindisfarne, Northumbria, England.

February - Tom Middlebrook. The original Mission Concepción, the subject site for the upcoming TAS 2023 Field School in Nacogdoches.

March - Leslie Bush, Paleobotanist. Caddo houses.

April - Greg Dimmick. Archeology of San Jacinto, to coincide with the anniversary of the Battle of San Jacinto.

May - Brad Jones, Texas State Archeologist.

June - TAS field school month, so there will be no meeting.

July - Jamie Ross, Texas Historical Commission.

August - Tim Roberts. Hueco Tanks rock art.

September - November - TBD

December - Holiday Party/2023 recap.

2022 Recap with Photo/Slide Presentation (Frank Kozar) - Speaker Presentations, 2022

The year's speakers included Louis Aulbach and Linda Gorski (Buffalo Bayou history and archeology), Doug Boyd (blacksmithing on the Texas frontier up in Denton), Chris Kneupper (Port Velasco), Dr. Mary Prendergast (Rice Archeology Lab renovation), John Lohse (Calf Creek Horizon), Frank Kozar (July TAS Field School report), Dr. Sarah Chesney (San Felipe de Austin, MARS project shovel testing in advance of the new lab building), Kathleen Kelly (Samuel May Williams property), Gavin Miculka/Jennifer Townzen (Kreische Brewery), and Eleanor Stoddart (TPWD, State Parks archeology and updates). Check our HAS YouTube recordings to enjoy these presentations again!

Projects of 2022 - Frank provided slides and updates about our work at Lone Oak in Frelsburg, Arroyo Dulce, Kirbee Kiln, and the San Felipe de Austin State Historic Site MARS project.

HAS Outreach 2022 - Many members contributed to our outreach projects; thank you to all for giving up your time to share the archeology and history of Texas and to encourage archeologists of the future.

Frank recounted our work at Kleb Woods (annual Digging Up Old Stuff event), Boy Scouts outreach (Cy-Fair, Kinkaid School, and SFA State Historic Site and San Felipe de Austin scout events), Lunch and Learn (Klein ISD), Archeology Month outreach, San Jacinto Monument State Park, Washington-on-the-Brazos State Historic Site, Lake Jackson Historical Museum, Brazoria County Museum, Caddo Mounds (grass hut reconstruction), the Texas Historical Commission pinch pots project, and the TAS Field School (Kerrville in June).

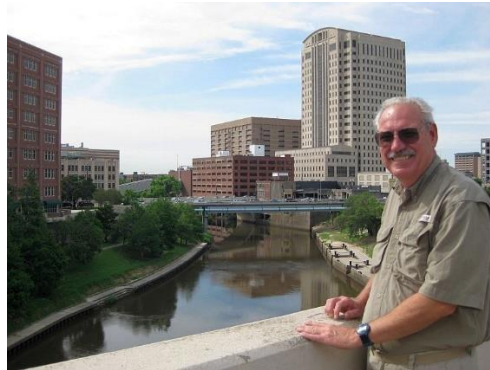
TAS Annual Meeting - At the Annual Meeting, held in October in Tyler, HAS received The President's Award for exemplary service to the TAS. This was in retrospect of the efforts of the HAS members who endeavored to organize the in-person TAS annual meeting, which was cancelled in 2020, and then again in 2021. Despite this, they managed to support the TAS annual budget with an eBay auction of items donated by members, coordinated by Larry Golden. This auction successfully raised an amount equivalent to the usual profits from the in-person Annual Meeting, which are relied upon by TAS. The award plaque was presented by James Everett, TAS Past-President, and was accepted by Frank Kozar on behalf of the HAS members involved. Linda Gorski and Larry Golden were given personal awards recognizing their efforts with the above.

Frank Kozar, on behalf of the Houston Archeology Society, presented awards to Bethie Kennedy and Mike Woods for their continuing assistance to a member in need and for stepping in during an emergency situation. Thank you, Bethie and Mike, for your exemplary service - you represent the best of our HAS community!

Meeting concluded at 6:35 p.m.

In Memoriam

Louis Frederick Aulbach



Houston Archeological Society Board Member and Publications Editor
Father, Brother, Historian, Author, Publisher, Lecturer, Researcher
~ Friend ~

July 12, 1948 – December 28, 2022

Louis Frederick Aulbach was born on July 12, 1948, to Charles Edward Aulbach and Hildegard Laurretta Cox in Houston, Texas, and passed away on December 28, 2022, in Houston. He was a true native son of Texas and of Houston. Louis attended All Saints Catholic School in the Houston Heights and graduated from St. Thomas High School (1966) and Rice University (1970). He continued his education, receiving Master of Arts and Master of Business Administration degrees from the University of Chicago after which he “got back to Texas as quickly as he could.” His long professional career in information and records management included tenures with several companies in Houston, culminating in his eighteen years as Records Manager for the City of Houston. He also served proudly in the Texas Army and Air Force National Guards.

Following his retirement from the City of Houston in 2008, he pursued his real passions: writing, digging up the history of Texas with the Houston and Texas Archeological Societies, paddling the rivers of Texas with the Houston Canoe Club, hiking in the Big Bend area of Texas with his children and his “posse,” and protecting the historical and archeological resources of Texas as a member of the Texas Archeological Stewards Network. Louis joined the TASN in 2014, and during his eight years of service to the Texas Historical Commission, he was awarded the Norman Flaigg Certificate of Outstanding Performance in 2015 and 2017, and the Norman Flaigg Honorable Mention in 2016, 2018, 2021, and 2022.

Louis also served on the board of directors of the Houston Archeological Society for several years and was most recently the editor and publisher of the society’s journals and reports. For his dedication to HAS and its goals, he was honored as a distinguished Lifetime Member of the Society. He took an active role in the society’s archeological excavations including those at San Felipe de Austin, Frost Town in Houston, the San Jacinto Battlefield, the Kellum-Noble House, and several other area sites. His efforts resulted in important and lasting contributions to the preservation of historical and archeological sites in Houston. He also attended several week-long archeological field schools across the state with the Texas Archeological Society. He was an active member of the Houston Canoe Club, serving for a time as the club’s purser (treasurer), and leading many trips for the Canoe Club down the

Rio Grande River, the Pecos River, the Devils River, and Buffalo Bayou. Louis was past-president of the Harris County Historical Society and a former member of the Harris County Historical Commission. During his tenure on the Commission, he wrote several of the markers designating historical sites in the City of Houston.

Louis authored sixteen books including five on paddling the rivers of West Texas including the Pecos, Devils, and Rio Grande, a hiking guide to Big Bend Ranch State Park, several on the history of Houston including *Buffalo Bayou: An Echo of Houston's Wilderness Past*, two on the history of Camp Logan, a WWI training facility built to house 45,000 soldiers in the area of what is now Memorial Park in Houston, and his most recent guidebook highlighting twenty-five archeological and historical sites along Buffalo Bayou, entitled *The Buffalo Bayou Greenway*. He and his co-author Linda Gorski also wrote a series of six *Rome in Ruins* walking guides to ancient archeological sites in Rome and Ostia Antica.

Alongside his passion for history was his love for his three children, Rachel, Stephen, and Matthew. Not long after they were taking their first steps, Louis brought them into the wilderness. The trio were present on many of his expeditions down the rivers of Texas. As a father, it was important to Louis to pass along his love of adventure. Louis took his family backpacking across the low Sonoran Desert and to the tops of the Rocky Mountains. The lessons of teamwork, creativity, respect, wonder, adaptability, and self-reliance were taught to each child, both in theory and through meaningful conversation and practice in the world.

Hand in hand with countless family campouts were regular trips across the ocean. Maintaining strong connections with his German roots provided a jumping off point for many international trips with his children. Border crossing stamps from Germany, France, Switzerland, Italy, and Austria were imprinted throughout the pages of his children's passports before the advent of the euro. This love for travel has endured for all three of his children as they have engaged in their own international expeditions.

Louis is survived by his three children, Rachel Aulbach Garcia (Laurence), Stephen Aulbach (Maggie) and Matthew Aulbach (Amanda), and seven beloved grandchildren, Luther, Sullivan (Sully), Laurel, Declan, Annie, Hudson, and Travis. He is also survived by his brother, Charles, his sister, Laurette Wallace, and numerous nieces and nephews.

Services for Louis Aulbach will be as follows:

Viewing at Heights Funeral Home, 1317 Heights Boulevard, Houston, from 5:00 to 8:00 p.m. on Tuesday, January 3, 2023

Service at St. Ambrose Catholic Church, 4213 Mangum Road, Houston, from 11:00 a.m. to noon on Wednesday, January 4, 2023

Burial at Hollywood Cemetery, 3506 North Main Street, Houston, at 2:30 p.m. on Wednesday, January 4, 2023

For those who wish, the family suggests donations be made to the Houston Archeological Society, P. O. Box 130631, Houston, Texas 77219-0631. Please put "Louis Aulbach" in the comment line of the check. More information can be found at: Louis Aulbach Obituary - Houston, TX (dignitymemorial.com).

Life in the Dirt: Tales from an Ongoing Career in Professional Archeology

Sarah Chesney, Ph.D., HAS Vice President

Hello again, HAS! For my second column in the HAS newsletter, I thought I'd write about the coolest – in both subject matter and temperature – monitoring project with which I've ever been involved: the cryptoporticus restoration at The Woodlands Cemetery in Philadelphia. During my residence at The Woodlands while working on my dissertation project (discussed in December's HAS newsletter), I was also called upon to monitor demolition work related to the restoration of the mansion's cryptoporticus. For those of you who read Latin, "cryptoporticus" simply means "hidden passage." It's an architectural feature constructed of brick or stone, often with a barrel-vaulted ceiling, as seen in many Roman buildings across Europe. Though less common in the United States, there are a few examples, including the one at The Woodlands Cemetery in West Philadelphia. Before The Woodlands became a cemetery in the 1840s, it was the private home of William Hamilton (1745-1813), for whom a cryptoporticus was constructed to hide the entrance to the mansion's basement kitchen and storage areas – and to hide the servants and slaves who worked there.

In 2014 William Hamilton's cryptoporticus was still standing – and still providing hidden access to the below-ground storage areas of the Hamilton mansion – but was starting to show its age; it was over 200 years old, after all. With the help of grant money, The Woodlands Cemetery was able to hire a restoration firm to stabilize and restore the cryptoporticus, its access points, and the northern façade of the mansion. As part of the work, I was asked to monitor the demolition of the modern porch/entrance over the cryptoporticus, as we expected that all sorts of interesting things would be exposed during this work. The project kicked off in November 2014, and still stands as the most interesting and coldest monitoring project with which I have ever been involved. Demolition continued through mid-December, which meant that I was standing and photographing work in freezing rain, snow, wind, and very cold December temperatures in Philadelphia. I have NEVER been so cold on a project since; after all, if you are excavating in the cold, you are at least keeping warm via exertion. Simply standing around and photographing others working for hours on end leads to VERY COLD fingers and toes by the end of the day.

Eventually the demolition of the northern porch ended, and the project moved to restoration and stabilization work of the cryptoporticus roof and the roadway surrounding the mansion. This proved to be the most interesting area archeologically, as several previously unknown features were revealed, including a set of stone steps (see photo below), indicating an earlier entrance to the cryptoporticus. The project wrapped up in the fall of 2015, and the restored cryptoporticus can still be seen at The Woodlands Mansion today.



Photographs
courtesy of Sarah
Chesney, Ph.D.



For more on The Woodlands Cemetery and Mansion in Philadelphia and its cryptoporticus, see www.woodlandsphila.org; <https://hiddencityphila.org/2015/01/cryptoporticus-exposed-tunnels-beneath-woodlands-mansion-bare-all/>.

Neolithic and Iron Age Sites on Anglesey, North Wales

Geoffrey F. Mills

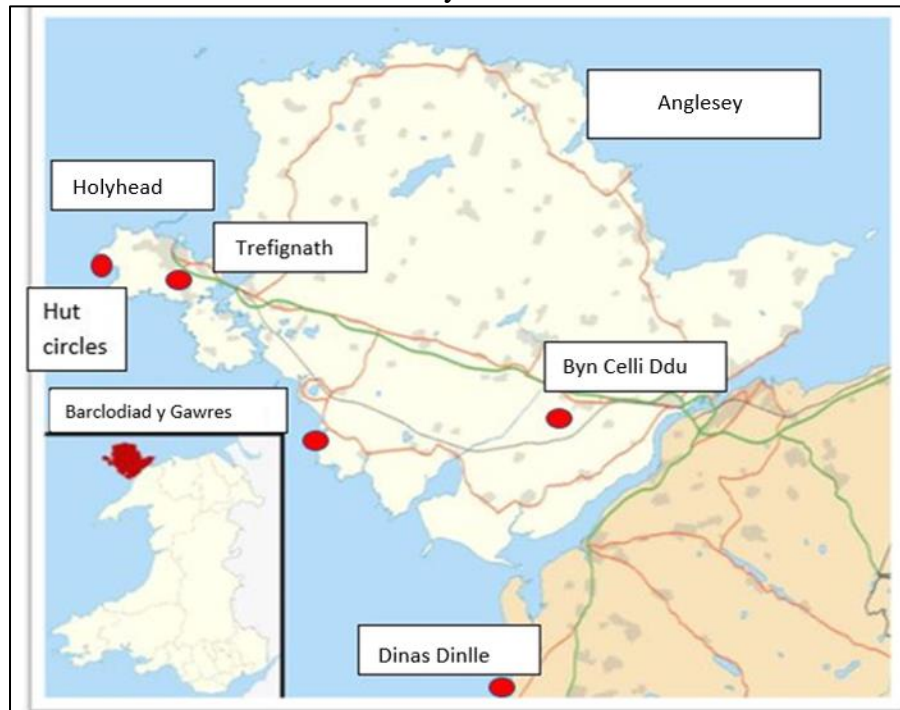


Figure 1. Contains Ordnance Survey data © Crown copyright and database right, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=11605092>. Created by Geoffrey Mills.

During a recent trip to the United Kingdom, I spent five days on the Welsh island of Anglesey visiting my niece and family. I also was able to visit several ancient archeological sites, both from the New Stone Age (Neolithic) period and the more recent Iron Age. In Britain, the Neolithic period lasted from 4,000 to 6,000 years BP (Before Present).¹ During this time, Neolithic people from Ireland and Spain used their knowledge of the sun and the stars to navigate across the sea. These people from far-flung places shared a tradition of rock art and tomb building. This corresponded to the start of the farming culture in Britain, and it was during this time that Stonehenge was built. In the context of Texas archeology, this paralleled the Middle Archaic period.

Neolithic Sites

I have explored three area Neolithic sites: two recently, and another during a previous trip. In 2018, I went to Bryn Celli Ddu, a neolithic burial chamber, or passage tomb.² A rough translation of the site name is “the mound in the dark grove.”

¹ Neolithic Britain.

<https://warwick.ac.uk/fac/arts/classics/warwickclassicsnetwork/romancoventry/resources/prehistoricbritain/neolithic/>.

² Bryn Celli Ddu. <https://cadw.gov.wales/more-about-bryn-celli-ddu>.



Figure 2. Bryn Celli Ddu entrance.



Figure 3. The passage from inside the tomb. Photographs by Geoffrey Mills.

Construction started about 6,000 years BP, initially as a henge monument about 5,000 years ago, and later as a burial tomb and a site for ritual practices. Human bones, both burnt and unburnt, were found during excavation. Other finds included two flint arrowheads, a stone bead, and mussel shells.

On my most recent trip to Anglesey, I visited the Neolithic site Barclodiad y Gawres, which translates to the “Giantess’ Apronful.”³ The associated legend holds that the mound in question was carried to its location in the apron of a giantess. The mound covers a cruciform passage tomb dating to 4,500 years BP. The burial mound is located on a headland close to where I was staying on the west coast of Anglesey. Abstract patterns of zigzags and spirals cover the surfaces of the



Figure 4. Barclodiad y Gawres, view inside the front entrance.



Figure 5. Barclodiad y Gawres, decorated stone inside the tomb. Photographs by Geoffrey Mills.

³ Barclodiad y Gawres. https://en.m.wikipedia.org/wiki/Barclodiad_y_Gawres.

large stones inside the tomb. These were carefully pecked into the surface of the boulders using quartz pebbles and hammer stones. The patterns are very similar to the rock art in the tombs of the Boyne Valley in Ireland. These patterns were probably associated with spiritual and ritual burial practices led by shamans or priests. During excavation, the burials of two cremated young males were found in one of the side chambers.

Next, I visited Trefignath, which has been dated to 4,000-6,000 BP.⁴ The exact meaning of the name is unclear. The best estimate is “place of grey moss,” due to its location on a rocky outcrop. About 5,500 years ago, the ridge was converted to a place for the dead with construction of the first tomb. The burial chamber would have been covered with a mound of earth and supported by a low stone wall. A second tomb was built directly to the east and includes two arms of stone, perhaps to collect the rays of the sun. Farther east lies a third similar tomb. Neolithic pottery and stone tools have been discovered on the site.



Figures 6 through 8. Trefignath, Tomb One (left), Tomb Two (center), and Tomb Three (right). Photographs by Geoffrey Mills.

I visited two Iron Age sites. During this time (3,200 – 2,500 BP), the Celtic Ordovices tribes occupied North Wales. I first visited Dinas Dinlle, named after the mythological Welsh leader Lleu Llaw Gyffes. In the Celtic Welsh language, “dinas” means settlement and “dinlle” means “Fort of Lleu.” Although not strictly on Anglesey, Dinas Dinlle’s location falls within sight of the island. I grew up in the small village of Rhostryfan in North Wales, only four miles from the sea at Dinas Dinlle.⁵ The name Rhostryfan is composed of two words: “rhos” means moor or moorland, and “tryfan” means high peak or mountain. The village is in the foothills of the Snowdonia Mountain range. My brothers and I often cycled down to Dinas Dinlle for a swim. We were always intrigued by the large hill on the southern end of the beach, and being kids, we were convinced that there should be a fort at the summit. We did not see one at the time, but I recently learned that in 2019, the Gwynedd Archaeological Trust commenced excavations on top of the hill and did indeed discover a hillfort and a roundhouse. Other finds included coins and pottery associated with the Romans. Unfortunately, the seaward side of the site is severely eroding at about one foot a year.

⁴ Trefignath. <https://medievalheritage.eu/en/main-page/heritage/wales/trefignath-burial-chamber/>.

⁵ Dinas Dinlle. <https://the-past.com/news/excavating-dinas-dinlle-before-it-falls-into-the-sea/>.



Figure 9. Recently excavated roundhouse.
Photograph by Geoffrey Mills.



Figure 10. View from hilltop to the North - Anglesey on the horizon. Photograph by Geoffrey Mills.

The other iron age site is on the slopes of Holyhead Mountain on Anglesey. I drove up the mountain (only 722 feet above sea level) on a very foggy day to view an ancient site of prehistoric stone circles.⁶ These lie below an ancient fortress ringing the top of the mountain. Note the similarity in design between the roundhouse in Dinas Dinlle and stone circles on Holyhead Mountain. These stone circles are thought to be remnants of family homes, as stone benches, basins, and storage pits were found in association with the structures. Only twenty stone circles are currently visible, out of fifty found by archeologists. The people who lived here grew cereal crops and kept animals for meat. Roman coins were found in several of the buildings, suggesting that they were occupied for a thousand years.



Figure 11. Interpretation of the village.
Source: gov.wales/CADW.

⁶ Stone Circles. https://en.m.wikipedia.org/wiki/Holyhead_Mountain_Hut_Circles.

Figures 12 – 14. One of the twenty visible stone circles. Photographs by Geoffrey Mills.



I found all these prehistoric structures fascinating, and they gave me insight in to how the ancient inhabitants of North Wales lived. What I saw was only a fraction of the sites on Anglesey and I hope to explore some of the others on my next trip. And if you are interested in learning how to pronounce these Welsh names, please contact Geoff Mills or your local Welsh expert!

Notes on Munitions - The Gunflint, Part 2 How A Gunflint Works

Thomas L. Nuckols

Introduction

For this article, illustrations emphasizing a flintlock muzzle-loading rifle (rifle) will be used to show how a gunflint works. An example of a flintlock rifle is shown in Figure 1.



Figure 1. A partial view of the author's sixty-inch-long flintlock Kentucky rifle. The Kentucky rifle was developed in America in the early eighteenth century and used for hunting and warfare. Well into the twentieth century, in rural areas of the Appalachian Mountains, people still used the Kentucky rifle as a hunting weapon. Photograph by Thomas L. Nuckols.

Rifle Basics

A rifle had a barrel bore (interior of the barrel) containing "rifling." Rifling consists of lands and grooves cut in a spiral or helical pattern into the bore's surface. Rifling imparted a spin to a bullet, improving its aerodynamic stability and accuracy (Figure 2).

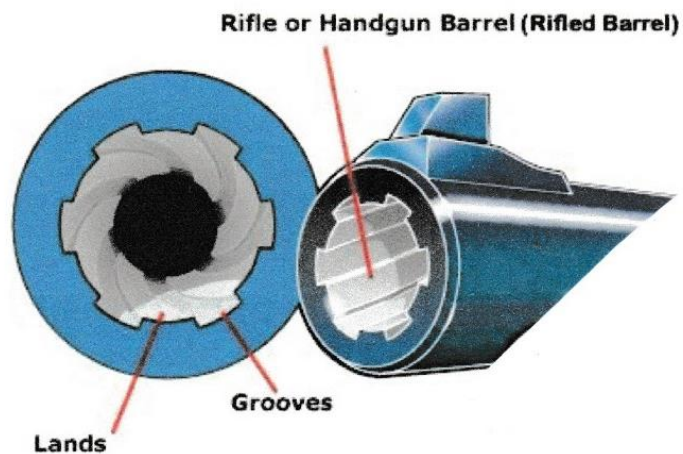


Figure 2. Two views of rifling in a barrel bore as seen from the muzzle, or end of the barrel.
Source: Pinterest, <https://www.pinterest.com/pin/firearms--298293175332194548/>.

Rifle Ammunition

The ammunition used in a rifle was a spherical lead bullet. To make loading a rifle easier, bullets were smaller than the barrel's bore. For the bore's rifling to be effective, bullets were wrapped in a greased cloth or leather patch. The patch gripped the bullet tightly and acted as an intermediary between it and the rifling, forcing the bullet to spin.

The Flintlock on a Rifle

The flintlock, sans gunflint, on the author's Kentucky rifle is shown in Figure 3. The frizzen is open, exposing the priming pan (red arrow) and the touch hole (green arrow). The touch hole is located in the side wall of the exterior octagonal shaped barrel.

The priming pan is the receptacle for black priming powder. The touch hole, approximately 1/16 inch in diameter, forms a connection between the priming pan and the inside of the barrel. Normally, a touch hole is simply a hole in the side of the barrel. However, this flintlock is equipped with an historically incorrect liner with a touch hole. Liners are a modern innovation that supposedly increase ignition timing.¹

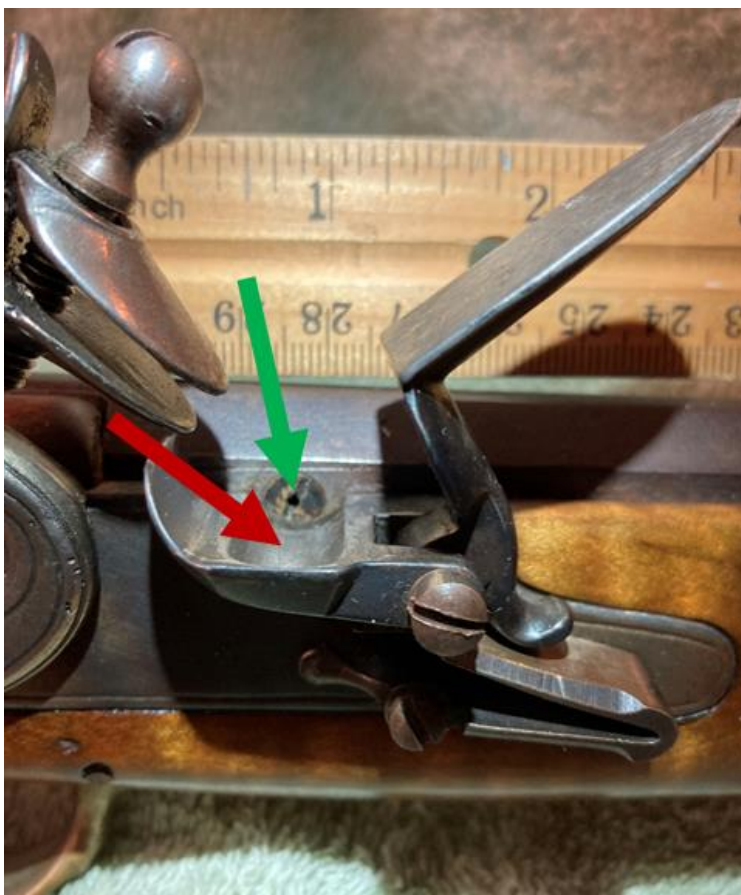


Figure 3. The flintlock on the author's Kentucky rifle. The cock is in the resting position. The red arrow points to the priming pan, the green arrow points to the touch hole. Photograph by Thomas L. Nuckols.

¹ See Touch-hole liners; faster ignition or time bomb? <http://www.caywoodguns.com/touch-hole-liners.html>.

The Unloaded Rifle Barrel

A cross sectional view of an unloaded rifle barrel is shown in Figure 4.

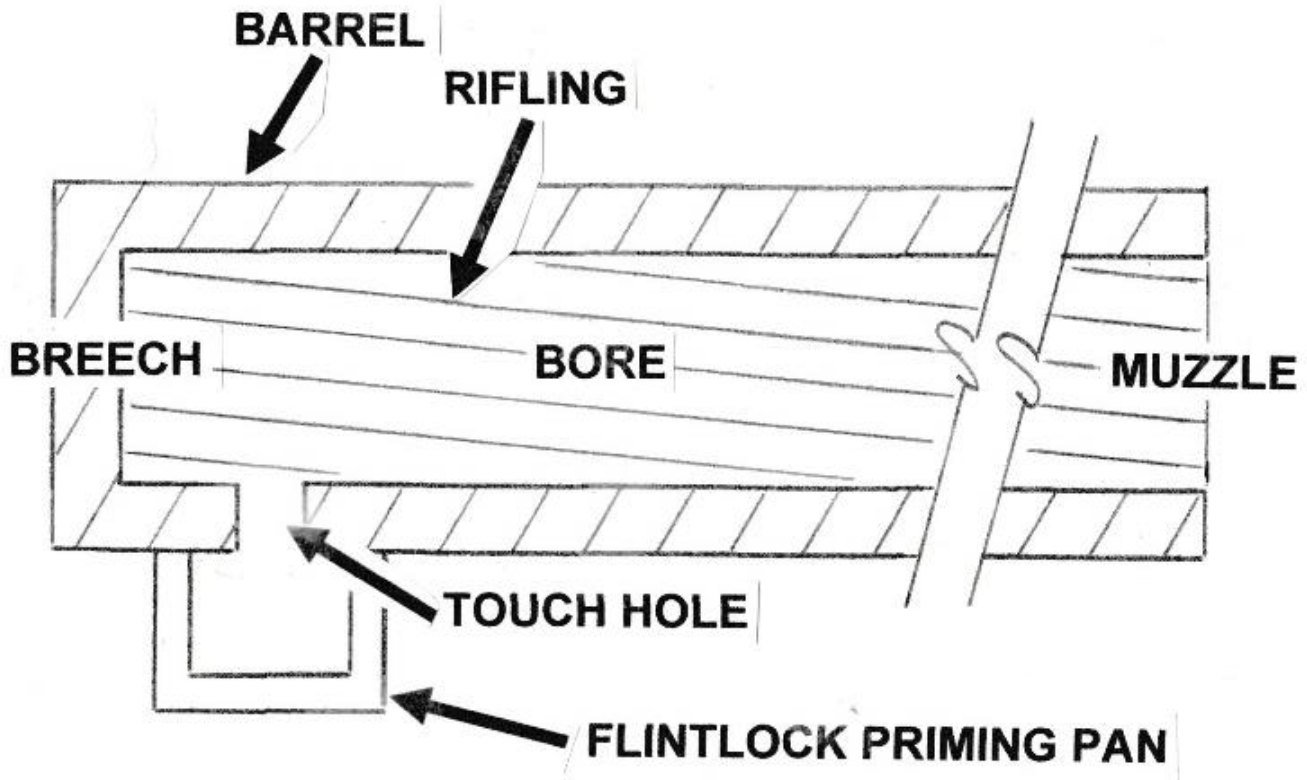


Figure 4. A cross sectional view of an unloaded rifle barrel. The breech is the back of a barrel, or the part closest to the shooter. The bore is the hollow interior of a barrel, and the muzzle is the end of the barrel where a bullet exits. Image by Thomas L. Nuckols.

Loading a Rifle

What follows is a condensed version of the steps taken to load a rifle. More information can be found in the author's previous article published in *The Profile* July 2020 issue entitled "Notes on Munitions (What Came Before) the Minié Ball (Part 3)," <https://www.txhas.org/PDF/newsletters/2020/2020%20July%20Profile.pdf>.

1. With the flintlock's cock in its resting position, pour a charge of black gun powder down the barrel of the rifle at the muzzle.
2. Place a spherical lead bullet that is wrapped in a patch on the rifle's muzzle.
3. Push the bullet down the bore with the rifle's ramrod until it rests firmly against the black gun powder charge.
4. Place the cock in the halfcocked position and fill the priming pan with black priming powder.
5. Close the priming pan cover (the cover is an integral part of the frizzen). At this point, the cock can be left in the halfcocked position until the rifle is ready to be fired.

A cross sectional view of a loaded rifle barrel is shown in Figure 5.

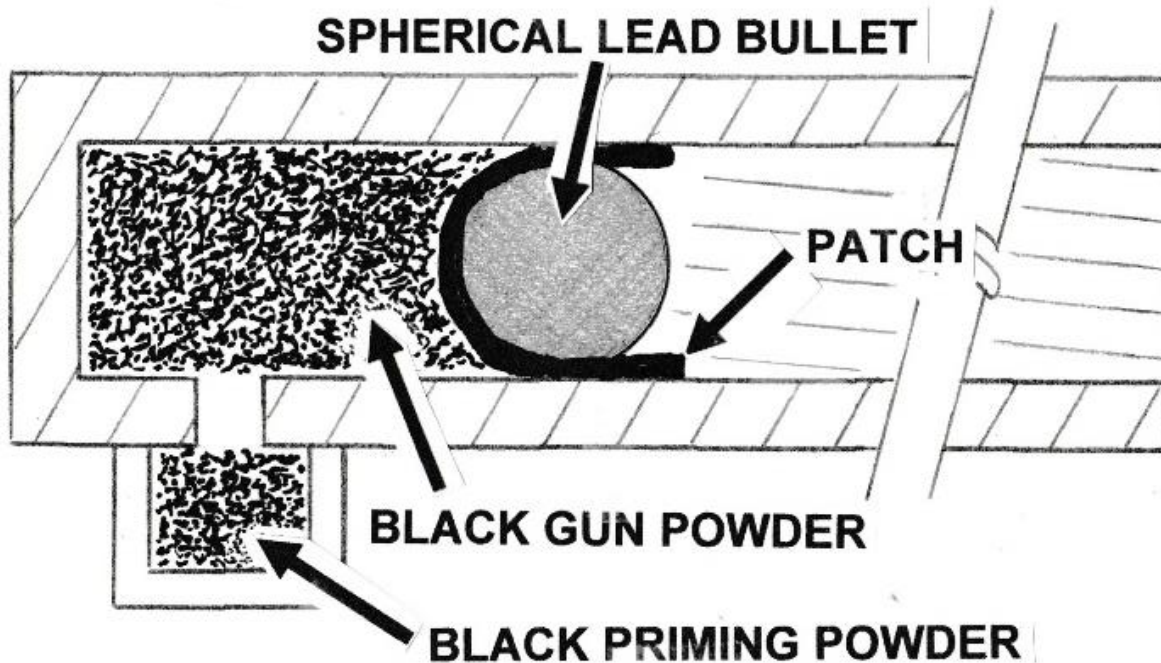


Figure 5. Cross sectional view of a loaded rifle barrel. The spherical lead bullet, wrapped in a patch, has been pushed down the barrel by the rifle's ramrod until it is seated firmly against the black gun powder charge. The priming pan is filled with black priming powder. Image by Thomas L. Nuckols.

Firing a Rifle and What the Gunflint Does

Once the rifle is loaded and ready to fire, the person using the rifle, the shooter, pulls the flintlock cock back from the halfcocked to the full cock position. This is called "cocking the rifle," i.e., the rifle is cocked (Figure 6).

Next, the shooter aims the rifle at a target and pulls the trigger. When the trigger is pulled, the cock snaps forward, causing the gunflint to strike the frizzen. When the gunflint strikes the frizzen, it does two things simultaneously: it opens the priming pan cover (integral to the frizzen), exposing the black priming powder, and it scrapes the surface of the frizzen. As the sharp edge of the flint scrapes the surface of the frizzen, it shaves off tiny steel particles, which are heated to their ignition temperature by the intense friction in the contact area. The burning metal particles, visible as sparks, fall into the priming pan (Figure 7) and ignite the black priming powder (Figure 8 and Figure 9-A). The ignition of the black priming powder flashes through the touch hole and ignites the black powder charge behind the bullet (Figures 9-B and 9-C). When the black powder charge ignites, it produces gas that creates pressure at thousands of pounds per square inch inside the bore of the rifle. The pressure forces the bullet out of the barrel (Figure 9-D). The bullet leaves the barrel at a speed of approximately 1,200 feet per second. The rifling in the barrel causes the bullet to spin at roughly one turn in forty-eight inches. After the rifle has been fired, the cock has returned to its resting position.

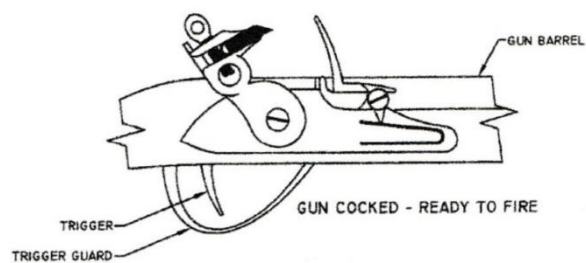


Figure 6. A flintlock rifle in the cocked position.

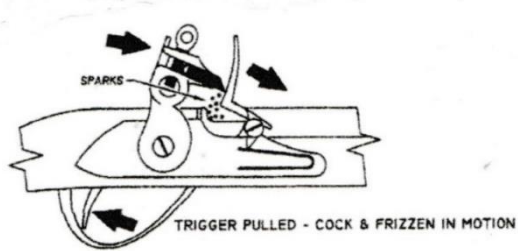


Figure 7. Sparks falling into the priming pan.

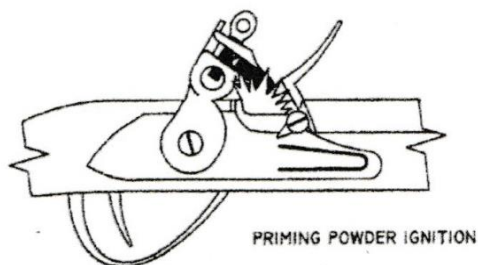


Figure 8. Ignition of the black priming powder.

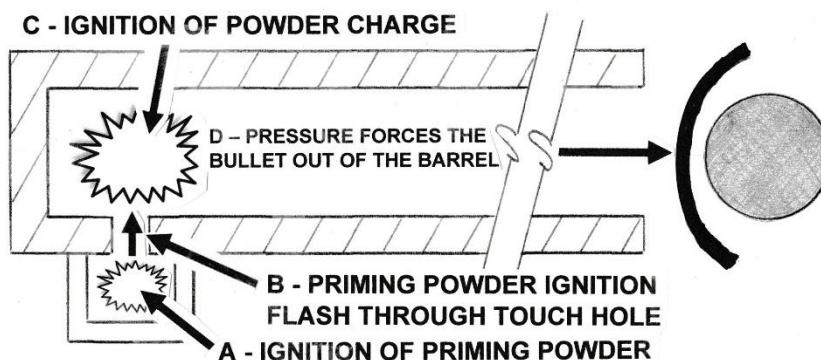


Figure 9. The sequence of events that occur when a rifle is fired. Due to air resistance, the patch separates from the bullet shortly after they have exited from the rifle's muzzle. The spent patch falls to the ground several feet forward from the rifle's muzzle, and the bullet speeds to its target. Image by Thomas L. Nuckols.

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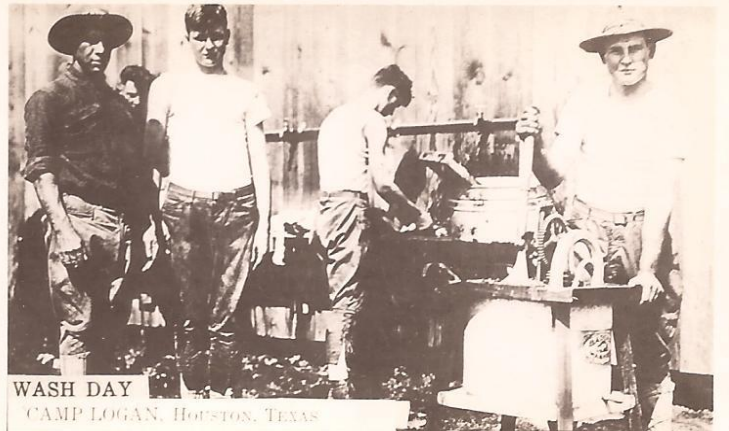
Picturing Camp Logan - From the Robert Morin Collection

Every day, thousands of Houstonians sprint around the Seymour Lieberman Trail encircling our city's popular Memorial Park. Much of that pathway skirts regimental roads laid a century ago when the area formed the heart of Camp Logan, a training garrison for the newly mustered American Expeditionary Forces. Yet many of the runners are unaware of their storied route, as they circle past original drainage ditches, secluded thickets sheltering hundred-year-old concrete foundations, and the former encampment sites for some of our country's bravest battalions. When the Great War ended, the facility closed, and the short-lived Camp Logan faded into history. But that slice of Houston's narrative does live on—in the victory achieved by Camp Logan's sons and daughters, archaeological features, American history—and in historical photographs which inform us about daily life at the camp, a century ago. This series explores subjects preserved in the remarkable collection of Camp Logan photographs and archives acquired by Robbie Morin.

Laundry Day – Robert Morin



An Army soldier looks best in a clean and tidy uniform. Soldiers hand-washed their own clothes to ensure their government-issued wear was clean and ready for drills, work, inspections, and daily activities. They hung out their clothes to dry on makeshift lines strung across trees or posts.



WASH DAY
CAMP LOGAN, HOUSTON, TEXAS



All photographs
from the Robert
Morin Collection,
Woodson Research
Center, Rice
University.

Here's the Scoop - Kaity Ulewicz, MSc, RPA

Gather around while I tell you a tale. Now, every archaeologist has a story about finding something cool, something sparkly that will get everyone at the party to pay attention to you (yes, I am guilty of doing this, we all can't be perfect). And sometimes, archaeologists find very unusual structures while out surveying - structures that make you scratch your head with confusion, wondering how, let alone why, someone brought building materials into these unknown destinations. Sometimes, we archaeologists become thankful that we have a colleague nearby, just in case something happens.



Recently, I completed a survey out in the middle of nowhere - not even a paved road in sight - and yet, in the middle of this property we discovered a strange shack that someone had obviously spent some time constructing. You can see in the photo above that it even had a stone floor (also, there was a mystery bucket that I definitely didn't open). I began pondering why people build these structures. Do they wonder if anyone will find them? What had this mystery shack seen? Obviously, I couldn't resist having my field partner photograph me in front of the shack, for posterity.

I may never know the answers to these questions myself, but it is always fun to imagine what the shack could have seen. And if you want to impress an archaeologist in the wild, ask them about the weirdest or strangest structure they have found during surveys. You will be surprised what answers you will get.

HAS Reference Desk

What research on archeology, anthropology, or history have you been reading lately? The HAS Reference desk seeks your suggestions of interesting archeology and history links! If you enjoy the informality of podcasts, check out these history links:

Wise About Texas on Apple Podcasts

A New History of Old Texas on Apple Podcasts

15 Best Texas History Podcasts You Must Follow in 2023 (feedspot.com)

<https://15minutehistory.org/>

And check out Frank's suggestion for interesting Texas history articles, Texas Beyond History, at texasbeyondhistory.net.

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Houston Archeological Society - Monthly Meeting Programs Third Thursday of Every Month

January 19 – HAS Monthly Meeting at 6:00 p.m. This in-person and multiformat presentation will feature Heather Para, Ph.D., speaking on Lindisfarne. YouTube Stream, <https://youtu.be/vFwDX5vX-K8>.

February 16 – HAS Monthly Meeting at 6:00 p.m. This in-person and multiformat presentation will feature Tom Middlebrook, M.D., speaking about TAS Field School. YouTube Stream, https://youtu.be/a_4WtbFLO_8.

March 16 – HAS Monthly Meeting at 6:00 p.m. This in-person and multiformat presentation will feature speaker Leslie Bush, Ph.D. on Caddo houses. YouTube Stream, <https://youtu.be/IstEieByIMk>.

April 20 – HAS Monthly Meeting at 6:00 p.m. This in-person and multiformat presentation will feature Gregg Dimmick, M.D., speaking on San Jacinto archeology. YouTube Stream, <https://youtu.be/MJpMtFQ-ohU>.

All Houston Archeological Society meetings are ordinarily free and open to the public.

For more information about HAS, visit www.txhas.org, email us at president@txhas.org, or join our Facebook page at <https://www.facebook.com/groups/123659814324626/>.

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Upcoming Events

The Heritage Society at Sam Houston Park

Exhibit: The Life and Times of Charles Goodnight, through March 31, 2023.

San Felipe de Austin State Historic Site Events

1/14 - Second Saturdays with Steve: Austin Colony's Militia and the Fredonian Rebellion, program focusing on the history of the militia in Austin's Colony.

1/19 - Texas Living History Association Annual Conference, January 19-21, 2023.

San Jacinto Battleground State Historic Site Events

1/7 - Bird Watching at the Battleground - The San Jacinto Battleground is home to more than 200 species of birds, and the best time to see them is first thing in the morning. Opening early every first Saturday of the month so birders and photographers can enjoy early morning at the site.

1/7 – Family Day – Make a homemade toy.

1/14 - Battleground Bike Tour - Stretch your legs and honor the memory of the Texas Revolution with a bike ride at the battleground. Join in every second Saturday for guided bike tours of the Birthplace of Texas.

1/15 - Battleground Van Tours - Do you know where General Santa Anna set up his camp during the Battle of San Jacinto or where General Houston was shot? How about where the Surrender Tree was located? Discover the San Jacinto Battleground like you've never seen it before on a staff-led van tour of the battlefield.

1/21 – Celebrating the Lone Star flag.

1/29 – Texas Revolution touch table.

Washington-on-the-Brazos State Historic Site Events

1/21 - Living History Saturday: Medicine in the Republic of Texas. <https://www.thc.texas.gov/news-events/events>.

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Calling All HAS Members – Please send photos and articles for *The Profile*!

We would like for **all HAS members** to consider submitting content for *The Profile* newsletter. Please send submissions to newsletter staff members at wittenmy@flash.net or newsletter@txhas.org. Report on an interesting on-site experience, academy, field school, lecture, cultural trip, or public outreach event! Send photos of yourself on an HAS or TAS adventure! What archeological artifact or historical event have you been researching? Add your voice to our community's conversation. Your contributions can be brief, such as a couple of paragraphs or about 250 words. Please submit information for upcoming issues no later than the fifteenth of each month.

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FOR MORE INFORMATION ON ARCHEOLOGY IN THIS AREA, CONTACT THE FOLLOWING:

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