



Update on Houston Archeological Society Monthly Meetings and Programs

By Linda Gorski

I wish I could tell you that our July 16th HAS monthly meeting will go on as usual. Unfortunately, the Covid-19 pandemic refuses to go away. As most of you are aware, the Houston area is having a resurgence of the virus. Masks are required in all businesses in Harris County and social distancing is back on the table. Thus, we have decided to cancel meetings at Trini Mendenhall Center until further notice.

To be clear, Trini Mendenhall Community Center is open and is encouraging visitors to wear masks and to social distance. For instance, the auditorium in which we meet holds just over 300 people. The management of the center is limiting the room to 25% occupancy which would be around 80 people. That would easily accommodate the number of folks who turn up at most of our meetings.

However, the community center **cannot** require people to wear masks. Community centers do not fall under the Governor's order because the enforcement part of the order relies on currently available health and safety laws that are not applicable to community centers. Since our membership is mostly middle aged to elderly and many fall into the "at risk" category, I strongly believe that everyone at our meetings should wear a mask to be respectful of others. However, it would be up to us to insist that everyone wear a mask at the meeting. I do not want to be the mask police, nor do I want anyone else in our membership to be the mask police. Thus, we have made the decision to cancel our monthly meetings until this crisis is truly over. We are working on ways to provide virtual programs so watch your emails for more information.

In the meantime, here are some guidelines that have been published by the City of Houston to help us get through this pandemic. I hope everyone is staying safe and healthy. Please check in when you can and let us know you are okay – lindagorski@cs.com

Procedures for Self-Quarantine under Covid-19



Self-quarantine is recommended for individuals who have been directly exposed to the new Coronavirus or have history of travel in infected or heavily populated areas.

<p>Stay at home. Limit all your non-essential travels. <i>Unless you're going out for food, medicines or other essentials.</i></p> 	<p>Wash your hands. Practice good hand hygiene by washing your hands with soap and water or using alcohol or hand sanitizer.</p> 
<p>Check your temperature. Check your temperature at least two times a day.</p> 	<p>Stay in a specific room. If you're sick or suspect yourself to be sick, it's best to stay in a designated room or area away from others. <i>If possible, have a designated toilet and bathroom as well.</i></p> 
<p>Watch for other symptoms. Aside from fever, Covid-19 symptoms include cough, difficulty breathing, and fatigue.</p> 	<p>Call your doctor or hospital before visiting. If you need to seek medical attention whether for viral symptoms or other medical care reasons, contact your doctor or hospital ahead of time so they can prepare and take precautions for your arrival.</p> 
<p>Practice social distancing. If you need to go out, maintain at least 6 feet distance from others.</p> 	

President's Message – Linda Gorski



It seems like forever since we've gotten together at an HAS meeting, outreach program or field activity. But like most of you we have not been idle!!!! We just miss seeing everyone!

If you have not been watching the eBay auction that HAS is running to take the place of the silent auction at the (cancelled) 2020 TAS Annual meeting, you need to check it out. Go to www.ebay.com and plug the words TAS Auction 2020 into the search bar. The auction items for this week should come right up. Our auctions begin on a Sunday night at 7 p.m. and end the following Sunday night at 7 p.m. so the inventory changes weekly. And each week we have some fabulous items on offer! Our goal is to raise \$6,000 by November 1. As this newsletter goes to print (the end of our 8th week auction) we are very close to having raised \$3,000 or half our goal!!! HAS members have been incredibly generous in

donating items to the auction and bidding on items. Thanks to all of you for your support in making this auction a huge success so far.

Some HAS members have gone above and beyond for this auction like HAS Vice President Larry Golden whose eBay site we are using as the auction platform. Larry photographs each item, writes a description, posts the items on eBay, and, when the items sell, he mails them off. The next time you see Larry, give him a high five for his hard work!

Several of our HAS members including Cecil Jones and professional archeologist Dan Warren have donated hundreds and hundreds of books to the auction! I have entered all of these donated books into a spreadsheet and obviously there are many more than we can sell in this eBay auction. If you'd like to have a look at the book spreadsheet and make an offer on any of the books, email me back at lindagorski@cs.com and I'll send you a copy of the spreadsheet. Remember - ALL PROCEEDS GO TO TAS. The spreadsheet includes not just many, many, many excellent archeology related books, but also books on Texas history, fishing, woodworking, photography, drawing, history, ships and shipbuilding, and a ton of cookbooks. Most of these books look brand new or have been kept in excellent condition.

Speaking of books, I drove down to Galveston recently to pick up donations from two very special people. Dr. Carolyn Boyd, **Shumla Endowed Research Professor and Research Associate Professor** at Texas State University and **Founder of the Shumla Archaeological Research and Education Center**, donated an autographed copy of her book, The White Shaman Mural An Enduring Creation Narrative in the Rock Art of the Lower Pecos. In addition, she donated three original illustrations from the book suitable for framing! (Dr. Boyd will be the banquet speaker at our 2021 TAS Annual Meeting October 21 – 25, 2021 here in Houston) I also had the pleasure of meeting Dr. David Carlson, Professor Emeritus of Anthropology at Texas A & M University, who donated a very special copy of An Introductory Handbook of Texas Archeology dated 1954 and signed by the original Authors Dee Ann Suhm, Alex B. Kreiger and Edward Jelks.

We'd love to hear from you if you have items to donate to this auction. Email me at lindagorski@cs.com and we'll figure out a way to get them from you. Again, thanks for your support. And stay healthy and safe out there!



Dr. Carolyn Boyd signing a copy of her book for the auction.



Three original illustrations from Dr. Carolyn Boyd's book suitable for framing will be auctioned



Dr. David Carlson, donated An Introductory Handbook to Texas Archeology dated 1954 and signed by the authors

Notes on Munitions (What Came Before) the Minié Ball (Part 3) By Tom Nuckols

In the early 1970s, after reading about Simon Kenton (1755–1836) and his prowess with a Kentucky rifle in author Allan W. Eckert’s historical novel *The Frontiersman*, I wanted a Kentucky rifle of my own.

I went to my favorite gun shop in Houston, Alexander's (c. 1955-2000) and found what I was looking for, a recently made Kentucky flintlock rifle for sale. The rifle has an overall length of 60 inches, a 43.5-inch octagon shaped barrel with a bore of 0.430 inches and a wooden stock made out of “tiger stripe” curly maple. The rifle is equipped with double-set triggers. The stock has eighteen silver inlays consisting of one acorn, six fish, two downward facing crescent moons, one heart with the bottom tip forming an upward twisting tail, and an eight-pointed star. See Figure 1 (below left) and Figure 2 (below right).



These inlays are thought to have talismanic significance. Period Kentucky rifles reflected the decorative arts common to the area in which the rifle originated. Many gunsmiths include religious iconography into their designs “to ward off evil or misuse by the hand of man” (Coffey and Ames p. 3). Modern made Kentucky rifles still use these same symbols as a tribute to the original gunsmiths.

Symbol	Significance
acorn	potential and strength
crescent moon	The Virgin Mary
eight-pointed star	the Bethlehem Star, or the Hunters Star, that guides the rifleman along the proper path through life in the wilderness
fish	early symbol for Christians or Christ
heart with tail	the fifth wound of Christ, symbolic of protection of loved ones

(Halsey Jr. 1972: 71; Grancsay n.d.)

Loading My Kentucky Rifle

I usually fire my Kentucky rifle using a technique called benchrest shooting. These are the steps I follow to load my Kentucky Rifle¹:

¹ For an illustration of how a muzzle-loading firearm works and how a flintlock works see Nuckols (2014: 64-66). Available for download here:

<https://www.txhas.org/PDF/reports/powell/The%20Elizabeth%20Powell%20Site%20Report%20Number%2025%20Part%203%20Index.pdf>.

1. place the butt on the ground with the muzzle resting in the crook of my right arm (I am left-handed).
2. pour black gun powder from the powder horn into the measure.
3. From the measure, pour the black gun powder charge down the barrel.
4. remove a patch from the patchbox (see Figure 3) that has been pre-lubricated with a biodegradable, all-natural lubricant, and center it over the muzzle.



Figure 1, Patchbox with the lid opened. The arrow points to the push button that opens the lid.

5. remove a bullet from the shot pouch that is slightly smaller than the bore, and place it on the patch with the sprue nib pointing upward and centered.
6. push the bullet as far down the muzzle as I can using my thumb
7. using the concave end of the bullet starter, seat the bullet farther into the bore by tapping the bullet starter with the palm of my left hand.
8. with the ramrod, push the ball all the way down the bore until it rests firmly against the black gun powder charge.
9. place the rifle on the bench (benchrest shooting) and while sitting down, place the flintlock hammer in the half cock position.
10. fill the pan full of priming powder from the powder horn.
11. close the frizzen and bring the hammer to the full cock position.
12. set the rear trigger (see Figure 4) and the gun is ready to fire.



Figure 2, Arrow points to the double set triggers.

I can shoot my rifle three or four times before fouling makes loading difficult and accuracy begins to diminish. Fouling is the accumulation of residue created by the burning of black gun powder when a muzzle-loading rifle is fired. Fouling coats the barrel's bore and buries the bore's rifling. I can clean the bore by affixing a small tool called a cleaning jag to the end of the ramrod. The purpose of the jag is to hold a bullet patch so that the bore can be cleaned. Moving the cleaning patch up and down the bore several times usually cleans it sufficiently enough to fire several more times.

In historic times a rifleman, if caught in a perilous situation and needed to quickly shoot his rifle one or more times, could forgo accuracy and the arduous steps usually taken to properly load a Kentucky rifle. He would simply pour black gun powder down the barrel of his rifle directly from his powder horn and push an unpatched bullet down the bore with the ramrod. He could then tap the butt of the rifle hoping that enough of the black gun powder charge in the barrel would flow through the touch hole and fill the priming pan.

Glossary

(terms used in discussion on how to load a Kentucky Rifle)

Benchrest Shooting – A shooting technique in which a rifle is shot at paper targets while the shooter sits in a chair. The rifle rests on a bench, usually support by sand bags.

Black Gun Powder – The earliest known explosive, consisting of a mixture of sulfur, charcoal and potassium nitrate. The sulfur and charcoal act as fuels while the saltpeter is an oxidizer.

Double-set Triggers – A mechanism beneficial for accuracy, containing two triggers, one for cocking the mechanism, which requires a pull of several pounds, and the other for firing, which requires the pull of a few ounces; the lighter the trigger pull, the more accurate a shooter can be. To “set” the front trigger for firing, the rear trigger is pulled until it makes a clicking sound. With a few exceptions such as the Dickert rifle discussed in Part 2, Kentucky rifles were equipped with double-set triggers.

Bullet Starter – A short bulbous or T-headed wooden rod with a concave brass tip for pushing a spherical lead bullet partially down the barrel of a muzzle-loading firearm. The use of a bullet starter avoids the possibility of breaking the ramrod.

Patch – A circular piece of greased cloth or leather about the size of a 50-cent piece, used to wrap around a lead spherical bullet so that it could be easily pushed down the rifled bore of a muzzle-loading firearm and hold it tight. The patch also acted as an intermediary between the bullet and rifling allowing the bullet to spin when a gun was fired.

Patchbox – A rectangular cavity in the wooden butt stock of most civilian and a few military muzzle-loading firearms. As the name implies, patchboxes were originally devised to hold patches. Patchboxes were multipurpose and held many other small articles such as extra gun flints, gunsmithing tools, etc. Patchboxes were covered with a hinged lid, usually made out of sheet brass. A patchbox lid and patchbox lid hinge (catalog #s 333 and 1143) were recovered at the Powell Site (Nuckols et al., 2014: 36, 60).

Powder Charge Measure – A volumetric device which gave a predetermined, uniform charge of black gun powder for a muzzle-loading firearm. A powder charge measure also acted as a safety device; if there were sparks remaining in the barrel of a rifle from a previous shot, pouring gun powder directly down the barrel from a powder horn could be disastrous. A technique used during the era of the Kentucky rifle to make a powder charge measure, was to place a bullet in the palm of the hand. Next, from the powder horn, pour out just enough black powder to completely cover the bullet. Then, hollow out a piece of bone or the tip of an antler tine that would hold that quantity of black powder that covered the bullet. A powder charge measure (Catalog #1066) was recovered at the Powell Site (Nuckols et al., 2014: 36, 38, 62).

Powder Horn – A container for carrying black gun powder used in muzzle-loading firearms. Powder horns were usually made from a cow’s horn that had been scraped thin, plugged at one end and had a stopper at the other. The average length of a powder horn was 12”, and their capacity was one-half to three-quarters of a pound of black gun powder. Powder horns were equipped with a strap for carrying over the shoulder. The powder horn was in general use until the end of the flintlock era. It was superseded by the brass powder flask which became popular during the era when muzzle-loading firearms were equipped with the percussion lock system.

Ramrod – A wooden dowel rod with a concave brass tip used for pushing the bullet down the bore of a muzzle-loading firearm until it rested on top of the black gun powder charge. The ramrod was held underneath the barrel. The ramrod’s concave brass tip was also threaded so that various tools could be affixed to it and used for tasks such as cleaning the barrel bore, or retrieving a stuck bullet.

Shot Pouch – An essential accouterment of the Kentucky rifle era. Because of the style of clothing of the period that men wore, they needed some means to carry their supplies and personal items. The shot pouch became their pocket for carrying bullets, a bullet starter, gun cleaning materials, etc. Shot pouches were often made of dressed buckskin and had a leather strap for carrying them over the shoulder.

In 1775, during the American Revolution, Colonel Benedict Arnold and his 1,100 Continental Army troops made a failed attempt to invade Canada. In route, many of Arnold's men were on the verge of starving. Rifleman George Morrison after going four days without eating anything but the skin of a squirrel, finally roasted his shot pouch and ate it (Atkinson 2019: 159).

Next month: Part 4 of 4, The Minié Ball.

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Heat Exhaustion OR Heat Stroke

Even though our excavation activities have been put on hold due to the Covid-19 situation, it is still worth noting that we are now in the summer months here in Texas. Therefore the temperature is still hot. While we are self isolating and keeping a low profile, many folks are taking the opportunity to do yardwork or other outside activities at home. So, here's a simple chart to remind us of the dangers of overdoing things while working outside.

The infographic is a vertical chart divided into two columns: Heat Exhaustion (left, orange background) and Heat Stroke (right, red background). At the top, the word 'OR' is centered between the two columns. A circular icon at the top center is split vertically, with the left half yellow and the right half red. Below this, a human silhouette is also split vertically, with the left half yellow and the right half red. A central black icon of a stomach with an exclamation mark is positioned between the two halves of the silhouette. The infographic includes various icons: a dizziness icon, a lightning bolt, a thermometer, a heart with pulse lines, a sad face, and a Constable badge in the top right corner. The bottom of the chart features a list of treatments for Heat Exhaustion on the left and a large 'CALL 9-1-1' with a list of actions for Heat Stroke on the right.

HEAT EXHAUSTION	OR	HEAT STROKE
Faint or dizzy		Throbbing headache
Excessive sweating		No sweating
Cool, pale, clammy skin		Body temperature above 103° Red, hot, dry skin
Nausea or vomiting		Nausea or vomiting
Rapid, weak pulse		Rapid, strong pulse
Muscle cramps		May lose consciousness
<ul style="list-style-type: none">• Get to a cooler, air conditioned place• Drink water if fully conscious• Take a cool shower or use cold compresses		CALL 9-1-1 <ul style="list-style-type: none">• Take immediate action to cool the person until help arrives

Archeo Corner: Analytical Archeology – Potassium-Argon (K-Ar) Dating

Wilson W. “Dub” Crook, III

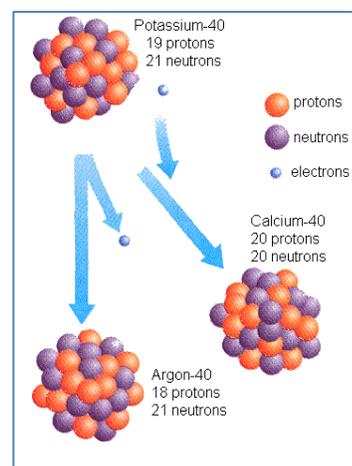
Another radiometric dating method is potassium-argon (K-Ar) age dating. Due to the very long half-life of potassium-40 (1.248 billion years), potassium-argon dating has long been the preferred technology by geologists to age date rocks, notably quick-cooling igneous rocks older than 100,000 years. Since some very old archeological materials, such as the sites in the East African Rift Valley, are situated between layers of volcanic material, potassium-argon dating has also been used as a means of bracketing the age of the human occupation.

Potassium-argon dating operates on the basic principle that radioactive potassium-40 decays to argon-40 in a constant manner which can be quantified over time. Potassium is the earth's eighth most abundant element and is common in many rocks as potassium feldspar (Orthoclase - Microcline – Sanidine – $KAlSi_3O_8$). The amount of potassium in a rock is directly proportional to the amount of silicon present. Thus silica-rich igneous rocks, such as rhyolites, granites, and quartz monzonites, have a much greater amount of potassium than mafic rocks like basalt.

In nature, potassium occurs in three forms: (1) the stable isotope potassium-39 which represents 93.2581% of all potassium in the earth, (2) the stable isotope potassium-41 which accounts for another 6.7302% of all potassium, and (3) the radioactive isotope potassium-40 which is only 0.0117% of all the potassium atoms. Experimental evidence has shown that the ratios between these three isotopes of potassium are consistent such that by measuring the total potassium in a substance, the amount of radioactive potassium-40 will be 0.0117% of the total.

Radioactive potassium-40 decays in one of two ways. The majority of potassium-40 (89.1%) decays by the emission of an electron to form calcium-40. Since calcium-40 is the most abundant form of calcium in the earth, it is virtually impossible to determine what proportion of calcium-40 in a sample is due to the radioactive decay of potassium versus some other means. As a result, calcium-40 is not used in age dating. The remainder of the potassium-40 (10.9%) decays by electron capture and positron emission which forms argon-40. This is the isotope used to help determine the age of rocks.

Argon is an inert noble gas that variously constitutes between 0.1-5% of the earth's atmosphere. As a noble gas, argon does not bond with other atoms in a crystalline solid. However, it is found as a volatile gas (along with fluorine, chlorine, and water) in igneous magmas. Argon is found as three isotopes in nature (argon-40, argon-38, and argon-36) of which argon-40 accounts for 99.6% of all the gas on the planet.



When an igneous magma is extruded onto the surface of the earth, the majority of the volatiles in the magma are released to the atmosphere due to a rapid drop in pressure in a process known as “degassing”. Unlike fluorine, chlorine, or water which can bond to other elements in crystal structures, all of the argon present in the magma escapes. As the magma solidifies into a rock, radioactive potassium-40 locked up in feldspar begins to decay producing argon-40 as a by-product. The radiogenically-produced argon becomes trapped in the crystal lattice structure of the feldspar crystal. Thus all of the argon-40 present in a rock is assumed to be the result of the radioactive decay of potassium-40 with none of the magmas' original argon-40 being present. This is another major assumption inherent in potassium-argon age dating which has largely been proven to be true except in the case of some deep-water marine basalts.

Samples to be dated are collected in the field from the interior of the outcrop in order to avoid any surface exposure to atmospheric argon. The samples are quickly sealed to again protect them from any potential atmospheric contamination. Once in the laboratory, the sample is ground to a powder and separated into equal parts known as “aliquots”. In one part of the sample, total potassium is measured typically by flame photometry (or sometimes atomic absorption spectroscopy). The amount of potassium-40 is then calculated by using the ratio of 0.0117% to the total. The other aliquot is used to determine the amount of argon-40 which is measured by volatilizing the rock powder in a vacuum and measuring the released gas by mass spectrometry. Since it is assumed that all of the argon-40 in the sample was produced since the rock crystallized, the ratio of the two elements is directly related to the time elapsed since the rock cooled. Both flame spectroscopy and gas

spectrometry are destructive tests so it must be ensured that sufficient aliquots of the original sample are left over if the test is to be repeated.

As might be expected given that potassium-argon dating has been used to date rocks to millions of years in age, the method is highly controversial especially with regard to the debate between creationists and evolutionists. The key assumption to potassium-argon dating is that the rock being measured must be part of a closed system since its formation. Any exposure to the atmosphere or alteration by groundwater can cause serious errors in the measured age. For this reason, potassium-argon dating is not applicable for use on unconsolidated sediments, even those rich in potassium feldspars, due to the potential contamination of atmospheric argon.

Applications to Archeology

Potassium-argon dating has long been the preferred methodology to date igneous rocks, especially if they are silica-rich and contain abundant potassium feldspars. Because of the very long half-life of potassium-40, the technique is used for rocks that are greater than 100,000 years old and especially for those that are greater than one million years in age. In archeology, potassium-argon dating has been extensively used in Africa where archeological sites greater than 500,000 years old are common as are extensive volcanic surface lava flows such as rhyolitic tuffs. While dating the stone tools left behind by early hominids may not be possible, dating volcanic rocks which can be found near to the tool horizon can give the archeologist a good approximation of the age of the hominid occupation. The potassium-argon method has also been used to date some meteorites. In 2013, the Mars rover, Curiosity, used on-board potassium-argon equipment to collect, sample, and date a rock, the first time a rock has been analyzed in place on a foreign planet. Potassium-argon dating is not used in the Americas for archeology simply because even the oldest sites are not old enough for the technique to be valid.



London geochronology laboratory for K-Ar dating.

Digging Deeper with TxDOT Archeology

As most of you know, members of the Houston Archeological Society have been fortunate in the past to work as volunteers on several TxDOT archeological projects including the important excavations at the Frost Town site in downtown Houston. During this COVID pandemic when most digging activities have been put on hold so that we can mask up, self-isolate, and protect ourselves and each other from the virus, we've all missed being in the field. However, TxDOT has a new website that discusses archeological projects across the state and lucky for us the agency is sharing this information with the public! If you're craving some good archeology, check out this link.

<https://www.txdot.gov/inside-txdot/division/environmental/archeology-projects.html?fbclid=IwAR3wG7MDenU47OvEwsaGh8CbKhujBmsED4HYSWACzB6-jpCxHEjV5H2M2w0>

This is an incredibly informative website that will give you an idea of just how widespread TxDOT archeological projects are and the variety of sites the agency encounters while building roads and other infrastructure projects across the state. You can also subscribe to receive future updates on TxDOT projects across the state.

In the meantime, here are a few photos to remind you of the good old days when we were in the field at Frost Town with Dr. Jason Barrett from TxDOT and Doug Boyd, our professional PI on the project. You can also go to our HAS website and click on this link <https://www.txhas.org/frosttown-main.html> to read more about the project.



HAS vice president Larry Golden, Project PI Doug Boyd and TxDOT archeologist Dr. Jason Barrett examine an artifact recovered from the



Bob Sewell, Larry Golden, Louis Aulbach and Linda Gorski screening dirt at Frost Town Site with Minute Maid park and downtown Houston in the background.



A vast array of historical artifacts recovered from the Frost Town site in just one day.

Houston Archeological Society

Monthly Meeting Programs for 2020

**6:30pm Third Thursday of every month (except June)
Trini Mendenhall Community Center, 1414 Wirt Road**

July – No meeting due to COVID-19 issues

All **Houston Archeological Society** meetings are free of charge and open to the public. For more information about HAS then visit our website at www.txhas.org or email lindagorski@cs.com. You can also join our Facebook page at <https://www.facebook.com/groups/123659814324626/>

Please submit articles for publication to *The Profile* Editor Bob Sewell at newsletter@txhas.org. Please submit articles for the August 2020 issue no later than 25th July 2020.

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