

Field Notes

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Meet the Team! **Samy Norris**

Director of Education & Programming By Lee Strange, Associate Editor



At ARI, on any given day, there are often a thousand and one things going on: summer camps, field schools, learning experiences, department meetings, or outreach events. And always, in the heart of the storm, holding the line, is the indomitable Director of Education & Programming, Samy Norris.

Samy Norris joined ARI in March 2022 and has been an indispensable member of our team ever since. As the Director of Programming, Samy has brought boundless energy, curiosity, and deep passion for connecting the public with the past and facilitating learning.

Though her early career path didn't begin in archaeology, Samy's fascination with ancient civilizations goes all the way back to childhood school lessons on ancient Egypt and the Maya of Mesoamerica. "I thought I had invented underwater archaeology," she jokes, recalling how her love of water initially steered her toward marine research science. But it was during her Master's program in Biology that she encountered Indigenous oral traditions—sparking a lifelong interest in how these stories align with western science. That connection eventually led her to ARI.

Before entering the world of archaeology, Samy spent 12 years teaching both middle and high school students. It was this educational background that has helped Samy shine in the work that she does at ARI. "Seeing the lights come on for them is one of the best parts of what I do," she says.

Samy's passion at ARI lies in making archaeology accessible and relevant to the public. "Archaeology is a really cool way to connect a community with their place," she explains. Her favorite activities at ARI include everything—from fieldwork and research to giving tours and mentoring.

Outside of the halls of ARI, Samy lives in Cincinnati with her husband TJ and their two lively dogs, Tina and Butler. She enjoys reading, baking, kayaking, and spending time outdoors. She is also a devoted caregiver to her mother and values her close ties with both her biological and adoptive families.

As Samy is sparking curiosity in the next generation of archaeologists, her impact at ARI is nothing short of inspiring.



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Making Pottery from Native Clay

By Forrest Schmitt, Experimental Archaeology Manager

Editor's note: As ARI's Experimental Archaeology Manager, Forrest Schmitt spends much of his time recreating the tools and household items that people of the past used in their daily lives. Through experimentation, Forrest attempts to gain a better understanding of what everyday life was like in earlier times. In this article, he shares some insights into acquiring and working with locally found clay.

Here in the experimental department, we always have something new and exciting going on. Lately, one of our major focuses has been ceramics. In the modern world, ceramics are easily acquired – if we break our coffee mug, we can simply go and buy a new one. But, it has not always been this way. For those who came before us, the process from clay to vessel started by searching the surrounding area for a good source of clay.



The author and fellow archaeologist Liam McAllister digging clay from a creek bank near the Ohio River.

Clay can be found in many different locations, but generally, a good place to start is by a creek or river. The main thing to look for when searching the river-bank is any obvious cracking occurring in the soil. Soils that have a high clay content will start to crack and break as they dry out. Once you have found such an area, dig down under the first bit of clay to get to the damper clay underneath. If you are able to take a handful of this clay and mold it into a small pinch pot, then you have found what will likely be good clay for making pottery.

After collecting as much clay as needed and returning home, it's time to process it. Start by adding water into the bucket and mixing it with the clay. You want

to mix the two as thoroughly as possible, so that your clay is now in a liquid state. Once you have done this, pour the clay through a sieve and into another bucket. This will remove most of the organic material and other impurities that we don't want in our final product. After sieving all your clay, leave it to sit in the bucket for 12-24 hours. During this time, the clay will mostly settle to the bottom, and you will be left with a layer of water that you can then pour out.

Up next is tempering your clay. Temper is a substance added to clay to help with its strength, and with the firing process. Common tempers include grit (sand) and grog (crushed bits of old pottery). You can do this either while it is wet, or when it has dried out. I pour my wet clay into a large plastic container and then place it out in the sun to let it dry completely. Once it is dry, I grind the clay into powder using a corn grinder (be sure to use a mask while doing this; you do NOT want to inhale clay powder). Doing this allows you to control the temper-to-clay ratio. I usually use one scoop of temper per five scoops of clay in my mixture. Make sure this is mixed up nicely and then add the desired amount of water. At this point, it is important to work your clay by kneading or wedging. This ensures that you have an even amount of moisture and temper throughout. Once your clay is well mixed, you can craft it! Create whatever your imagination desires! Let your creation dry out for at least a week before firing it.

The firing process can be done in a simple fire pit. First start a small fire to create a solid bed of hot coals and embers. Place your pottery around the outside of this fire to warm it up. It is important to not place your pottery in the fire too soon or take it out too quickly, as the thermal shock may cause it to crack or break.

Over the top of these coals and embers, carefully place some rocks or bricks. This will be the surface on which you place your pottery. If you want your pottery surface to be relatively unblemished, cover it up with old bits of pottery such as a terracotta garden pot, then continue building a large fire

(Pottery - Continued on Page 9)

Harrodsburg Chert

An Unlikely Gift from the Sea

By: Larry Sandman

Between 323 to 359 million years ago, during the Mississippian Geological Period, the North American continent was part of a supercontinent known today as Laurasia. At that time, the American Midwest was located near the equator, and much of it was covered by a warm, shallow sea. Fossils left behind tell us that this sea was inhabited by a variety of sea creatures including crinoids (sea lilies), bryozoans (tiny animal colonies whose fossils look like branched twigs), brachiopods (bi-valves), gastropods (snails), porifera (sponges), pelecypods (clams), cephalopods (squids), and various types of fish, including sharks. Especially abundant during this period were the crinoids, whose descendants still live in oceans today.

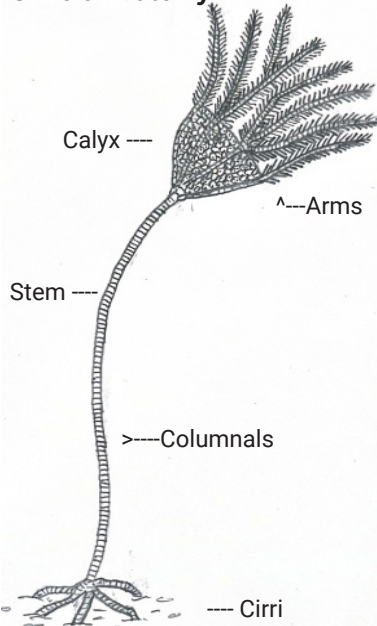
Commonly called “sea lilies,” crinoids are actually marine animals, related to starfish, sea urchins, sea cucumbers, and sand dollars, belonging to the phylum Echinodermata. In appearance, crinoids resemble palm trees, having a long trunk or stem topped with arms that resemble palm branches. The arms surround a cup-shaped “calyx” in which the mouth and vital organs are located. Crinoids feed on plankton and detritus (decaying organic matter) that is captured and swept into the mouth

by hairlike cilia on the arms.

The stem that supports the calyx and arms has a series of button-shaped calcium carbonate (CaCO_3) discs that are stacked on top of one another like dinner plates. The discs or “columnals” are connected by soft tissue that allows the stem to bend with the currents to capture food. The

In the Mississippian Period, crinoids were stationary organisms that clung to the sea floor.

Crinoid Anatomy



crinoid attaches to the sea bottom with whorls of jointed, root-like structures known as cirri. When crinoids die, their soft tissues decay and their calcium carbonate columnals fall to the sea floor. During the Mississippian period, crinoids were so abundant that their remains piled up in great numbers, creating weight and pressure that caused them to partially disintegrate and become cemented together, forming limestone.



Crinoid columnals disarticulated into individual discs when the animal died. In some cases the crinoid was covered by sand before the soft tissue decayed, and several discs were still connected when they became fossilized.

While some organisms, such as crinoids and bryozoans were producing calcium carbonate, other organisms such as single-celled Diatoms and Radiolaria were producing shells of silica (silicon dioxide, SiO_2) that they released back into the water when they died. More silica arrived via thermal vents and rivers that carried tiny bits of dissolved sand to the sea. Over time, the shallow water became super-saturated with silica, and when the pH and temperature conditions were just right, some thin layers of calcium carbonate were gradually replaced with silica. Eventually, the silica crystalized into microcrystalline chert.

Harrodsburg chert is a unique rock, formed from a “hash” of mostly crinoids and bryozoans. Often, the columnal discs of crinoids are conspicuous in the chert. This fossil-rich chert outcrops in Monroe, Jackson, Lawrence and Brown counties in south-central Indiana and to a lesser degree in northern Kentucky.

It can be found in lenticular (lens-shaped) deposits in its parent limestone, or in tabular-shaped chunks in stream beds. It is named for its parent limestone which, in turn, was named for the town of Harrodsburg, Indiana where it was first identified.



A "crinoid hash" of partially crushed columnals

Long before the arrival of Europeans, the Native Americans in what is now Indiana, Kentucky, and western Ohio were using this material to make knives, blades, scrapers, drills, and spear points. It was utilized most commonly in the Early and Late Archaic Periods, around 8,000-6,000 B.C.E. and 4,000-1000 B.C.E. respectively.



A vein of Harrodsburg chert in an outcrop near Harrodsburg, IN

Unlike other cherts that are fine grained and relatively easy to knap, Harrodsburg chert is fossil-filled, lumpy, and porous, and does not flake very predictably. So, why would the Native Americans have used such a problematic stone for their points and blades? Perhaps they were intrigued by fossils, much as we are today, and they valued the uniqueness of the material. Perhaps they found it aesthetically pleasing. Or maybe it was simply because this type of chert was readily available close to where they lived. Interestingly, artifacts made of Harrods-

burg chert have been found in Shelby County, Ohio, over 200 miles away from the material source, suggesting that there must have been some interest in the fossiliferous chert outside of its place of origin.



Harrodsburg chert points and blades made in ancient times by Native Americans

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The 2025 ARI Field Season

Exploring the Mt. Nebo Site (33HA152)

By Rachel Sharkey, Director of Public Archaeology



ARI Team & first session Field School students pause for a group photo at the start of the 2025 dig season at the Mt. Nebo Site.

At the time of this writing, the Archaeology Team is on hiatus between field school sessions. We are sharpening our trowels, shaking the dirt from our boots, and preparing to head back out into the field with another eager group of field students. Our first session of field school, which took place earlier in the summer, was an energetic group of individuals made up of students from Northern Kentucky University, Butler University, University of Louisville, University of South Florida, University of Memphis, Cincinnati State University, and University of Cincinnati. We also had one student not currently enrolled in traditional coursework, but his passion for archaeology made him stand out amongst his peers. I have never seen a group of students bond as this group did, and we are so very proud that we got to shape them as archaeologists. They set the bar high for the second session, which will be coming to us as a partnership with the University of Cincinnati.

There have been a lot of firsts so far this field season – our first seemingly-monsoon season followed by our first bout of extreme, unseasonable, heat. This is the first time I haven't gotten poison ivy (so far)! It is also ARI's first time conducting archaeological fieldwork in Ohio. One would think that the standards for conducting archaeology would be the same across the board, but it is surprising how variable it can be. For example, one big difference between Indiana and Ohio is the shape of the shovel test pits (STPs). In Indiana, it is standard for the STPs to be round and 30cm (about a foot) wide. In Ohio, on the other hand, the regulations require the STPs to be square, and 50cm (about a foot and a half) wide. Shovel tests are a way for archaeologists to systematically survey the

land and look for areas of concentration of artifacts.

We are utilizing this method this summer at the Mt. Nebo site, as well as opening some exploratory excavation units. These skills are necessary for field students to learn as they look toward careers in archaeology.

The Mt. Nebo site is a multi-component (spanning multiple time frames) site that is located on the property that is now Carriage House Farm/Lost Bridge Beverage Company ("Carriage House") in North Bend, Ohio. In the past, the site was a hot spot for artifact collectors to walk and have successful days in the field. The information that we know of the site comes from their collections and a study that took place in 1987. This site was listed on the National Register of Historic Places but has since been heavily disturbed by gravel mining activities. The goal is to help Carriage House determine what, if anything, remains of the site and how to protect it moving forward. So far, we have completed 43 shovel tests and 2 excavation units. We placed the excavation units on areas flagged as potential features in a magnetometry survey of the site, but sadly our excavations did not yield archaeological materials. The shovel tests have been more promising, and we have collected lithic debitage (the discarded material from making stone tools), fire-cracked rock, a little bit of pottery, and even a couple of broken lithic tools. Based on the work that we completed in the past few weeks at the site, we are narrowing down the areas of high potential and are excited to explore the site further for the rest of the summer. What we are finding suggests that despite the extensive disturbance to the area, there are still intact components to the site and a larger story to tell.



A Grand Slam Day for ARI at Great American Ball Park

Saturday, July 12, 2025, was a home run of a day for ARI at the Great American Ball Park in Cincinnati. Louis Herzner, our very own Archaeological Coordinator, was honored as a Hometown Hero by the Cincinnati Reds at the start of the second inning. Louis was recognized for his military service and, though a little embarrassed by all the attention, he took a well-deserved moment to stand atop the Reds dugout and acknowledge the cheering crowd.

ARI staff and board members enjoyed the game from the comfort of the air-conditioned Fujitech suite, complete with delicious food, drinks, and a great view of the action.

On the field, Reds pitchers dazzled with 11 strikeouts, earning everyone in attendance a free LaRosa's personal pizza. The energy peaked at the bottom of the ninth when the Reds staged an exciting comeback against the Colorado Rockies and sealed the win in walk-off style.

To top it off, the looming monsoon held off until the final pitch, making it a perfect day at the ball park.



Beans! Beans!

The Magical Fruit and the Second Sister

By: Blake Hon, Land Stewardship Manager (Gardens)

Many are familiar with Three Sisters method of gardening. A Three Sisters garden relies on the tall and enduring nature of corn, the broad shade-providing leaves of squash, and the long vining style of pole beans. The Three Sisters gardening method has been used by indigenous peoples in the Americas for thousands of years and has served as a key pillar of agricultural systems in North and South America. The Three Sisters planting method has been credited with originating in Mesoamerica and quickly spread throughout most of the rest of the continent due to its versatility and structure.



Three Sisters Garden from the summer of 2024 growing together at the Guard Archaeological Preserve

The Three Sisters especially gained popularity with people of the Eastern Woodlands and other tribal groups near the southern borders of Canada. Although sources vary, archaeological evidence suggests that beans were domesticated independently in Mesoamerica, and the Andes mountains. Beans were introduced into Europe shortly after European colonists came to the Americas.

Although we can see the connections that are made above the soil through the companion planting of corn, squash, and beans, much of the magic happens below the soil and is attributed to the nitrogen-fixing qualities of the bean plant. Beans belong to a family of plants known as legumes which consists of various beans, peanuts, peas, and lentils. Anything in the legume family has the ability to “fix nitrogen.”

Nitrogen is a gas that is present in Earth’s atmosphere and is essential to the growth and development of all plant life. Nitrogen is used by plants to create pigments known as chlorophyll that can absorb sunlight and perform photosynthesis. The nitrogen that occurs naturally in the air that we breathe is not able to be readily used by plants, so for plants to take in nitrogen to be used for development, it needs to be converted into other types of compounds that contain nitrogen gas. Nitrogen is converted to a usable form for plants through the bacteria that live in the soil.

A special species of bacteria known as Rhizobium is known for latching onto the roots of legume plants and forming nodules that transform the atmospheric nitrogen into other nitrogen compounds that plants are able to use. This is why, if you pull up the base of a legume plant, there will likely be large growths spread sporadically throughout the roots of the plant. When the bacteria fix the nitrogen, they are not only helping strengthen the host plant, but they are also contributing to enriching the surrounding soils which can be used by other plants to grow and develop.

Planting beans and other nitrogen-fixing plants helps repair soils that are deprived of nutrients. Companion planting is dependent on finding plants that benefit one another. Legume plants serve as model plants when it comes to companion planting because they not only perform well on their own, but they also fortify soils with nutrients and make overall growing conditions better for the other plants in the space.

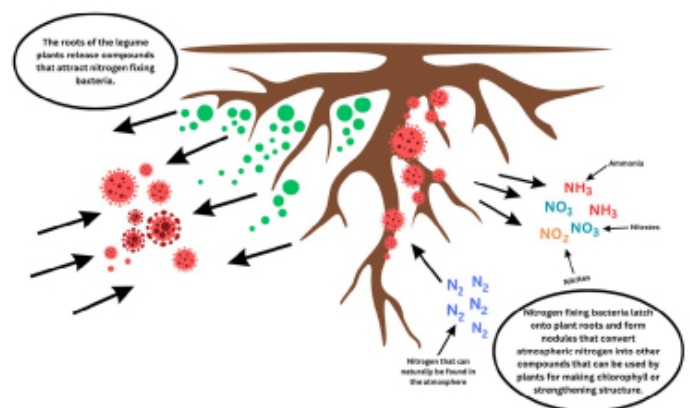


Illustration of the process of nitrogen fixation beneath the soil

In addition to beans' role in improving soil health, they are also regarded as a superfood when it comes to health and longevity. Beans are a nutrient-rich food that provides plant-based protein and fiber.

Protein sustains the body by providing fuel for energy, muscle development, repair, and durability. Protein is created from organic compounds known as "amino acids." Biologists consider amino acids to be the "building blocks of life" because they are present in every organism that inhabits Earth. Protein is present in many different foods of varying amounts. Foods like meat, fish, and eggs contain higher levels of protein because they have higher concentrations of amino acids compared to most plant-based foods. Meat, fish, dairy, and eggs are also considered "complete proteins" because they contain all nine of the essential amino acids. Complete proteins are considered especially important for athletes, pregnant women, and individuals with certain medical conditions.

Beans are not considered a complete protein because they do not naturally contain all of the nine essential amino acids. However, when beans, corn, and squash are eaten together, their amino acid profile becomes complete, and they become comparable to the amino acid profile of animal-based foods. Although beans are

not considered a complete protein when eaten by themselves, they are a necessary part of a well-balanced diet and still provide the body with protein. Beans also provide the body with fiber. Fiber can be attributed to lowering cholesterol and improving digestion and gut health. Beans are also rich sources of folate, iron, and potassium.

The Nine Essential Amino Acids to Create a Complete Protein		
Methionine	Threonine	Histidine
Valine	Phenylalanine	Isoleucine
Tryptophan	Lysine	Leucine

The Three Sisters planting method has captivated growers for thousands of years and serves as an integral part of many indigenous cultures throughout the Western Hemisphere. The Three Sisters have sustained humans for generations and continue to give back to people and the Earth by helping replenish soils and enabling humans to live longer and healthier lives. So, if you are looking for a way to naturally enhance your soil and improve your health, look no further than The Three Sisters and the Magical Fruit.

(Pottery - Continued from Page 3)

stacked as vertically as possible over the top of the pottery. This verticality will cause the embers to drop straight down on top of the covered pottery, creating the highest temperature possible in that location.



Placing the pottery on bricks for firing

Keep the fire going at a high rate for about two hours, and then slowly lower the temperature for another two hours, then allow it to cool down completely on its own. The cooling process may take a day or so depending on the temperature your fire reached.



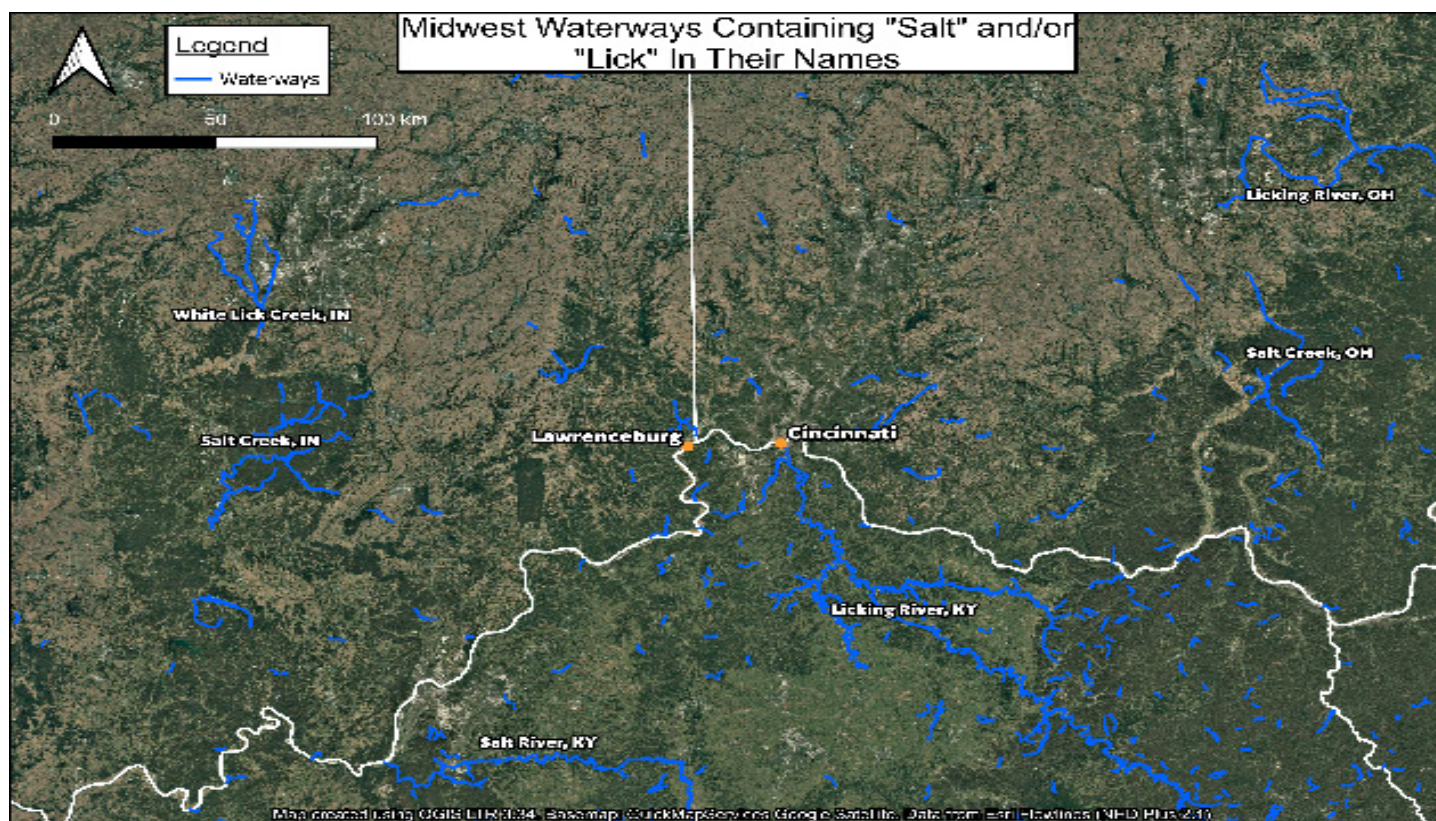
Once it is cooled, take your pottery out of the fire pit, wash it off, and you have yourself an earthenware vessel! It is important to note that these vessels will not be completely waterproof unless otherwise sealed. Enjoy!

Ancient Salt Production in the Ohio River Valley

By Gus Lehmann, Field Manager (GIS)

A bland meal, an icy road, a dehydrated athlete, and meat that is about to spoil: what are all of these missing? Salt! Salt is a vital component to our ways of life and to our survival. This is easy to forget today, as it's abundant in almost all our food and its easy availability in every kitchen or dining room leads us to take it for granted. We often spend more time trying to avoid salt than we do trying to seek it out, but that has not always been the case.

around 200 milligrams each). The prevalence of "low sodium" options at supermarkets is a testament to how little of a concern salt acquisition is to us today. Salt can also be used as a preservative, pulling the moisture out of meats and fish so that they can be stored longer. A more recent use that many living in the north are familiar with is salt's ability to lower the freezing point of water, preventing ice from forming on roads.



For most of human history, salt has been one of the most valuable and sought after items, even more so than gold! Why is that? Salt is not just a seasoning. Our bodies require salt, more specifically the sodium within salt, to function. It helps with hydration (which is why it can be found in sports drinks), as well as nerve and muscle function. Without it, our bodies would stop working and we would die. This is not a concern for us now as we only need about 500 milligrams of sodium each day, which can be easily exceeded by one pack of instant ramen (close to 2,000 milligrams) a fast food burger (around 1,000 milligrams), or a couple servings of chips (usually

This same idea is used when making ice cream by hand, where salt is added to ice to allow the melted water to get extra cold, speeding up the process.

Now we must ask the question, where do we get our salt from? When we think of where salt can be found on our planet, one of the first thoughts is usually the ocean. It is true that the oceans are a great source of salt that people have used for a very long time, but what about the people who do not live anywhere near the ocean? We know that people live here in the Ohio River valley, but there is no ocean in sight. Today, the answer is simple, as we just have it shipped in through our global trade network, but what about people living here hundreds or thousands of years ago?

While shipping it in via trade was still a possibility, there had to have been a way to get it when trade was not an option. The answer that we found was very surprising.

While there may not be an ocean in sight, there are still remains of an ancient sea underneath our feet. Many people who live in the Ohio River valley, especially around Cincinnati, are familiar with the abundance of coral and other sea-life fossils that are commonly found in creeks in the area. The fossils are not the only thing that remain from that time period! Due to tectonic activity, the salt from the ancient sea where those fossils used to live was pulled down and trapped underneath the ground that we walk on today. The salt slowly makes its way back up to the surface as it dissolves in groundwater and creates what we refer to as saline springs. These springs then saturate the soil around them and create another phenomenon, salt licks. Salt licks got their name as people noticed animals making their way to these locations to lick the ground and sometimes eat the soil so that they too could meet their own daily sodium needs. Humans aren't the only ones who need salt! Big Bone Lick and French Lick are both named for their salt licks.

Saline springs can be found by following animals to these locations, where the salty water (brine) can be collected. The brine can then be evaporated, either over a heat source or by leaving it in the sun, until only



Experimental Archaeology Manager Forrest Schmitt drawing water from a saline spring at Big Bone Lick State Park, Kentucky

the salt remains. Different brine sources have different combinations of other naturally occurring minerals from the surrounding areas, which can affect the taste and color of the salt. Evidence of salt production by indigenous people in the area can be found by the remains of salt pans near saline springs. Salt pans are large ceramic vessels in which brine can be evaporated. These vessels are often quickly produced

using molds, which the vessels are lifted out of using a fabric lining. This fabric leaves an impression in the wet clay before it is fired, which can be used to quickly identify them. To our knowledge, no piece of a salt pan has been found with any kind of glaze, slip, or sealing. ARI has been investigating if this process occurred around Lawrenceburg, as this area has been known to be the home of many saline springs and salt licks (roads, creeks, and rivers with "salt" or "lick" in their names hint at this fact). While research is still ongoing, collaboration with members of the public in locating these saline springs is vital, as many lie on private property or only have their locations known through word of mouth.

One of our first experiments on this topic tested how much salt was lost using an unsealed (bisque fired) salt pan. We wanted to see if salt production is possible without a seal, as the artifacts suggest. This particular pan was created using commercial sand tempered clay on a pottery wheel. To control the experiment, we created our own brine at 3% salinity by volume (4 gallons of water, 1 pound of salt), knowing exactly how much salt went in so that we could compare it to how much we could get back out. We applied heat to the vessel by suspending it above a propane burner, not letting the flames directly touch the pan.

After boiling the brine for 38 hours, we ended up only recovering about half of the salt from the inside and outside of the pan, as much of it seeped through the vessel. Losing half of the product significantly limits production, leading us to believe that there must have



Boiling off the water to separate salt

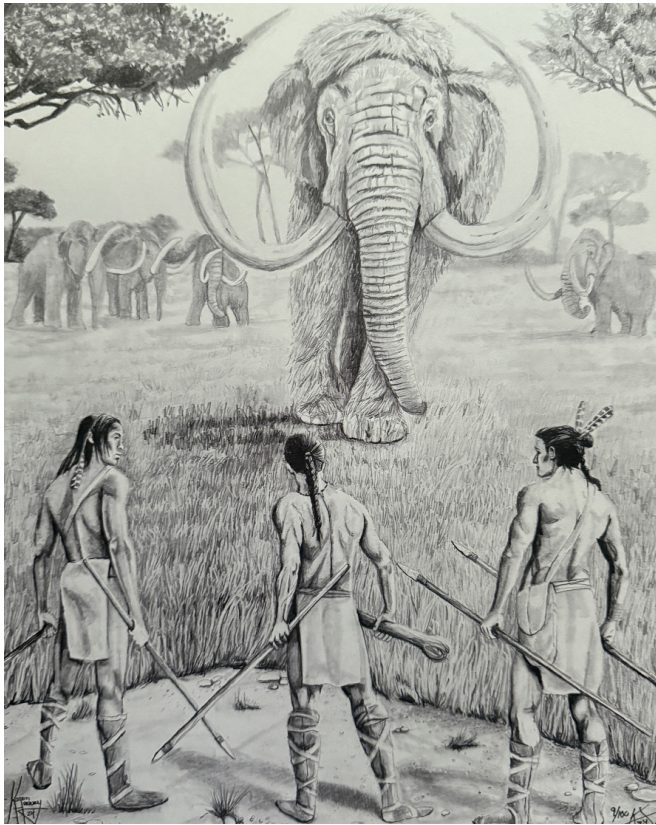
(Salt - Continued on Page 14)

The Paleo Hunters of the Americas

By Kay Jackson-Frankl, ARI Volunteer

This article is the first in a 4-part series of articles detailing the different time periods of Native American Pre-European-Contact history. This article covers the fascinating Paleo period. It is during this time that the first humans arrived in the New World, becoming the indigenous peoples of the Americas. These first Paleoamericans are undoubtedly the ancient ancestors of the many people who spread across "Turtle Island" (the Americas).

Many people were taught, while growing up, that migration into the Americas occurred when the seas were trapped in glaciers and the low-lying continental shelf of the Bering Strait, once submerged, now rose above the ocean. The world's climate was much colder, around 19,000 BCE, during the Pleistocene.



Paleoindian hunters size up the best approach to bringing down a mammoth in this print by artist Ren Harvey. Ren specializes in historically accurate depictions of Native American lifeways from ancient to modern times. For more information about this and other fine works, contact Ren at: renharveyart@gmail.com

This drop in temperature encouraged the formation of enormous ice sheets that trapped vast quantities of

water, dropping global sea levels by nearly 100 meters. Though a land bridge connected Eastern Siberia and Alaska, much of the terrain was impassable due to the huge impenetrable glaciers that stretched from the North Pole all the way down to where Indiana and Ohio are today. It was only when the Earth began to warm, and the glaciers melted, that there was an available land route to the South. But, was it the only way people explored and eventually settled the Americas?

Archeological, Anthropological and recent advances in evolutionary genome research have advanced our knowledge of not only who migrated, but how and how long ago. If not the Bering Strait...then HOW?

The Theories

The dominant paradigm is the Clovis-First or Bering-Land-Bridge theory. This theory posits that Paleoamericans crossed the land bridge around 13,000 years before-present (BP). By 12,000 BP, Clovis artifacts can be found all over the Americas. But that was the problem...they were being found EVERYWHERE! Eastern Tennessee, Eastern Florida, Indiana, Virginia, Pennsylvania, Wisconsin, and Canada. Did people really walk across the interior of the country? With so much barren land or land as ice corridors the interior was not hospitable for long, permanent settlement.

Trans-Pacific Migration Theory: This theory answers a different question, "What if Paleoamericans came by sea and followed rich kelp beds, shorelines, and rivers to inland locations?" Some versions of this theory expand the date of arrival to 20,000 years ago, predating the Clovis-First theory by 5,000 years. While coming by sea is not without its hazards, these brave humans must have been remarkably knowledgeable of extended maritime navigation, possibly following pods of herring, whales or other marine fauna. Remember, too, that sea levels were lower, exposing more land and protected bays that could be utilized by these ocean-going humans. Once here, travel into America's interior could have been facilitated through the Columbia and Snake Rivers. There is a settlement at Cooper's Ferry, Idaho (500 miles inland from the Pacific) that dates back more than 15,000 years. At the Cooper's Ferry site, archaeologists have found non-Clovis points older than 13,000 BP, with hearth sites dated between 16,500 to 16,300 BP!

Lifestyles

Despite the lively debates about how migratory routes occurred, one common theme amongst these early Paleoamericans is detailed planning. The ability to plan and adapt to change are two of the key traits Paleoamericans exhibited as they ventured further into the continent's interior. As people spread over the vast geographic landscape, the differences in weather, plants, and animals created regional variations in dress, food, drink, shelter and spiritual practices.



A young mammoth's tooth (top) and a mastodon tooth (bottom) help us understand their ranges and diets. The mammoth's tooth is suited for grinding grasses, twigs, and evergreen needles that characterized their more northerly habitation, while the mastodon's tooth has large cusps ideal for wrecking the branches of deciduous trees in their more southerly domain.

Most groups consisted of very mobile, nomadic tribes. Within each tribe were a cluster of clans, or extended family groups, about 20-60 strong. The tribes were as strong as the hunters within the group. Megafauna such as giant beaver, dire wolves, saber-toothed cats, musk ox, and woolly mammoth still roamed the landscape and most required heavy spears with a group effort to kill, butcher, and procure

the needed resources. Life must have been difficult, but through their ability to meet the challenges of their new environment, Paleoamericans survived and populated the New World.



PaleoIndians had to develop excellent hunting skills, as every attempt to bring down a mammoth, mastodon, saber-tooth cat or short-faced bear was fraught with danger. Their chert spear points and skinning knives were among the finest ever made in the Americas.

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(Salt - Continued from Page 11)

been some method of sealing the vessel that has not been preserved in the archaeological record. Another factor may have been our method of pottery production. It is possible that the shell temper or coil method allow less brine to seep through, which we will test in future experiments. Unfortunately, we have been held back as we have not been able to source freshwater mussel shells, which forced us to use the commercial clay.



Collecting the salt from the surface of the pan. Some salt was trapped in the porous clay. More experimentation will focus on ways to reduce seepage and increase yield.

Our next experiment led us to the well-known saline spring at Big Bone Lick State Park in Boone County, Kentucky. After getting a permit and approval from the park, we were able to collect four gallons of brine from the spring. While there, one of the on-site museum employees showed us a sample of salt that they had produced themselves during their annual salt festival, which had a light gray color. Also during collection, we noticed a strong sulfur smell coming from the spring, which visitors to Big Bone Lick are all too familiar with. Once the brine was back in our lab, we conducted our first test to see how much salt was in the brine. After using a saline test strip, we calculated that there should be about 27 grams of salt in one gallon of brine. Then, we boiled down one gallon in a metal pan to see if our calculations were correct. This resulted in us yielding a bit over 26 grams of salt, confirming our estimates. We also noticed the gray color that we had seen before, and those who were brave enough to sample it reported a slightly strange aftertaste. Future experiments will be done with the remaining three gallons, including solar evaporation and the

use of shell-tempered ceramic salt pans.

Much more research must be done to fully understand salt production throughout the history of the Ohio River Valley. As a result of our preliminary research, we have gained a more complete understanding of the past and how vital salt was throughout it. Attempting to understand the salt pans and how they were produced led us into the world of pottery and clay, where we have been experimenting with natural clay processing, tempering, vessel forming techniques, and firing with much help from the local pottery studio Queen City Clay. (See page 3 article, "Making Pottery from Native Clay.") It has also connected us with many other archaeologists who are interested in this fascinating resource. Their research and prior knowledge on this subject have been essential to our understanding of salt, which we highly recommend checking out through our references below. Needless to say, looking into this question has been well worth its salt.

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Latest Happenings at ARI!

By Samy Norris & Molly Miniard

Field season is here and the team couldn't have been more ready for it. With our new project area over in Ohio there have been some learning curves, but nothing the ARI team can't handle. From first session of field school to summer camp, everyone has been pretty busy.

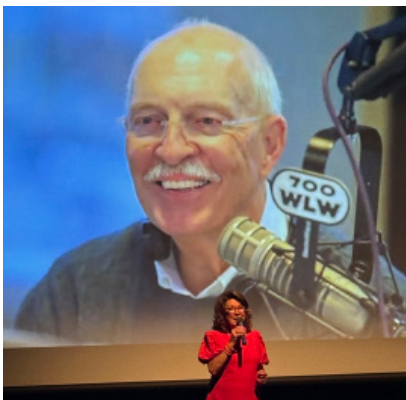


First session of field school at work, learning all the necessities of archaeological field work at the Mt. Nebo Site in North Bend, Ohio.



Our lovely volunteer Kay Jackson, leading our annual Summer Solstice event at the Guard Archaeological Preserve.

Cincinnati Celebrates Radio Host Jim Scott



Nancy James singing Jim and Wife Donna's song, "I Could Write a Book"

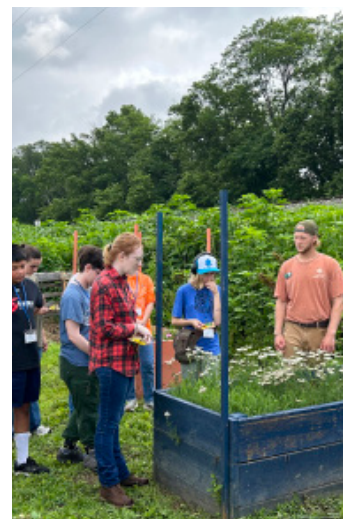


Stirring performances from (l-r) Lady Joya, Sean Kelly, Nancy James, and Sara Winsted highlighted the night of "Music and Memories."



Jim's audio control board from his WLW radio days was one of many mementos on display at the event.

To so many people in Greater Cincinnati, Jim Scott was more than just a popular radio personality. He was a close friend who brightened our mornings via the airwaves for the better part of 46 years. So, it was a joy and an honor for many of us at ARI to be in the audience at Mt. St. Joseph University on June 28th to celebrate Jim's life one year after he passed away. The celebration was appropriately upbeat, with Jim's former colleagues, Denny Janson, Brian Combs, and Mo Egger emceeing the show and sharing sweet and often funny memories. We were also treated to inspired musical performances from Nancy James, Pamela Myers, Sean Kelly, Lady Joya, Sara Winsted, and the Elder High School Glee Club. Another Cincinnati icon, Marty Brennaman recorded a touching tribute to Jim. Jim was known, not only for his upbeat radio presence, but also for his love of the city, his support of the Cincinnati Reds, and his dedicated service to numerous worthy causes. And for those of us lucky enough to have met Jim in person, he will always be remembered for his graciousness, his good humor, and his genuine interest in the people he met. Proceeds from the event went to the ALS Clinic Endowment Fund at the University of Cincinnati's Gardner Neuroscience Institute.



August

12th.....Happy Hour History Speaker Series: Pat Trader 5:30 PM - 7:30 PM
 16th.....Great Miami Heritage Tour- Shawnee Lookout 10:00 AM - 1:00 PM
 16th.....Great Miami Heritage Tour- Cemeteries 1:00 PM - 5:00 PM
 30th.....Bats & Bonfires 7:30 PM - 9:30 PM

September

2nd.....ARI CLOSED for Labor Day
 6th.....Lawrenceburg Farmer's Market 9:00 AM - 1:00 PM
 6th.....Spears & Beers TBD
 9th.....Happy Hour History Speaker Series: Sara Polk 5:30 PM - 7:30 PM
 10th -13thAASLH Conference, Cincinnati, OH
 13th.....Artifact, Rock, and Fossil Identification Day 10:00 am - 2:00 pm
 27th.....Bivalves & Bonfires 3:00 PM - 5:00 PM
 30th - Oct. 3rd....Preserving Historic Places Conference, Fort Wayne, IN

October

4th.....Lawrenceburg Farmer's Market 9:00 AM - 1:00 PM
 11th.....Artifact, Rock, and Fossil Identification Day 10:00 am - 2:00 pm
 14th.....Happy Hour History Speaker Series: Speaker TBD 5:30 PM - 7:30 PM
 16th.....Great Miami Heritage Tour- Shawnee Lookout 10:00 AM - 1:00 PM
 16th.....Great Miami Heritage Tour- Cemeteries 1:00 PM - 5:00 PM
 18th.....Fort Ancient Food Truck at Carriage House Farms TBD

Artifact, Rock, And Fossil Identification Day!

Join ARI on the second Saturday of each month from 10 AM to 2 PM!
 Have your items analyzed by our ARI Team.

