



The Artifact

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Letter from the President

**David Pacifico, Assistant Professor
University of Wisconsin - Milwaukee**

Dear AIA-Milwaukee Society Members,

Welcome to the 51st year of the Archaeological Institute of America – Milwaukee Society. It is difficult to start an organization like ours, harder still to keep it going, and a rare feat to sustain it for more than half a century. I am tremendously grateful to the Milwaukee Society leaders who have kept the group going. I look to the younger readers of the Artifact to see us through another 50 years. Indeed, some of our members have provided many decades of service in one form or another to the Archaeological Institute of America and to our Milwaukee Society. I thank you all for your sustained participation and support. I urge you all to continue participating in our events and supporting the Milwaukee Society. Remember, they're your events too! I know the leadership committee would be glad for your support, so please feel free to reach out to me (pacifico@uwm.edu). OK then, here's to another strong 50 years of the Archaeological Institute of America – Milwaukee Society!

And... to an excellent Spring! This spring's lectures all present multi-disciplinary approaches towards examining the past. First, we had a lecture by Dr. Pedar Foss (DePauw University) exploring archaeological, literary, and vulcanological evidence that helps recalculate the date of the eruption of Vesuvius. On March 8th, Dr. Virginia Emery (UW-Parkside) will continue in the vein of multidisciplinary research. She'll report on the Theban Harbours and Waterscapes Survey, which combines geological, archaeological, and remote-sensing strategies for exploring how ancient Thebans exploited environmental changes around the Karnak Temple complex. Our final lecture will be a presentation on ancient Wari brewing traditions from pre-Columbian Peru. Dr. Ryan Williams (Field Museum) will wrap up our series of multi-disciplinary lectures by presenting evidence from elemental analysis techniques and archaeological excavations in order to better understand political practices in the Wari Empire, especially in the context of close interaction between the contemporaneous Wari and Tiwanaku empires.

In the meantime, explore this issue of the *Artifact* in which we have articles to support our lecture previews. Like our lectures, these articles transcend traditional archaeological boundaries by dipping into materials sciences, botany, and experimental archaeology. Emily Stanton reports on International Archaeology Day 2019, which was held at Schlitz Audubon Nature Center and included lots of hands on archaeology presentations and participation opportunities. Michelle LaBerge reports on her experimentation with red dyes made from plants grown in UWM's "*Hortus Academicus*." Christopher Allen and Emily Stanton wrap up this series of articles with a report on their work with experimental metalsmithing. This issue of the *Artifact* concludes with an article by Dr. Alice Kehoe acknowledging our predecessors (and present-day neighbors) in Milwaukee: the Menominee, Ho-Chunk, Potawatomi, Anishinaabek, Oneida, and Stockbridge-Munsee people, as well as the other First Nations who created and inhabited the sites of so many archaeological excavations. As one who has conducted archaeology in the area, I acknowledge with gratitude and respect, those American Indian people who came before us here on this land. Thank you.

I conclude this letter by saying that it will be my last President's Letter from me during this term. At the end of the Spring 2020 semester I'll be stepping down from the Milwaukee Society presidency to focus my energies on my position in the UWM Department of Art History, which includes the directorship of the Emile H. Mathis Art Gallery (Mitchell Hall room 170 at Downer and Kenwood) and the UWM Art Collection. The Gallery is free and open to the public, so come on down! Naturally, I'll continue to be a contributor to the leadership committee of the AIA-Milwaukee Society. However, I'll be passing the main torch to someone else for the time being. I know that already some have asked to be candidates, and one or more of you readers may join that happy list (*email me to become a candidate*). We'll be in good hands. Your membership is essential to our vitality. Thanks and welcome to our new members!

Sincerely,

David Pacifico

**Welcome New Members
Joined Since November 2019**

Grant Braunschweig	Eleni Fialo
Daniel Kennedy	Jan Barky Marcus
William Levit	Cynthia Bassett
Mathew Sargent	

We are very happy you joined us!

When Did Vesuvius Explode?

**A Lecture by Pedar Foss
DePauw University**

**Sunday, February 9th, 2020
Sabin Hall, Room G90, 3:00 p.m.**



It has long been held, on the basis of a letter of Pliny the Younger, that Mt. Vesuvius erupted on 24 August, AD 79. But after excavators began to work at the sites of Herculaneum at Pompeii, some scholars expressed doubts, suggesting a date later in autumn of that year. Debate has increased with recent paleo-environmental research and the find of an inscription last year. Scholars have divided over a topic that might appear trivial—after all, most archaeological sites never enjoy such a precise date. But it is an excellent case study for testing our methods of historical and archaeological research, and Dr. Foss lifted the lid on those methods.

As part of a book project (*Pliny and the Destruction of Vesuvius*, Routledge 2021), Dr. Foss has collated, for the first time, every manuscript and printed edition of Pliny's Letters 6.16 and 6.20, in order to track and analyze the literary tradition of the date through its surviving evidence. He has also compiled a reconstruction of the pre-eruption landscape and coastline and collected all recent volcanological and archaeological research about the event. Having made a multidisciplinary reconstruction of what happened over the two terrifying days of the eruption, he can now offer an answer to the question of when Vesuvius exploded.

Pedar Foss is Professor of Classical Studies at DePauw University in Greencastle, Indiana, where he has worked since 1999. As a teacher, he conducts courses in Latin, ancient history and literature, and art and archaeology. He received his B.A. in Chemistry and Classics from Gustavus Adolphus College, and his M.A. and Ph.D. in Classical Art and Archaeology from the University of Michigan-Ann Arbor; he subsequently taught at the University of Cincinnati and at Stanford. His research concerns domestic life at Pompeii, landscape

archaeology, and Geographic Information Systems. He has edited for the Journal of Roman Archaeology and was co-editor of the book reviews for the American Journal of Archaeology from 2008-2011. He has lived, studied, and worked for extended periods in Greece, Italy, Tunisia, Turkey, and England. He is a fanatical follower of football/futbol/soccer.



For more about Pedar Foss:

https://www.researchgate.net/profile/Pedar_Foss

In Search of the Ancient Nile: The Theban Harbours and Waterscapes Survey Investigation of Human-Environment Interaction in Ancient Thebes

***A Lecture by Virginia Emery
University of Wisconsin-Parkside***

***Sunday, March 8th, 2020
Sabin Hall, Room G90, 3:00 p.m.***



Since 2011, the Theban Harbours and Waterscapes Survey has studied the geological history of the Nile River and its floodplain in the Theban area—home of the Valley of the Kings, New Kingdom royal mortuary temples, and Karnak Temple—and investigated how geological developments impacted and were exploited by the ancient Egyptians. The project has employed a novel blend of investigative techniques from geology (manual boreholes and percussion coring), geophysics (electric resistivity tomography and ground penetrating radar), and traditional archaeology (ceramics analysis) to explore the interaction of the natural landscape and the

Egyptians. Using this suite of investigative techniques, the team has completed five transects stretching from the desert edge to the current Nile riverbank: four on the west bank and one on the east bank. The four west bank transects have revealed the presence of a secondary river channel passing in front of the royal mortuary temples that could have been used to transport construction materials, and the east bank transect has provided additional data to understand the geological development around the Karnak Temple complex.

Virginia Emery has worked with the Theban Harbours and Waterscapes Survey since its inception in 2011, following and concurrent with archaeological and epigraphic field work at Tell el-Hibeh, Abydos, Tell Edfu, Malqata, Medinet Habu, and the Karnak Temple complex. She has taught in the Emirates and in the States and is currently the Adult Student Program Manager of the new Center for Adult and Returning Students at the University of Wisconsin-Parkside.



For more about Virginia Emery:

<https://independent.academia.edu/VirginiaEmery>

Wari Brewing Traditions in Ancient Peru

***A Lecture by Ryan Williams
Field Museum of Natural History, Chicago***

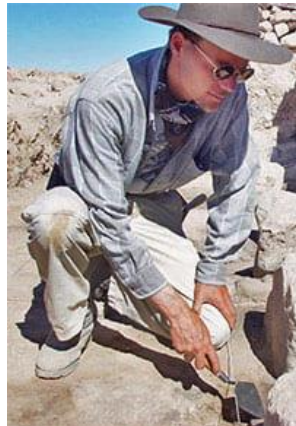
***Sunday, April 9th, 2020
Sabin Hall, Room G90, 3:00 p.m.***

Dr. Williams will evaluate the nature of production of feasting events in the ancient Wari state (600–1000 CE), highlighting new archaeometric results for identifying beer production and consumption. Specifically, he focuses on the fabrication of ceramic serving and brewing wares for the alcoholic beverage chicha de mola. He examines the source materials used in the creation of these vessels with elemental analysis techniques (INAA and LA-ICP-MS) and will assess the chemical traces of the residues present in the ceramic pores of the vessels to detect compounds indicative of the plants used in chicha production (DART-MS). While previous research has identified circumstantial evidence for the use of *Schinus molle* in the production process,

this research presents direct evidence of its existence in the pores of the ceramic vessels. Dr Williams also assess what this material evidence suggests about the sustainability of the feasting events as a mode of political interaction in the Wari sphere.

* Research in collaboration with Donna Nash, Josh Henkin, and Ruth Ann Armitage

Ryan Williams is the Associate Curator and Chair of the Anthropology Department at the Field Museum in Chicago. He is an anthropological archaeologist who works on the earliest expansionist states of South America, specifically the development of ideological systems associated with early



“global” polities. Dr. Williams’ research has focused on one of the few cases where we can archaeologically document extensive long-term direct contact between two such polities — Wari and Tiwanaku — in Peru’s Moquegua Valley. He also conducts extensive work with colleagues in other regions under the domination of the same cultures in order to obtain a comparative perspective on this enigmatic relationship.

For more about Ryan Williams:
<https://fieldmuseum.academia.edu/PatrickRyanWilliams>

International Archaeology Day *Hands-on Archaeology*

By Emily Stanton

For our 2019 IAD event, the AIA-Milwaukee Society partnered with the Schlitz-Audubon Nature Center. Our theme was “Hands-on Archaeology.” In tandem with the Nature Center’s educational focus, this theme helped to convey what archaeologists and our partners on excavation projects actually do. Most importantly, the theme of “hands-on” emphasized the need for interactive presentations, where members of the public could be participants rather than simply observers.

The Nature Center kindly allowed us to utilize their beautiful facilities – both inside and outside – for presentation areas. Inside, there was an array of

presenters and interactive displays, including 3D artifact scanning, artifact digitization, and a delightful “What in the World?” guessing game focused on historic artifacts. Visitors were excited and enthusiastic about their experiences, noting:

“We really enjoyed all the presentations inside!”
“Our family loved the ‘What in the World?’ table and puzzling over all those neat artifacts.”
“The technology at the artifact and architecture tables was so cool and the presenters were super knowledgeable.”



Photo: Jane Waldbaum

Two highly popular presentations were positioned outside: an excavation test-pit, and a blacksmithing demonstration. Supervised by AIA-Milwaukee President, David Pacifico, the excavation was part of a larger community-based archaeology project exploring the lives of early European immigrants to the Milwaukee area. Despite the rain and chilly temperatures, participants gave the excavation project rave reviews: “I loved the excavation test pit - it was so cool to see what archaeologists really do and be able to try it for myself!”

Finally, the outdoor blacksmithing demo was part of an ongoing UWM experimental archaeology project. In collaboration with the Milwaukee MakerSpace, several UWM graduate students are re-creating a set of 5th century B.C. grave goods from an Iron Age tumulus (burial mound) in Germany. Visitors remarked that “it was totally awesome to learn about the history of blacksmithing and the experimental archaeology project!”



Photo: Jane Waldbaum

Seeing Red at the UWM's *Hortus Academicus*

By **Michelle LaBerge**

In the spring of 2018, I completed an MS in Anthropology at UWM, researching prehistoric red dye plants and investigating early dye bath chemistries and alchemical methods. My MS focused on both an exploration of past archaeological investigations on dye plants and dye methods and also looked for evidence of red dye compounds in the prehistoric past. Along with this analysis of ancient textiles and dyes, my research also contained an experimental component. In a little raised-bed garden in my backyard, I cultivated dye plants over a two-year period, then harvested them and processed them as dyes. I found that many species of dye plants could survive our harsh Wisconsin winters—some even seemed to thrive here.

Dye bath methods were derived from several sources. Some modern sources included folk knowledge from weavers and artists from around the world who have extensive experience growing and using dye plants. I also found several ancient sources from Greece and Egypt that focused on textile dye methods, especially varieties of mordants that manipulated pH in a variety of ways. The most significant of these sources was the Papyrus *graecus holmiensis*, or the Stockholm Papyrus, an alchemical text from ca. AD 300, that contains recipes for both textile dyes and techniques to color stones. Although all the ingredients listed in this document have not been deciphered, it still provides several techniques for mordant dyeing with several common dyestuffs.

My MS research centered on the prehistory of one of the more important dye plants of the past (important, that is, until the advent of synthetic dyes in the mid-19th century). Madder root (*Rubia tinctorum*), also known as “Dyer’s Madder”, originated in the Mediterranean region and was used for millennia as a fairly affordable source of red dye in both Europe and the Levant. It was used to dye Tutankhamen’s belt, mixed with blood to stain the Shroud of Turin, and is a component of the madder lake pigments that artists like Vermeer used to create vibrant colors in their paintings. Depending on the context, madder has been used by elites and common folk alike. Up until the introduction of synthetic dyes, the madder trade was one of the more lucrative dyes markets in Europe. Its introduction and early use in Europe, however, is not very clear. I had hopes that in-depth research into archaeological textiles from prehistoric Europe might shed some light on its introduction into Europe. The course of my project, however, took a

different turn. Access to the complete thesis research project is available at UWM’s Digital Commons at <https://dc.uwm.edu/etd/1854/>



Homegrown madder roots soaking before entering the dye bath. The left photo is taken just after immersing the roots in water, the right photo shows the color change after a few hours soaking.
Photo: Michelle LaBerge.

Because chemical analysis of rare textiles was not usually performed until very recently, a lot of supposition had been involved in deducing the prehistory of textile dyes. Many textiles that were red were assumed to have been dyed with madder, with no analytical data to support that assumption. In the last decade, however, newer more sensitive and less destructive methods of chemical analysis have begun to provide real evidence of the sources for color on ancient textiles. In some cases, the story has become much more complicated than previously thought. In Northern and Western Europe, for instance, a wide variety of wild, locally available plant (and insect) species were used to achieve red textiles. Sometimes, chemical evidence—in the form of distinctive anthraquinones—indicated that Dyer’s Madder was indeed the source of red in the textiles tested. However, very frequently it was a wild, indigenous botanical relative of madder that was actually the plant used.



Some dye bath results from my MS research. A wide range of reds is possible from simply manipulating pH in the dye bath. Here, acetic acid, ammonia and wood ash water (KOH) were used.
Photo: Michelle LaBerge.

These wild madder-type species were known to botanists, historians and archaeologists as sources of red

dye. Several species of these plants have been gathered from the wild as dye plants for millennia and continue to be in use into modernity. These plants are, however, not well-studied. As chemical analyses continue, and more publications emerge citing these wild madder-type plants as dye sources, interest has started to grow about these species. Common dye plants have well-known chemical signatures, but some of the lesser-known plant species have not been documented as well. A more complete chemical database including this new wider variety of dye plants is needed to get a clearer picture of the colors of ancient textiles.

The research that began as my Master's thesis has now expanded into a doctoral research project, and a new experimental component is in progress now, as a new crop of wild madder-type species is now growing in several garden beds on the UWM campus. The *Hortus Academicus*, a research garden located behind UWM's Honors College, has become the new home for these new dye plant species. Along with the collection of prehistoric brewing herbs already established at the site, there is now a growing collection of red dye plants that will hopefully be mature enough to harvest for their roots within the next two years. Future plans include chemical analyses of the dye compounds in these wild species, and the beginnings of a database on the wide variety of red dye plants utilized in European prehistory. Perhaps this research can further our understanding of the colors of prehistory—where they were used, who was using them, and why.



Dyer's woodruff (*Asperula tinctoria*), a madder-type red dye plant growing at the Hortus academicus. Photo: Michelle LaBerge

DeathMetal: The Trials and Tribulations of Experimental Archaeology

By Christopher Allen and Emily Stanton

If you find metal in a grave, does that make it “Death Metal?” This project was born out of our fascination with the ancient world and our drive to bring the past to life today. Too often do archaeologists work with bits of rusted metals and faded images that seem to have no

resonance with the average person. Yet, when we re-create objects from the past, we gain insights useful to the public and scholars alike about the time, skill, and frustration involved in making such items. Additionally, we can use these re-created objects for both display and research purposes, including use-wear analysis and tests that would not be possible on the original fragile pieces.

To start our journey in experimental archaeology, we aimed to recreate a set of grave goods from a burial near the Iron Age hillfort of the Heuneburg in Germany. Dating to the 5th century B.C., this grave is nicknamed “Grave 1” as it was the first burial discovered during excavation of Tumulus 17, a burial mound in the Speckhau group associated with the Homichele “megamound.” Our advisor at UWM, Professor Bettina Arnold, excavated this tumulus grave during her “Landscape of Ancestors” project. The grave contained an unusual “machete-like” sword with a bird-headed hilt, two long spear heads, an iron helmet decoration, and a belt hook. Utilizing the resources and expertise at the Milwaukee MakerSpace, we hope to re-create the full set of grave goods.

To kick off the project, we started by re-creating the belt hook. After a talk on safety in the Smithy, we learned the basics of blacksmithing. Using an artist's rendering of the artifact, we measured out our materials and set to work!

However, we realized that the orientation of the hook as found in the grave might mean that the belt's wearer would have had the end of the hook digging into their midsection; we figured that this position might not reflect how this belt was worn in life. Thus, we decided to flip the hook so that the curve faced outwards as this would be much more comfortable to wear.



Adding rivet holes to the hook. Photo: Stanton

Additionally, we realized that neither the artist's rendering nor the CT scans of the artifact offered the best idea of what the end of the hook looked like. We settled on having a slight “bulge” at the end to prevent it from slipping out of the leather twist at the other end of the belt. We took turns “up-setting” the iron (compressing),

drawing it out (lengthening), and using the punch to add holes for rivets to the hook and backing plates. Once we had the hook and the three plates forged, we dug through the MakerSpace's supply of leather scraps to see if we could find a piece large enough to work as a belt. We ended up finding a strip of white leather that fit one of us nicely to act as the "model" for this "rough draft" of the belt. Finally, we assembled all our pieces together and voila! we had the first iteration of our Iron Age belt!



The finished product! Photo: Stanton.

Our key take-away from this initial foray into iron working: taking an experimental approach made it possible to have several testable hypotheses about how the belt would have been worn.

Next up on the agenda was to make the second iteration of the belt, using more historically accurate techniques. First, we acquired some leather from a vendor at the Bristol Renaissance Faire. We decided to create a longer belt hook with a wider opening for Belt version 2.0. We also forged several rivets and choose to leave the final version of the belt hook unpolished to give the piece a more worn and historical appearance.

Next, we forged the backing plates. However, we accidentally made the first set far too thin - thinner than a credit card! - because we wanted to try using smaller iron bars from the start. Unfortunately, these plates literally buckled under pressure, and we had to start over...that's why they call it experimental archaeology! Having learned from our mistakes, we forged another set of backing plates, about 1/8 inch thick (~3mm).

Finally, we assembled the full set of belt hardware and tried it on for size. As with the prototype, this second version measures 33 inches in length. Based on skeletal evidence,



Belt Hooks on the Prototype (white) vs. Belt 2.0. Photo: Emily Stanton

most Iron Age Celts would be considered "smaller than average" by today's standards.

For more updates on our Experimental Archaeology project, as well as background information on the Iron Age Celts, please visit us at:

<https://experiarchaeuwm.wixsite.com/deathmetal>

Acknowledging Those Who Created Our Sites

By Alice Kehoe

Slowly, American archaeologists are recognizing that all pre-contact and many historic archaeological sites in the Americas were constructed by the First Nations of our continents. Canada led the way, officially using the term "First Nations" instead of "Indians" and creating, in 1996, a Truth and Reconciliation Commission to hear and record histories of abuse of power by colonial authorities and the Government of Canada.

Archaeological projects increasingly incorporated local First Nations citizens into the work and its interpretation. The practice has been growing in the United States, too, especially as THPOs (Tribal Historical Preservation Offices) have been established on reservations. The THPO serves its reservation as state SHPOs serve the states, overseeing archaeological work and curation of collections in its territory. Archaeologists no longer just walk to a site and start investigating, they must have permits from the appropriate authority and that can be a THPO.

In line with recognizing First Nations' stakes in investigating the sites of their forebears, many universities and professional associations such as AIA and SAA (Society for American Archaeology) open meetings with formal acknowledgment of the First Nations on whose territory they are standing. UWM has such an acknowledgment at

<https://uwm.edu/eqi/about/land-acknowledgement/>

We as archaeologists are very directly concerned with those nations who lived on the sites we interpret. For us here in Milwaukee, those are the Menominee, Ho-Chunk (Winnebago), Potawatomi, and Anishinaabek (Ojibwe). Oneida and Stockbridge-Munsee (Mahican, Brothertown) came in 1830 to Green Bay to escape United States takeover of their lands in the East, not anticipating how rapidly the frontier would engulf Wisconsin. Pre-contact sites in our state are likely to have been homes to one or another of the first four nations, at least for the past millennium. It is appropriate, then, to formally acknowledge, with respect, our debts to our First Nations.

AIA-MILWAUKEE SOCIETY
C/O DAVID PACIFICO
DEPT. OF ART HISTORY
MITCHELL HALL 151
UNIVERSITY OF WISCONSIN-MILWAUKEE
MILWAUKEE, WI 53201

AIA-Milwaukee Society Spring Calendar

PLEASE KEEP

Spring 2020

- February 9 Sunday, February 9, 2020, 3:00 pm. *Lecture*
Pedar Foss, When Did Vesuvius Explode?
- March 8 Sunday, March 8, 2020, 3:00 pm. *Lecture*
Virginia Emery, In Search of the Ancient Nile: The Theban Harbours and Waterscapes Survey Investigation of Human-Environment Interaction in Ancient Thebes
- April 5 Sunday, April 5, 2020, 3:00 pm. *Lecture*
Lecture, April 5: Ryan Williams, Wari Brewing Traditions in Ancient Peru

All lectures will take place in room G90 of Sabin Hall on the University of Wisconsin – Milwaukee campus unless otherwise noted. Sabin Hall is located at 3413 N. Downer Ave. Free street parking on Sundays.

