Ancient Biomolecules: Applications within Archaeology

Nadia Neff’s lecture will briefly explore the myriad archaeological applications of the four major groups of biomolecules (nucleic acids, proteins, lipids, and carbohydrates) as well as the isotopes housed within. She will then summarize the history of the discipline, highlighting several breakthrough studies, such as the introduction of corn to the northeastern United States, the prevalence of infanticide in ancient Rome, and the convoluted relationship of humans and tuberculosis. This will lay the foundation for a deep dive into her research, using the cutting-edge method called Zooarchaeology by Mass Spectroscopy (ZooMS), in an application to battlefield and conflict archaeology. The lecture will finish with a peek into Nadia’s current project analyzing rodent remains from a site in Belize that spans a period of ~10,000 years. By testing the rodents' isotopic ratios pertaining to diet and environmental change, she will determine their utility as a proxy for those in humans.

Note that the meeting time is Friday October 11 at 7:00 (rather than our usual meeting day of the third Wednesday of the month).
Nadia Neff is currently working on her PhD in biomolecular archaeology at the University of New Mexico. She recently held the position of visiting lecturer in the Department of Anthropology at Fort Lewis College where she taught Human Biological Variation, Forensic Anthropology and Introduction to Anthropology. Her interests vary from ancient biomolecules and battlefields to human rights investigations. Neff has conducted archaeological fieldwork in the Southwest of the US as well as several sites in North England, Poland, and Austria. The most notable of these included the Mesolithic site of Star Carr and the medieval site of the Battle of Towton (1461). She also worked as a consultant preforming biomolecular analysis of skeletal remains from other ancient battlefield sites in England.

In the summer of 2019, Neff worked with the DPAA (Defense POW/MIA Accounting Agency) helping to recover and repatriate two WWII missing in action American soldiers. In 2016, she was interviewed by Dan Snow of the BBC for her work on the Battle of Fulford (1066). Current work includes the stable isotope analysis of rodent remains from a site in Belize spanning a 10,000-year period. Future plans include teaching and the pursuit of further work with ancient biomolecules applied to the fields bioarchaeology and forensic anthropology.
Site Stewardship Program at a Crossroads

The Site Stewardship Program that the Chipeta Chapter coordinates with the Bureau of Land Management and the Forest Service continues to contribute important archaeological and paleontological site visitations to our area’s cultural resources. In the federal fiscal year 2019, 17 site stewards reported visitations to 20 sites. A total of 63.5 volunteer hours were tallied making those site visits.

Not included in the official BLM USFS reports are the 85 hours spent driving to the access points to those sites. Since volunteers for federal land agencies are considered “employees” while doing their visits they are covered by Workman’s Comp, so only the hours that are spent getting to and on-site are officially recorded. Keeping track of drive time fully captures the contributions made by our volunteers. Most sites are in isolated, rugged country, so getting to their access points is an adventure in itself.

This year’s volunteer hours and sites visited are significantly decreased from 2018. Several stewards have indicated they have done their site visits but haven’t turned in their reports. A few others are planning on doing their site visits after the September 30th deadline. A partial explanation for the decrease in site visitations is the decreased number of site stewards. Seven stewards won’t be returning to the program in 2020. Some have moved out of the area and others retired. Thanks to the Clanton’s, Annette Butts, Susan Dougherty, Neil and Teri Hauser and Tom Baird for their dedication to the program.

Right now, the program has 27 active volunteers. There are over 15 sites that need a steward. We’ll be working with archaeologists, Shane Rumsey and Jeremy Karchut this winter to sponsor a site steward training session. Stay tuned at the meetings and in the newsletters about a date for the training session.
Fall is upon us, and once again there will be some trips coming up. Watch for the email notifications. Also, I will be sending out membership renewal notices. If possible, please pay using the Member 365 login at the state CAS website; otherwise, if you pay by check it might not clear for a couple of weeks or a month.

The State CAS Annual Meeting will be held in Pueblo October 11-13 (see below). There will be an additional meeting in Pueblo on the 14th, called the ADVANCE retreat (!), concerning the future role of the State CAS (see Nick Ard’s column in last month’s newsletter). They have much to discuss. The following response from the Chipeta board meeting was sent to Karen Kinnear at CAS.

"The [Chipeta Chapter] board is OK with currently stated bylaws as presented in the ADVANCE agenda. One difference was our consensus that CAS go to an all-digital copy of Southwestern Lore. People who prefer a written copy can print it out themselves." I know that this topic has been discussed for many years, so hopefully, it will be resolved. There will also be discussion on raising the dues, maintaining the website, and the role of CAS in the future. At this time, we will not have a representative at the ADVANCE/retreat meeting.

On another note did you know that we have a Chipeta Library? It is at the Alpine Archaeological Consultants office on Townsend, and the Librarian is Linda Manske. You are invited to check it out and browse the wonderful information held in this small library, maybe some reading before a field trip or after. For more information, Linda would be glad to answer any questions.

If you are still having problems receiving emails, please let me know at sjicas1@gmail.com.

**Remember, we will be changing the Meeting date in October to the 11th!** We will also be interested in any location for the Christmas Party, so please let me know.

Sally

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**The Squint and Juanita Moore Scholarship**

Created in honor of Chipeta Chapter founding member Carlyle “Squint” Moore and his wife, the scholarship is awarded each year to a deserving high school senior or college student intending to enroll or already enrolled in an Anthropology or Archaeology program. Students can apply online at [collegeXpress](http://collegeXpress)—and note that the deadline is April 1.

The scholarship is managed by the Montrose Community Foundation. If you wish to donate, please send your tax deductible donations to the Montrose Community Foundation, PO Box 3020, Montrose, CO 81402.
The Pueblo Archaeological & Historical Society
Is Hosting the CAS Annual Conference
October 11-13, 2019
At Pueblo Community College

Intriguing Field Trips: Cramer Site, Southern Pueblo County Car Tour of Historic Places, Fremont County Geology & Prisons, Picketwire Canyon, Francisco Fort Museum, Pueblo Museums

Project Archaeology: Free workshop on Friday morning (Oct. 11)

Interesting Speakers: Keynote: Dr Charles Musiba, Luncheon Speaker: Dr. Sue Ware

Go to: www.puebloarchaeology.org click on “2019 CAS Annual Convention”

Friday, October 11
10:00 AM - 12:00 Noon Project Archaeology Workshop Pueblo History Museum
10:00 AM - 4:00 PM Flight, Mind & Steel: Museums in Pueblo Museum Tour and around Pueblo
5:00 PM - 8:30 PM Welcome Reception and Early Conference Registration with light snacks and refreshments FREE Museum Tour, at the Pueblo History Museum

Saturday, October 12
8:00 AM Registration All events at Pueblo Community College
8:50 AM - 4:05 PM Presentations and Posters
11:35 AM - 1:00 PM Lunch with speaker Dr. Sue Ware
4:15 PM - 5:15 PM CAS Membership Meeting
5:30 PM Cash Bar opens
6:30 PM Banquet
7:30 PM Keynote Speaker Dr. Charles Musiba
ALL DAY! Alice Hamilton Scholarship Fund Silent Auction

Sunday, October 13
Field Trips! (Available only to Conference attendees)
-Cramer Archaeological Site
-Francisco Fort, LaVeta CO - Tour is $4.00 at site
-Fremont County Geology to Prisons - Tour is $5.00 at site
-Picket Wire Canyonlands Tour - $20 at registration
-Southern Pueblo County Car Tour of Historic Sites

Please note: Regular registration rates to attend the CAS Annual Meeting in Pueblo are good through October 5th. Register NOW to save!
From the Editor

There’s a new book out this year called The Davis Ranch Site: a Kayenta Immigrant Enclave in Southeastern Arizona. Begun in 1958 by Rex Gerald, who excavated the site in the San Pedro River Valley in southern Arizona in 1957, it was completed this year after extensive reanalysis of the pottery from the site by editor Patrick D. Lyons. It was the title that caught my eye. It declares that this was an immigrant community, clearly distinguishable from the surrounding communities. To be specific, from the late-1200s to the early 1400s, groups of people from northeastern Arizona (the Kayenta area) migrated down to southeast Arizona where they settled among longstanding populations known to us as Hohokam and Mogollon. Once there, they maintained their own cultural distinctions for more than a century, much like Chinatown in San Francisco, for example.

We know that people started abandoning the Colorado Plateau in the second half of the 13th century. We are pretty sure that many of those people ended up along the Rio Grande in New Mexico, and their descendants became the modern Pueblos. Some studies have attempted to archaeologically identify the arrival of newcomers to established communities on the northern Rio Grande, so this present work represents a similar process farther west. In southeast Arizona, the putative immigrant sites contain square or D-shaped kivas, structures that have deflectors between entryway and hearth, stone (as opposed to adobe) architecture, distinctive perforated pottery plates (thought to have been ceramic manufacturing tools), all characteristics of northern sites, and Maverick Mountain series pottery. Coincident with this intrusion of migrants was the spread of Roosevelt Red Ware. Both pottery wares are made of local materials, so they aren’t imports, and they used techniques and decorative motifs that seem to derive from northern wares, such as Tusayan White and Tsegi Orange Wares.

There are two hypotheses about the spread of Roosevelt Red Ware in southern Arizona. Both involve immigrants from the north. Both suggest that as a marginalized group without access to good farmland, the immigrants adopted a part-time specialization as potters, manufacturing pottery with local clays and temper, but with northern techniques and styles. The first hypothesis proposes that after a short period of time, Roosevelt Red Ware was widely adopted and manufactured by the indigenous people of southern Arizona, helping the pottery style spread through southeastern Arizona and into southwestern New Mexico. The second suggests that continuing waves of Kayenta immigrants (and descendants) spread through the area, bringing the pottery manufacturing techniques with them. How could these hypotheses be evaluated?

Drawing on previous literature, Lyons decided that a reasonable test would be to identify sites where all the markers of the immigrant group are present. The second hypothesis is supported if these sites co-occur with evidence of the local production of Roosevelt Red Ware. He did this and concluded that, “(s)patial and chronological patterns in these and other data indicate that Roosevelt Red Ware production remained closely tied to northern immigrants and their descendants rather than spreading quickly and easily to local host groups (Gerald and Lyons, p. 10).”

It can be argued that technological advances have been the key to strengthening the arguments for the movement of people rather than ideas across the landscape. Just as DNA enhanced the ability to identify new migrants into western Europe, improved dating, and techniques like X-ray Fluorescence (XRF), and Instrumental Neutron Activation Analysis (INAA) allow accurate identification of source materials, making it possible to identify that raw materials were gathered locally and that therefore pottery manufacture was also local. Like DNA analysis, these tools have been around for some time, but they are becoming more accurate and less expensive, and they are proving to be a boon to archaeological research.

Lyons, Patrick D. and Alexander J. Lindsay Jr.
Lyons, Patrick D., Arizona State Museum, and Archaeology Southwest
2012 Maverick Mountain Series and Roosevelt Red Ware Origins. Online exclusive essay for Archaeology Southwest Magazine Vol. 26, Nos. 3 & 4 (Summer and Fall, 2012) | www.archaeologysouthwest.org
Gerald, Rex E.; Patrick D. Lyons (Editor)
Membership Application

Date: ____________________________
Name: ___________________________________________________________________
Street or RR Address: _______________________________________________________
City: ___________________________ State: ________ Zip: _______________
Telephone: __________________________________________________________________
Email: ___________________________________________________________________

(email required to receive Chipeta & CAS newsletters & field trip info)

Annual Dues* (includes state CAS dues): Check one

Check One: __________________________

___ Family (2 or more members same household) ...............$40
___ Individual ..............................................................................$35
___ Student (Circle if Individual or Family)..........................$25
___ Senior/Disabled** (Circle if Individual or Family).......$25
___ Secondary (Circle one) Individual ($10) or Family ($15)
___ Opt out of printed Southwest Lore

*Southwest Lore is the journal of the Colorado Archaeological Society: print copies are mailed quarterly to all members except seniors, who receive electronic (PDF) copies.

**Senior is any person who is at least 65 years of age; Disabled is any person who is permanently disabled.

Code of Ethics

As a member of the Colorado Archaeological Society, I pledge to:

- Uphold local, state, and federal antiquities laws.
- Respect the property rights of landowners.
- Report vandalism to appropriate authorities.
- Support only scientifically and legally conducted archaeological activities.
- Conduct field and/or laboratory activities using professionally accepted standards.
- Not condone the sale, exchange, or purchase of artifacts obtained from illegal activities.
- Be sensitive to the cultural histories and spiritual practices of groups that are the subject of archaeological investigation.
- Accept the responsibility, if serving as principal investigator, to publish the results and make the collection available for further study.

Signature: __________________________________________ Other Family Signature: __________________________________________

Make checks payable to “Colorado Archaeological Society” and mail the signed application to:

Chipeta Chapter
P.O. Box 593, Montrose, CO 81401
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CHIPETA CHAPTER WEBSITE
- [https://www.chipetachaptercas.org](https://www.chipetachaptercas.org)

TO JOIN OR RENEW:
- Go to the Chipeta Chapter website and follow the membership links.

**Want More?**
[Archaeology Southwest](https://www.archaeologysouthwest.org) is a great link to find out about current issues and events relating to Southwest Archaeology.

**Program for Avocational Archaeological Certification (PAAC)**
- **PAAC Coordinator:** Sally Johnson, sjicas1@gmail.com

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  - Assistant State Archaeologist/
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**Chipeta November Speaker**
Charmaine Thompson, Forest Archaeologist for the Manti-La Sal National Forest

**Field Trip Committee**
Leigh Ann Hunt, Joe Oglesby, and George Decker
For more information on upcoming field trips and to sign up, please contact the Field Trip Leader

*Masthead photo courtesy of Carol Patterson. All other unattributed photos are by the editor.*