



Sacramento Archeological Society, Inc. Newsletter

www.sacarcheology.org.

September/October - 2024

UPCOMING EVENTS CALENDAR

Please note the following events for the next two months. One webinar will be on Saturday afternoon and the other on Monday evening. Don't miss the day tour of Indian Grinding Rock State Park.

September 2024

September 14, 2024 - Saturday, 2:00 – 3:30 PT - **SAS Webinar Mairin Balisi**, “Stuck in Pits: Uncovering the Secrets of Ice Age”

September 28, 2024 – Saturday, **SAS Tour** Indian Grinding Rock State Park, “Big Time Celebration”

October 2024

October 7, 2024 – Monday, 5:00 – 6:00 PM PT - **SAS Webinar Vance Holliday**, "A Critical Test of the Younger Dryas Impact Hypothesis?"

October 12, 2024 – Saturday, 12:00 – 4:00 PM – **SAS Board Meeting** at Roger and Lydia Peake's home

See announcements: <https://sacarcheology.org/announcements/> for **webinar access information** and calendar: <https://sacarcheology.org/archaeology-activities/calendar-of-events/> for the complete set of events in our website: www.sacarcheology.org.

For all SAS Webinars friends are welcome and also invited to join our organization. There is no participation fee.

UPCOMING EVENTS

SAS Webinar

“Stuck in Pits: Uncovering the Secrets of Ice Age”

by

Mairin Balisi, Raymond Alf Museum of Paleontology

Saturday, September 14, 2024

2:00 PM – 3:30 PM PT



Have you considered the relationship between predators found in Rancho La Brea, California (commonly known as La Brea Tar Pits) and the Ice Age? Mairin Balisi, Raymond Alf Museum of Paleontology will discuss current thoughts about the lives of the powerful predators found in these pits. The La Brea Tar Pits is an active paleontological research site in urban Los Angeles. Hancock Park was formed around a group of tar pits where natural asphalt (also called asphaltum, bitumen, or pitch; brea in Spanish) has seeped up from the ground for tens of thousands of years. Over many centuries, the bones of trapped animals have been preserved.

The webinar will start at 2:00 PM PT and formally conclude at 3:30 PM. You may join starting at 1:45 PM to say “Hello” and participate in a social time.

SAS Tour

Indian Grinding Rock State Park
Saturday, September 28, 2024
11:00 AM - ?PM PT



SAS is pleased to feature a tour to Indian Grinding Rock State Historic Park during its “Big Time” Celebration. Each year local Miwok and other California tribes perform traditional dances in the May, Chaw'se Day Celebration and the September Big Time Celebration. This year the “Big Time” Celebration is being held on September 27 and 28th and we will attend it as a SAS group on Saturday, September 28.

This celebration will be held in the Roundhouse in the Indian Grinding Rock State Historic Park. The park is located 8 miles east of Jackson, California, in the Sierra Nevada foothills. This 135-acre park, with its open meadows and large valley oaks is a living history of the Miwok populating the area. Chaw'se is the only State Park in Amador County. The park is named for its chaw'se, a "grinding rock" of marbleized limestone with 1,185 mortar holes, the largest collection of bedrock mortars anywhere in North America. The Miwok used the chaw'se for thousands of years to grind acorns for food. The chaw'se also features 363 petroglyphs (carved images), 2,000 to 3,000 years old.

Put this event on your calendar.

SAS Webinar

“A Critical Test of the Younger Dryas Impact Hypothesis?”

by

Vance Holliday, Professor Emeritus University of Arizona

Monday, October 7, 2024

5:00 PM – 6:00 PM PT

The Younger Dryas impact hypothesis (YDIH) is a collection of ideas proposed to explain terminal Pleistocene environmental change across North America and other continents at the onset of the Younger Dryas (YD) stadial and the beginning of the YD Chronozone (YDC). While the specific details of the YDIH vary from publication to publication, the general premise is that

at 12.9 ka North America and other continents were subjected to some sort of extraterrestrial 'event' (either supernova shockwave; meteoritic, cometary, or very low-density object - impact(s); bolide airburst(s); or some combination thereof). The term 'impact' in "YDIH" represents all these possible cosmic events. That event supposedly caused climate changes that define the onset of the YD stadial. More significantly, YDIH proponents claim that the proposed impact at the beginning of the Younger, among other claims. A comprehensive and self-consistent statement that describes the YDIH, clarifies confusing/contradictory data, arguments, and interpretations, does not exist.



Dr. Vance Holliday is both an archaeologist and geologist who spent much of his career reconstructing and interpreting the landscapes and environments in which past societies lived and how these conditions evolved. Until he retired he was Executive Director of School of Anthropology and Department of Geosciences at University of Arizona, Tucson, AZ. Among other courses he taught Quaternary Geology and Geoarchaeology. This talk presents a critical review of the data and interpretations used to both promote the YDIH and counter critics of the YDIH. For more detailed information see

<https://www.sciencedirect.com/science/article/pii/S0012825223001915?via%3Dihub>

The presentations will be presented via Zoom. The webinar will start at 5:00 PM PT and formally conclude at 6:00 PM. You may join starting at 4:45 PM to say "Hello" and participate in a social time.

PAST EVENTS

SAS Webinar *“Diving into the Archaeological Mystic – A Taíno Underworld and Sacred Landscape in the Caribbean”*

On July 13, 2024 in person and via Zoom John Foster, past-president of SAS, retired California Senior State Archaeologist, and Adjunct Faculty at Indiana University discussed a fascinating submerged archaeological site in the Dominican Republic and related it to the Taino Culture. Before talking about diving in cenotes in the Dominican Republic he relayed his experience with California State Parks and his becoming the Department's only underwater archaeologist. Then, John told about working with Indiana University as an Adjunct faculty member, underwater archaeologists and Dominican National Park specialists to explore the Taino culture via diving. One of the most rewarding experiences was diving into Manantial de la Aleta, a deep water sinkhole that proved to be a Taino offering site. There an amazing number of items (gourds, regalia, pottery, baskets and even a feather) were found preserved below a sulfur layer. John related these discoveries to observations made by Friar Ramón Pané who gathered ethnographic data on the Taino people's religious beliefs after Columbus's second voyage. The similarities between the friar's observation and John's dive experience were remarkable. These excavations lead to a deeper understanding of Taino culture and beliefs.

Sixth Annual SAS Pool-Party/Pot-Luck/Social

On Saturday, July 27 over 20 SAS members and friends enjoyed a social event at the home of Dan and Victoria Foster. The weather cooperated with delightful temperatures. The food was delicious and the conversation could not avoid archaeology and new places to visit. This was the sixth such get together at their home.

Webinar *“Mogollon/Mimbres Culture Uncovered in SAS Tour”*

On August 20 Lynette Blumhardt, Jan Johansen, Jeremy Johansen and Tom Johansen, all participants in the SAS Mogollon Tour talked about the Mimbres Culture as it flourished in southwestern New Mexico. The roots of Mimbres culture beginning around 200 CE when residents lived in pit houses. Between 1000 CE and 1130 CE, the Classic Mimbres period people produced the famous Mimbres Black-on-white pottery and lived in pueblo villages. After 1130 CE potters stopped making the Black-on-white pottery and dispersed.

Jan introduced the topic and gave a brief overview of Mogollon and Mimbres culture. Tom highlighted history and current status of several major Mimbres sites including Old Town, Mattocks, Elk Ridge, Mitchell, Treasure Hill, and TJ. Lynette relived the visit to Gila Cliff Dwellings. Jeremy talked about the beautiful Mimbres pottery and showed pictures of pots from two museums. Jan concluded the presentation with pictures of rock art from Pony Hills and China Draw.

SAS Tour - Mogollon Culture: Arizona and New Mexico

The tour started on Monday, June 10 and ended on Saturday, June 15. A group of seven SAS members participated in the tour. The tour was led by Jan Johansen and Denise Ruzicka. We thank the tour guides: Mike for Casa Malpais; Trinity, Paula and Martin for Old Town; Marilyn for Mimbres Culture Heritage Site, Elk Ridge, Mitchell, and Treasure Hill; Dana and Jonah for TG; Marianne for Western New Mexico University Museum and Peggy for Deming-Luna Museum. Their commentary truly amplified the experience. We also thank Archaeological Conservancy for their site accesses.

A list of the 19 sites visited and their location near modern cities follows.

Besh Ba Gowah, Globe, AZ

Kinishba Ruins, Fort Apache, AZ

Casa Malpais, Springerville, AZ

Mogollon, NM

Old Town Mimbres, near Deming, NM

Mimbres Culture Heritage site (Mattocks Archeological Site, Mimbres Museum), Mimbres, NM

Elk Ridge (GNF and Archaeological Conservancy site), Mimbres Valley, NM

Mitchell (Nature Conservancy site), Mimbres Valley, NM

Gila Cliff Dwellings, Trail to the Past and TJ site NM

Lake Roberts Vista Site near Gila Cliff Dwellings NM

Treasure Hill (Archaeological Conservancy site) Silver City, NM

Western New Mexico University Museum, Silver City, NM

Deming-Luna Mimbres Museum, Deming, NM

City of Rocks Rock Mortars, near Deming, NM

Dragonfly Petroglyphs, near Silver City, NM

Pony Hills Petroglyphs, near Deming, NM

China Draw Petroglyphs near Deming, NM

MEMBER'S CORNER

Memberships

We thank everyone who has renewed your membership and welcome new members.

Major Donors for 2023/4

We are pleased to acknowledge our major contributors for 2023. These donations support our scholarship program.

Patron (\$1000 or more, listed in alphabetical order)

Paul K. Davis and Knuti VanHoven
Dennis Fenwick and Martha Lewis
Jan and Tom Johansen
Ruth McElhinney
Carolyn and Gordon McGregor

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OSISoft a division of AVEVA
Lynette Blumhardt
Jeannie Coy
Penelope Coy
Paul K. Davis and Knuti VanHoven

George W. Foxworth
Jeremy Johansen
Tori Lyon
Roger and Lydia Peake
Diane Sangster

Annual Memberships

All memberships are renewable on **January 1** annually except for those who joined recently (after September 1 of the previous year). Please support the society by promptly paying your **2024** dues. **Remember your dues help make scholarships possible.** We keep overhead low so that the funds can be used to support students. You may now use our web site <https://sacarcheology.org/society-membership/pay-dues/> to renew and make payment using a **credit card or Paypal.** Remember a membership benefit is email receipt of archaeological/anthropological articles and notices of related events.

The annual dues are:

Student/Limited Member	\$15
Individual Membership	\$30
Family Membership	\$40
Sponsor	\$100 - 999 (individual)
	\$500 - 999 (business)
Patron	\$1000

Alternatively, please make out your check to **“Sacramento Archeological Society, Inc.”** and mail it to:

Sacramento Archeological Society, Inc.
P.O. Box 163287
Sacramento, CA 95816-9287

We really appreciate your support.

Annual Dues for 2024

Name(s): _____ Email: _____ Phone: _____

_____ Email: _____ Phone: _____
Address: _____

Student/Limited Member	\$15	_____	\$ _____
Individual Membership	\$30	_____	\$ _____
Family Membership	\$40	_____	\$ _____
Sponsor	\$100	_____	\$ _____
Scholarship Donation			\$ _____

Total enclosed \$ _____

ARCHAEOLOGICAL REFERENCES

Recent Articles

The reviewed article(s) chronologically presented (oldest subject first) are:

- “Adaptive foraging behaviors in the Horn of Africa during Toba super eruption”
- “The time between Palaeolithic hearths”
- “Middle and Late Pleistocene Denisovan subsistence at Baishiya Karst Cave” and “How the mysterious Denisovans thrived on top of the world”
- “Recurrent gene flow between Neanderthals and modern humans over the past 200,000 years” and “Neanderthals and moderns mingled early and often- Study of genes modern humans gave Neanderthals helps explain their end”
- “Genomic investigation of 18,421 lines reveals the genetic architecture of rice”
- “Sacrificed Maya boys tied to myth of ‘Hero Twins’ – Ancient DNA shows continuity between living and ancient Maya communities”
- “Repeated plague infections across six generations of Neolithic”
- “The Nile went straight as ancient Egypt dried out”

“Adaptive foraging behaviors in the Horn of Africa during Toba super eruption”

“Although modern humans left Africa multiple times over 100,000 years ago, those broadly ancestral to non-Africans dispersed less than 100,000 years ago. Most models hold that these events occurred through green corridors created during humid periods because arid intervals constrained population movements. In this report the researchers report on an archaeological site—Shinfa-Metema 1, in the lowlands of northwest Ethiopia, with Youngest Toba Tuff cryptotephra dated to around 74,000 years ago—that provides early and rare evidence of intensive riverine-based foraging aided by the likely adoption of the bow and arrow. The diet included a wide range of terrestrial and aquatic animals. Stable oxygen isotopes from fossil

mammal teeth and ostrich eggshell show that the site was occupied during a period of high seasonal aridity. The unusual abundance of fish suggest that capture occurred in the ever smaller and shallower waterholes of a seasonal river during a long dry season, revealing flexible adaptations to challenging climatic conditions during the Middle Stone Age. Adaptive foraging along dry-season water holes would have transformed seasonal rivers into “blue highway” corridors, potentially facilitating an out of Africa dispersal and suggesting flexibility required to survive seasonally and conditional in general, and the apparent short-term effects of the Toba super eruption in particular were probably key to the recent dispersal and subsequent worldwide expansion of modern humans.” (John Kappelman *et al.*, *Nature*, V628, 2024-4-11 pp. 365-372)

“The time between Palaeolithic hearths”

“Resolving the timescale of human activity in the Palaeolithic Age is one of the most challenging problems in prehistoric archaeology. The duration and frequency of hunter-gatherer camps reflect key aspects of social life and human-environment interaction. However, the time dimension of Palaeolithic contexts is generally inaccurately reconstructed because of the limitations of dating techniques, the impact of disturbing agents on sedimentary deposits and the palimpsest effect. In this article the researchers report high-resolution time differences between six Middle Palaeolithic hearths from El Salt Unit x (Spain) obtained through archaeomagnetic and archaeostratigraphic analyses. The set of hearths covers at least around 200 – 240 years with 99% probability, having decade- and century- long intervals between the different hearths. Their results provide a quantitative estimate of the time framework for the human occupation events included in the studied sequence. This is a step forward in Palaeolithic archaeology a discipline in which human behavior is usually approached from a temporal scale typical of geological processes, whereas significant change may happen at the smaller scales of human generations. The researchers reach a time scale closer to a human lifespan.” (Ángela Herrejón-Lagunilla *et al.*, *Nature*, V630, 2024-6-20 pp. 666-670)

“Middle and Late Pleistocene Denisovan subsistence at Baishiya Karst Cave”

“Genetic and fragmented palaeoanthropological data suggest that Denisovans were once widely distributed across eastern Eurasia. Despite limited archaeological evidence, this indicates that Denisovans were capable of adapting to a highly diverse range of environments. In this article the researchers integrate zooarchaeological and proteomic analysis of the late Middle to Late Pleistocene faunal assemblage from Baishiya Karst Cave on the Tibetan Plateau, where a Denisovan mandible and Denisovan sedimentary mitochondrial DNA were found. Using zooarchaeology by mass spectrometry, they identify a new hominin rib specimen that dates to approximately 48-32 thousand years ago. Shotgun proteomic analysis taxonomically assigns this specimen to the Denisovan lineage, extending their presence at Baishiya Karst Cave well into the Late Pleistocene. Throughout the stratigraphic sequence, the faunal assemblage is dominated by Caprinae, together with magaherbivores, carnivores, small mammals and birds. The high proportion of anthropogenic modifications on the bone surfaces suggests that

Denisovans were the primary agent of faunal accumulation. The *chaîne opératoire* of carcass processing indicate that animal taxa were exploited for their meat, marrow and hides, while bone was also used as raw material for the production of tools. Their results shed light on the behavior of Denisovans and their adaptations to the diverse and fluctuating environments of the late Middle and Late Pleistocene of eastern Eurasia.” (Huan Xia *et al.*, *Nature*, V631, 2024-8-1 pp. 108-113)

“How the mysterious Denisovans thrived on the top of the world – The cave-dwelling group hunted animals such as hyenas to sustain themselves in harsh environments”

“Ewen reviewed the previous article. She highlighted that Denisovans seemed to be the only hominin that settled at Baishiya Karst Cave and the period of residence as noted from a rib found in an archaeological layer was dated to 48,000 – 32,000 years ago. Analysis of bones from the cave, including those of hyena, Caprinae and golden eagles contained cut marks and other signs of Human predation. Even rodents and hare were probably hunted: a marmot leg bone was split open, potentially to harvest its marrow.” (Ewen Callway, *Nature*, V631, 2024-7-11 pp. 262-263)

“Recurrent gene flow between Neanderthals and modern humans over the past 200,000 years”

“For much of modern human history, we were only one of several different groups of hominins that existed. Studies of ancient and modern DNA have shown that admixture occurred multiple times among different hominin lineages, including between the ancestors of modern humans and Neanderthals. A number of methods have been developed to identify Neanderthal-introgressed sequences in the DNA of modern humans, which have provided insight into how admixture with Neanderthals shaped the biology and evolution of modern human genomes. Although gene flow from an early modern human population to Neanderthals has been described the consequences of admixture on the Neanderthal genome have received comparatively less attention.

The researchers used a method referred to as IBDmix to identify introgressed Neanderthal sequences in 2000 modern humans sequenced by the 1000 Genomes Project. They found that sequences identified by IBDmix as Neanderthal in African individuals from the 1000 Genomes Project are significantly enriched in regions of high heterozygosity in the Neanderthal genome, whereas no such enrichment is observed with sequences detected as introgressed in non-African individuals. They showed that these patterns are caused by gene flow from modern humans to Neanderthals and estimated that the Vindija and Altai Neanderthal genomes have 53.9Mb (2.5%) and 80.0 Mb (3.7%) of human-introgressed sequence in Neanderthals. They also showed that the human-introgressed sequences cause Neanderthal population size to be overestimated and that accounting for their effects decrease estimates of Neanderthal population size by ~20%. Finally, they found evidence for two distinct epochs of human gene flow into Neanderthals. The second wave of modern human-to-

Neanderthal gene flow occurred ~100 to 120 thousand years ago.” (Liming Li *et al*, *Science*, V385, 2024-7-12 p. 158 <https://doi.org/10.1123/science.adi1768>)

“Recurrent gene flow between Neanderthals and modern humans over the past 200,000 years”

See review of above article in (Ann Gibbons, *Science*, V384, 2024-7-12 pp. 132-133)

“Genomic investigation of 18,421 lines reveals the genetic architecture of rice”

“The researchers used new genomic technologies and qualitative genetic methods to further characterize genetic architecture of rice. They developed a large permanent population in rice, (18K-rice) using an approach designed to reduce population structure. They generated reference-level genome assemblies for the founders and obtained high-density genotypes of all 18K-rice lines through whole-genome sequencing. In total, they mapped 1207 qualitative trait loci (GTL) for 16 agronomic traits and developed an integrated genomic method to prioritize causal genes. Out of 1207 GTL, 28.0% contained known genes. For panicle number and heading date they experimentally validated two newly identified causal genes. Furthermore, they constructed a genetic interactome using 18K-rice in which 170 masking genes were implicated in the cause of genetic back-ground effects. They estimated that the additive and epistatic effects of the identified QTL collectively explained 49.9 and 2.2% of phenotypic variation, respectively. By contrast, the genomic heritability accounting for the additive and epistatic effects was estimated to be 56.2 and 8.8% respectively.

The genetic mapping work suggests that previously identified quantitative trait genes are a small proportion of the total set in rice.” (Xin Wei *et al*, *Science*, V385, 2024-7-5 p. 44 <https://doi.org/10.1126/science.adm8762>

“Repeated plague infections across six generations of Neolithic”

“In the period between 5,300 and 4,900 calibrated years before present, populations across large parts of Europe underwent a period of demographic decline. However, the cause of this so-called Neolithic decline is still debated. Some argue for an agricultural crisis resulting in the decline, others for the spread of an early form of plague. In this article the researchers use population- scale ancient genomics to infer ancestry, social structure and pathogen infection in 108 Scandinavian Neolithic individuals from eight megalithic graves and stone cist. They found that the Neolithic plague was widespread, detected in at least 17% of the sampled population and across large geographical distances. They demonstrated that the disease spread within the Neolithic community in three distinct infection events within a period of around 120 years. Variant graph-based pan-genomics showed that the Neolithic plague genomes retained ancestral genomic variation present in *Yersinia pseudotuberculosis*, including virulence factors associated with disease outcomes. In addition, they reconstructed four multi-generation pedigrees, the largest of which consisted of 38 individuals spanning six generations, showing a

patrilineal social organization. Lastly, they document direct genomic evidence for Neolithic female exogamy in a woman buried in a different megalithic tomb than her brothers. Taken together, their findings provide a detailed reconstruction of plague spread within a large patrilineal kinship group and identify multiple plague infections in the population dated to the beginning of the Neolithic decline.” (Frederik Vaer Seersholm *et al. Nature*, V632, 2024-8-1 pp. 114-121)

“The Nile went straight as ancient Egypt dried out”

“Around 4,000 years ago, the Nile River in what is now Egypt changed its ways. It stopped flowing in many wandering channels and began traveling in fewer, straighter channels—a change that probably affected ancient Egyptian civilization. The Nile’s flow has shaped its valley for more than 11,000 years. Annual floods helped people to establish agriculture in the flood plain’s fertile soils. But scientists lack a complete picture of how the river system has changed over time.

Jan Peeters at the University of Michigan in Ann Arbor and his colleagues analyzed sediment in 81 boreholes that they drilled across the Nile valley near the city of Luxor. The sediments suggest that as the regional climate became drier around 5,000 years ago, soil erosion increased near the river’s course, resulting in an influx of loose soil traveling downstream. This reduced the number of channels that the Nile flowed through. By around 2,000 years ago, the river had consolidated to its current channel.” (*Nature*, V630, 2024-6-27 p. 795)

“Sacrificed Maya boys tied to myth of ‘Hero Twins’ – Ancient DNA shows continuity between living and ancient Maya communities”

“In 1967 archaeologists discovered scattered bones of more than 100 young children in a chamber of an artificial cistern near Chichén Itzá’s iconic step pyramid. The study published in *Nature* (Rodrigo Barquera *et al*, *Nature* V 630, 2024-06-27, pp. 912-919) describes DNA data from 64 of the children, showing all were male and some were twins. That pattern ties them to an ancient Maya creation story and hints at the purpose of the sacrifices, which began 1500 years ago and continued for centuries. The DNA also shows the children were related to Indigenous Maya people living on the Yucatán Peninsula today. The state-of-the-art genetic methods have yielded clues about who these sacrificed children were, and why they died.

When the bones were found, they were packed into a space no more than 3 meters square. Their size and shape indicated most came from children between 3 and 4 years old. The discovery offered clear evidence of human sacrifice at the height of the Maya civilization. Decades later, modern genetic and chemical isotope techniques determined that all of the 64 children analyzed were genetically male and 25% of the children were close relatives such as brothers or cousins and there were two pairs of identical twins. That pattern links the remains to a key Maya myth of the Hero Twins. According the myth the twins, Hunahpu and Xbalanque,

voyage to the underworld and are repeatedly sacrificed and resurrected. This story is thought to be connected to agriculture, as the boy's cycle back into life like maize plants in the spring.

Another discovery was that the related children had eaten similar diets, suggesting they were raised in the same household or even prepared specifically for sacrifice. Finally the genetics of the sacrificed boys were compared with Indigenous Maya people from a nearby town. The few genetic differences between the ancient and modern genomes revealed the impact of colonization. The people living today have genes known to convey resistance to Salmonella-genes their ancient relatives lacked. The difference suggests Europeans likely introduced Salmonella, spurring the evolution of resistance in the surviving Maya." (Andrew Curry, *Science*, V384, 2024-6-14 pp. 1160-1161)

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