Sacramento Archeological Society, Inc.
Newsletter

www.sacarcheology.org. **March/April - 2023**

UPCOMING EVENTS CALENDAR

Access calendar: https://sacarcheology.org/archaeology-activities/calendar-of-events/ for the complete set of events in our website: www.sacarcheology.org.

March 2023

March 11, 2023, Saturday 10:00 – 12:00 AM PT - **SAS Webinar** **Lucy Maun**, graduate student at London's Global University, UCL, "Analysis of faunal remains excavated at Wallace Great House, Colorado"
March 12, 2023, Sunday 11:00 AM – 5:00 PM PT **Mission San Jose Tour**
March 13, 2023, Monday 5:00 – 6:00 PM PT - **SAS Webinar** **Corey Johnson**, graduate student at UCD, "Analyzing Upper Paleolithic blank cutting edge efficiency at Tolbor, Mongolia"
March 16 – 19, 2023 – SCA in Oakland, CA

April 2023

April 8, 2023, Saturday 2:00 – 4:00 PM PT - **SAS Seminar/Webinar** **Diana Malarchik**, graduate student at UCD – "Born with a Lead Spoon in their Mouth: Life History & Health in 19th Century San Francisco" and **Jessica Morales**, UCD – Canid analysis, 224 Young Hall, UC Davis
April 8, 2023, Saturday 4:00 – 5:00 PM PT – board meeting
April 10, 2023, Monday 5:00 – 6:00 PM PT - **SAS Webinar** **Daniel Hampson,** graduate student at New Mexico State University – "Living on the Spine of the World: Placemaking at Early Community Centers Rincon, UT"
April 30, 2023 – **Scholarship Applications due**

May 2023

May 8, 2023, Monday 5:00 – 6:00 PM PT - **SAS Webinar** **Daniella Marie Huerta**, graduate student at UC Santa Cruz – Analysis of pottery from four Southwest sites
May 13, 2023, Saturday 2:00 – 4:00 PM PT- **SAS Webinar** **Patricia McNeill**, graduate student at UCD – Field samples Namaqualand, South Africa and **Sara Watson**, UCD – Analysis of lithic assemblages from Knysna Cave, South Africa
May 20, 2023 – May 26, 2023 – **Nevada Caves, Rock Art, Fossils, and Mining Tour**

See announcements: https://sacarcheology.org/announcements/ for **webinar access information**.

UPCOMING EVENTS

SAS Webinar

"All bones great, small, and unidentifiable: analysis of faunal remains from Wallace Great House, Colorado"

by

Lucy Maun

Saturday, March 11, 2023

10:00 a.m. - 11:30 a.m. PT

As an outlier Chaco Great House, Wallace Great House (5MT6970) in Cortez, Colorado has been excavated intermittently by the Wallace Ruin Project since 1969, and consistently since 2008. Dr. Bruce Bradley is the primary investigator. Recent excavations have uncovered a deposit of faunal remains and pottery in Room 62. These remains include large mammal bones, cervids, lagomorphs, and exotic species such as raptors and canines. Preliminary examination suggests that a large proportion of the bones were intentionally fractured. The unusual representation of species and butchery evidence may imply the deposit had a ritual use. This also coincides with site's reuse for ritual purposes from AD 1180, after a period of disuse AD 1140-1180. Activity from this period, including Kiva 56 and Room 62, centered around a large Chaco kiva. Establishing a connection between the faunal deposit and the kivas could illuminate cultural aspects of Puebloan ritual life, such as feasting practices.

Lucy Maun is a graduate student at London's Global University, UCL. She received her undergraduate degree at University of Exeter, UK. After graduation she worked with Exeter's archaeology department as a research assistant and worked on assemblage material. She led a research project on the changing role of goats in the UK since their introduction in the Neolithic period. As part of this project she evaluated goat isotope data to test a hypothesis about whether carbon and nitrogen isotopes could show a geographical partition between populations. Lucy engaged in a research project to analyze the faunal remains from the Wallace Great House. SAS supported her research through a scholarship.

Please note that the time for this presentation is earlier than usual. This is because Lucy will be joining us from UK. The webinar will start at 10:00 AM PT and formally conclude at 11:30 a.m.

You may join starting at 9:40 AM to say "Hello" and enjoy a social time.
See announcements: https://sacarcheology.org/announcements/ for **webinar access information.**

SAS Webinar

"Analyzing Upper Paleolithic blank cutting edge efficiency at Tolbor, Mongolia"
by

Corey Johnson

Monday, March 13, 2023

5:00 PM – 6:00 PM PT

The appearance of Initial Upper Paleolithic (IUP) technology in northern East Asia ca. 45 kya marks a significant change in the lithic archaeological record of the region. Understanding the economic trade-offs within IUP tool kits can help reveal important information regarding how those systems operated, and how they compare to later Upper Paleolithic (UP) technologies that developed thereafter. Corey will address the IUP record from Tolbor Valley, Mongolia by investigating a key techno-economic aspect of the lithic tool kit: blank cutting-edge length. To this end, Corey analyzed and compared data from four different lithic assemblages dating between ca. 45-20 kya including IUP and later UP variants. The results of the diachronic analysis of cutting-edge efficiency suggest that, in the Tolbor Valley, larger IUP blanks were made relatively more efficiently than smaller ones, and that during the later stages of the UP there was a gradual shift toward the economization of smaller blanks, particularly with the introduction of pressure microblades during the Last Glacial Maximum.

Corey Johnson is a **PhD candidate at University of California Davis.** His dissertation research consists of using a techno-economic approach for understanding how Paleolithic technological efficiency changed over time in East Asia (specifically in what is today Mongolia and northern China). Following this approach, he reconstructs stone artifact production systems preserved within archaeological sites, then measures and compares the efficiency of the different systems both within and between sites. The results will contribute to our understanding of the tempo and mode of technological change during the Paleolithic in East Asia, and their relationship to human evolutionary history in the region.

Friends are welcome and also invited to join our organization. There is no participation fee.

The webinar will start at 5:00 PM PT and formally conclude at 6:00 PM. You may join starting at 4:40 PM to say "Hello" and enjoy a social time.

See announcements: https://sacarcheology.org/announcements/ for **webinar access information.**

SAS Seminar/Webinar

"Born with a Lead Spoon in their Mouth: Life History & Health in 19th Century San Francisco"
by
Diana Malarchik
and
"Canid Analysis"
by
Jessica Morales
Saturday April 8, 2023
2:00 PM – 4:00 PM PT

On December 3, 2022 at our annual meeting Jelmer Eerkens gave a fascinating presentation, "*Can we identify these 150 year-old remains? Recent archaeoforensic research in San Francisco".* Diana Malarchik participated in this research and will give additional information on this topic from her perspective.

Diana Malarchik is a graduate student at University of California Davis. She received a BA, Secondary Education and MA, Biological Anthropology from the University of Nevada, Reno. She worked as an associate archaeologist for ECORP Environmental Consultants and as an associate bioarchaeologist for PAE Environmental Services from 2018 to 2019. She has a professional publication in *Dental Anthropology Journal* and has given multiple professional presentations. In addition, she was a 7th Grade instructor in Reno, NV.

Jessica Morales. On April 10, 2021 she gave a presentation on her dissertation topic: "The potential use of dogs for hunting". Since then, she has refined her research. She is striving to identify domestic dogs from other canids by examining their diets through stable isotope analysis. She received a scholarship from SAS to use stable isotope analysis of bone collagen and bone apatite canid remains to do this analysis.

Jessica is a PhD candidate at University of California Davis She received her B.A. and M.A. from California State University, Los Angeles, CA. She has developed laboratory skills in California Coastal Archaeology Lab, California State University Los Angeles and University of California Davis Archaeolmetry Laboratory. She was crew chief for University of California, Davis field school "Poryecto Arcaico Cuenca de Titicaca" in 2019 and for California State University, Los Angeles field school at Point Mugu State Park, Ventura, CA in 2014, As an archaeologist she worked for Duke CRM and John Minch and Associates for New Hall, Chino Hills and Riete-Aid Phelan projects. Between 2014 and 2018 she worked as an archaeological Field Technician for SWCA Environmental Consultants. She also has a lengthy list of professional presentations.

You are invited to attend in person at 224 Young Hall. The talks will also be available as a webinar. The seminar will start at 2:00 pm PT and formally conclude at 4:00 pm. You may join starting at 1:40 pm to say "Hello" and enjoy a social time.

Friends are welcome and also invited to join our organization. There is no participation fee.

See announcements: https://sacarcheology.org/announcements/ for **webinar access information.**

SAS Webinar

"Living on the Spine of the World: Placemaking at Early Community Centers Rincon, UT"
by

Daniel Hampson

Monday, April 10, 2023

5:00 PM – 6:00 PM PT

Rincon Bench, located on the northern bench above the San Juan River at the intersection of Comb Ridge in southeast Utah has been the site for large communities from 500 BCE through 900 CE. Many archaeological sites exist at this intersection. Three different temporal community centers—the Basketmaker II, Basketmaker III, and Pueblo I periods—were constructed and used by ancestral Puebloans at Rincon Bench. Daniel's thesis research has focused on an intensive survey of sites in this Rincon Bench Community. Daniel will discuss the results of his survey and offer insight into Mesa Verde prehistory and this region.

Daniel Hampson is a graduate student at New Mexico State University expecting to graduate this spring with a Master of Arts in Anthropology. He received a Bachelor of Arts in Anthropology from Fort Lewis College in 2016. Since then as archaeologist with Woods Canyon Archaeological Consultants and Archaeological Lab Employee at Crow Canyon Archaeological Center, Cortez, Daniel has extensive experience analyzing human remains, faunal, lithic, non-flaked lithic and ceramic collections on archaeological projects in Colorado, Utah, New Mexico and Arizona. Daniel has used this growing experience to perform the research on Rincon Bench

Friends are welcome and also invited to join our organization. There is no participation fee.

The webinar will start at 5:00 PM PT and formally conclude at 6:00 pm. You may join starting at 4:40 pm to say "Hello" and enjoy a social time.

See announcements: https://sacarcheology.org/announcements/ for **webinar access information.**

SAS Tour

"Mission San Jose"

Saturday, March 12, 2023

Sacramento Archeological Society is pleased to offer a historical and pre-history tour in Fremont, CA. We will visit a Native American site with shell mounds, a historical museum for the city of Fremont and /or the Children's Natural History Museum, and Mission San Jose with its associated museum. Given clear skies we will be delighted by an illumination of the mission as the sun proceeds to set. The day will end with a dinner together.

The target itinerary is as follows:

11:00 AM PT - Coyote Hills Regional Park: 8000 Patterson Ranch Road, Fremont, CA 94555

The East Bay area's original inhabitants were the ancestors of the Ohlone Indians, hunters, and gatherers whose skills enabled them to live well off the land's natural bounty. In those days, tule elk roamed the land, condors soared overhead, and sea otters and fish were abundant in the Bay. At Coyote Hills Regional Park, some of this rich wetland is preserved, along with 2,000-year old Tuibun Ohlone Indian shellmound sites with fascinating archaeological resources. $5.00 for car parking. Bring a sack lunch.

1:00 PM - The Museum of Local History: 190 Anza St Fremont, CA 94539 offers interesting artifacts associated with the history of Fremont. Admission - $2.00

and/or depending on time and access

1:00 – 3:00 PM - Children's Natural History Museum: 404 Eggers Drive, Fremont, CA

The museum features several exhibits to highlight the natural history of the local area. Tools of Early Humans show how California Native Americans used natural fibers and rocks to help them survive. The largest hall is West Gordon Fossil Hall that includes the Irvington Fossils, Environments through Time, Bones and the Boy Paleontologists Room. Hall of Small Wonders is full of little creatures including foraminifers, radiolarian, and diatoms. Mineral Rock Hall has minerals classified by their chemical families and rocks from California. The Nature Hall includes specimens of different animals and shells. Admission - $5.00

3:30 – 5:00 PM Old Mission San Jose tour and illumination: 6701 San Jose Dr, Fremont, CA 94539

Mission San Jose was founded on June 11, 1797 by Father Fermin Francisco de Lasuen on a site which was part of a natural highway by way of the Livermore Valley to the San Joaquin Valley. It is the fourteenth of the 21 Spanish Missions in Alta California. Although Mission San Jose was founded nearly 225 years ago, we cannot forget that our story stretches back further into time. Before this was Mission San Jose, it was the Ohlone Village of Oroysom.

Guided Tour at 3:30: $10/adult, $7/child 6-12, free for children under 6

Self-guided Tours of Museum, Church, Historic Cemetery and Garden are available during open hours.

The mission illumination will occur at approximately 4:30. Bring a camera

After the tour join the group for a dinner at a local restaurant.

If you plan to attend, please notify Paul K. Davis at paulkdavis@earthlink.net. Contributions to SAS are encouraged and can be collected at the beginning of the tour. All participants are required to sign a Hold Harmless Agreement at the beginning of the tour.

SAS Tour

"Nevada Caves, Rock Art, Fossils, and Mining"

Saturday, May 20, 2023 through Friday, May 26. 2023

This will be a multi-dimensional tour in Nevada. The tour will feature excavated caves/shelters inhabited by Native Americans, rock art in caves and rock outcroppings, Ichthyosaur and Trilobite fossils, ghost mining town(s), and steam engine railway excursion. These sites are located in central and eastern Nevada. The tour itinerary is as follows:

Day 0 – May 20, Sat – Drive to Fallon. Optional visits – Fort Churchill State Park and/or Grimes Point Petroglyphs

Day 1 – May 21, Sun - Ichthyosaur Museum and Berlin, an abandoned mining town

Day 2 – May 22, Mon. - Toquima Cave and Gatecliff Shelter

Day 3 – May 23, Tuesday - Mount Irish Archaeological District, White River Narrows, Crystal Wash, Trilobite Fossils

Day 4 – May 24, Fri - Rainbow Canyon/Etna Caves

Day 5– May 25, Thursday – Baker Village, and Great Basin National Park

Day 6 – May 26, Friday - Nevada Railway Museum, Ward Charcoal Ovens, and Honeymoon Hill/City of Rocks

The tour will accommodate lodging in motels and/or camping. The number of motels is limited in the small Nevada towns; hence early reservations are essential. The suggested motel and

camping sites are as follows. Participants are expected to make their own lodging reservations and transportation.

Dates	Lodging
Day 0 – May 20, Sat	Fallon Motel – **Holiday Inn** 775-249-0761 Fort Churchill State Park camp ground
Day 1 – May 21, Sun (1 night)	Austin Motel – **Cozy Mountain Motel** 40 Main St. Austin NV 775-346-1566 Camping - **Bob Scott Campground**
Day 2 – May 22, Mon and	Alamo Motel – **Alamo Inn** 300 N US 93 775-725-3371 Camping – Rodeo Park, Alamo or **Pharanagat Wildlife Refuge**
Day 3 – May 23, Tues	Caliente Motel – **Shady Motel** 430 Front St, Caliente 775-726-3106 Camping – **Kershaw Ryan Campground**
Day 4 – May 24, Wed (1 night)	Baker Motel – **Stargazer Inn** 115 S Baker Ave 775-234-7323 Camping – **Great Basin National Park**
Day 5 – May 25, Thur (2 nights)	Ely Motel – **Bristlecone Motel** 775-289-6128 Camping – **Ward Charcoal Ovens** or Willow Creek Rec Area State Park
Day 6 – May 26, Fri	Same as Day 5 in Ely

The number of participants will be limited. If you plan to attend, please notify Jan Johansen at janjohansen@sbcglobal.net and make your reservation payment. The payment of $50 / person to Sacramento Archeological Society, Inc. either in the form of a check or via SAS website (https://sacarcheology.org/society-membership/sas-donations-and-membership-payment/) will confirm your reservation. Participants are expected to be Society members are required to sign a Hold Harmless Agreement. Bring completed forms that will be provided in advance with you or email them to Jan Johansen.

Grocery stores and restaurants are minimal in Austin and Baker. Bring food. Also bring cooler with drinks, snacks, etc. pack good humor, hiking sticks, sunscreen, water, hat, and more good humor. Fill gas tank before group travel. Use your car navigation or mobile phone navigation to street addresses.

PAST EVENTS

SAS Webinar – "Disert Ireland Archaeological Field School- Excavations at an early ecclesiastical site in Co. Donegal, Ireland" by **Megan Donham**

On Monday, January 9th Megan Donham, Cal State LA Graduate student gave a presentation on Disert Ireland and the Disert Ireland Archaeological Field School that she attended last summer. Disert is a ritual pilgrim landscape in Co. Donegal that includes a series of early ecclesiastical enclosures, penitential carns, a holy well dedicated to St Colmcille (also known as St Columba), a post-medieval altar and a chillín (children's graveyard). It may date to as early as the sixth century AD when it was reputedly founded by St Colmcille or may even extend back into prehistory. Last summer excavations were carried out in three trenches. Most of the artifacts were found in Trench 3 by the Holy Well, a place that pilgrims sought to cure ailments.

SAS Webinar - "Finds and Methods at the University of Wyoming Field School 2022" by **Haley Bjorklund** and "Pont de Bonn Field School" by **Marlena Billings**

On Saturday, January 14 Sacramento Archeological Society hosted two presentations by University of California Davis students.

Haley Bjorklund talked about the La Prele Field School which she attended for two sessions (30 days) last summer. The first site in the field school was Hay Gulch. There she learned excavation techniques (surveying, set up of total station, screening, stratigraphic analysis, drawing, etc.) and participants found scrapers, bifaces and projectile points. The next site was Carbon City, a coal mining town. There many recent (1920's) artifacts such as glass, ceramics, nails, safety pins, buttons, woven fabric and a doll's leg were found. Finally La Prele Mammoth site was the focus of the second session of the field school. The site was briefly excavated in the 1980s and then field schools through the University of Wyoming were organized beginning in 2014. La Prele Mammoth site has been dating to about 13,000 cal BP.

Marlena Billings presented on field work at Pont de Bonn (Commune de Modave) and Tou Al'Wise. Both are excavation sites in Belgium that she participated at last summer. The site of 'Le vieux chateau' is located on a cliff and shows evidence of pre-Roman occupation that could correspond to the mysterious oppidum of tribe Condruze (which gave their name to the region, 'le Condroz') described by Julius Cesar. The site also show later phase of medieval occupations on the defense wall and on the plateau, with a chapel dating back to the Merovingian dynasties. Trou Al'Wess is a rock shelter that has been excavated off and on since 1860's. Its occupation has been traced back to ~60,000 years ago.

SAS Webinar - "Using ZooMS to understand osseous technology debris: A case study from NW Greenland" by **Erika Ebel**

On Saturday, February 11 Erika Ebel, a graduate student at University of California Davis presented her research on the Iota site in northwestern Greenland. It has had human occupation for the past 1000 years. Two distinct groups have foraged in the area at different times. Materials such as bone, antler and ivory were used for several purposes by these groups, including tool production. As skeletal material is formed into a tool, pieces are discarded, often with characteristics indicative of the method used to create the final product. Data regarding the manufacture, use and discard of the materials has been collected by analyzing the bone materials with a digital microscope. However, many of this small debris have been modified to an extent that few anatomically diagnostic features remain. Such fragments can be identified via Peptide Mass Fingerprinting (PMF), a method for identifying collagen peptides within bone materials to the genus or species level. In this talk Erika will provide background into the history of occupation and discuss her use of PMF to analyze artifacts from the area.

SAS Webinar - **"Finding Solace in the Soil: The Archaeology of Gardens and Gardeners at Colorado's Japanese American Incarceration Camp" by** Dr. Bonnie J. Clark

On Monday, February 13 Dr. Bonnie J. Clark, professor at University of Denver gave a talk on the internment of Japanese in Colorado. During World War II, Americans of Japanese ancestry were removed from their homes and placed into confinement camps throughout the western US. This presentation overviews the methods and results of six seasons of landscape archaeology at one of those sites—Amache—located in southeastern Colorado. The site contains an incredibly well-preserved record of how the people incarcerated there transformed a hostile landscape through strategy and skill. By integrating a program of historical research, community engagement, and intensive garden archaeology, the University of Denver Amache project is expanding the view of what incarceree gardens are, how they were created, and their import, both to those who made them and us today.

MEMBER'S CORNER

New Members

Welcome as our newest members: Gretchen Munroe, Sumter, SC and Amy Davis, Placerville, CA.

Support SAS through Amazon Smile

Unfortunately, Amazon Smile discontinued their donation process on February 20, 2023.

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 **2023** 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
or pay at the annual meeting. We really appreciate your support.

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Annual Dues for 2023

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

_____ Email: _____ **Phone:** _____

Address:

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

Total enclosed $_____

Major Donors for 2022/2023

We are pleased to acknowledge our major contributors for 2022/2023. These donations support our scholarship program.

Patron ($1000 or more)
Carolyn and Gordon McGregor
Jan and Tom Johansen
Ruth McElhinney

Sponsor ($100 - $999)
Paul K. Davis and Knuti VanHoven
George Foxworth
John and Kathy Foster
Dan and Victoria Foster
Jeremy Johansen
Doug and Sami La Rocca
Roger and Lydia Peake
Diane Sangster
Teresa Steele

ARCHAEOLOGICAL REFERENCES

Recent Articles

The reviewed article(s) are:

- "South Africa tells Homo's story"
- "*Homo naledi* may have lit fires"
- "Ancient Skull uncovered in China could be *Homo erectus*"
- "Genetic insights into the social organization of Neanderthals", "The first genomic portrait of a Neanderthal family", and "First known Neanderthal Family Found in Siberian Cave"
- "Denisovan-endowed immunity"
- "Ancient points suggest Asian roots for early American tools"
- "First known map of night sky found hidden in medieval parchment"
- "DNA offers clues to hunting habits of early Greenlanders"
- "Defining the onset of the Anthropocene"

"South Africa tells Homo's story"

"New analyses this year could lend support to the idea that key events in the evolution of our genus, *Homo*, happened in South Africa. Researchers working in Kromdraai Cave say they plan

to publish descriptions of newly unearthed fossils of *Homo* that may date to earlier than 2 million years ago—soon after the date of the earliest *Homo* fossils, 2.7 million years ago in east Africa. Distinctive features of the Kromdraai fossils, including rarely found lower limbs, could bolster a controversial hypothesis that fossils discovered last year at nearby Drimolen quarry belonged to *H. erectus*, a direct human ancestor—which might indicate that the species first appeared in South Africa rather than in east Africa or Asia, as many have thought. Analyses of other new South African fossils, including forerunners of *Homo*, could also help untangle the histories and relationships of hominin species that lived in the area." (*Science,* V 379, 2023-1-6 p. 10)

"*Homo naledi* may have lit fires

South African caves hold remnants of small fireplaces"

"The ancient hominid, *Homo naledi* may have lit controlled fires in the pitch—dark chambers of an underground cave system. *H. naledi* fossils date to between 335,000 and 236,000 years ago. Paleoanthropologist, Lee Berger found signs of fire use "everywhere" in the South Africa's Rising Star cave complex. The ceiling surfaces displayed blackened burned areas and were dotted by what appeared to be soot particles. Also expedition co-director and Witwatersrand paleoanthropologist, Keneiloe Molopyane led excavations of nearby cave chamber. There, the team uncovered two small fireplaces containing charred bits of wood and burned bones of antelopes and other animals. Remains of a fireplace and nearby burned animal bones were then discovered in a more remote cave chamber where *H. naledi* fossils have been found. Dating of the burned wood and bones and other fire remains still need to be done." (*Science News,* 2023-1-14 p. 8)

"Ancient Skull uncovered in China could be *Homo erectus*"

"Researchers are heralding the discovery an ancient human skull on 18 May at an excavation site 20 kilometers west of Yunyang--formerly known as Yunxian—in central China's Hubei province. It lies 35 meters from where two skulls—dubbed the Yunxian Man skulls—were unearthed in 1989 and 1990 and probably belongs to the same species of ancient people. Unlike those earlier discoveries, which were crushed and distorted after millennia underground the third skull seem to be in good condition. Dating of sediment and animal fossils from the site suggest that the Yunxian humans lived between 1.1 million and 800,000 years ago.

Homo erectus was first described from fossils found on the Indonesian island of Java in the late nineteenth century. Javanese fossils dating to 1.5 million years ago suggest that members of the species might have been the first early humans to have ventured out of Africa. *Homo erectus* was widespread and existed for a long time. Remains have been found in eastern Africa, eastern Asia and possibly Europe and they span a period from 1.9 million to 250,000 years ago. Researcher, Amélie Vialet at the National Museum of Natural History in Paris who worked on the first two skulls says that Yunxian 1 and 2 skulls share some features with older Javanese fossils and other with younger *H. erectus* fossils from mainland Asia. Like the Javanese fossil, they are large skulls with big brain cases but are less heavily built." (Duamo Lewis, *Nature,* V 612, 2022-12-8 pp. 200-201)

"Genetic insights into the social organization of Neanderthals"

"Genomic analyses of Neanderthals have previously proved insights into their population history and relationship to modern humans, but the social organization of Neanderthal communities remains poorly understood In this article the researchers present genetic data for 13 Neanderthals from two Middle Paleolithic sites in the Altai Mountains of southern Siberia: 11 from Chagyrskaya Cave and 2 from Okladnikov Cave—making this one of the largest genetic studies of a Neanderthal population to date. They used hybridization capture to obtain genome-wide nuclear data, as well as mitochondrial and Y-chromosome sequences. Some Chagyrskaya individuals were closely related, including a father-daughter pair and a pair of second-degree relatives, indicating that a least one of the individuals lived at the same time. Up to one-third of these individuals' genomes had long segments of homozygosity, suggesting that the Chagyrskaya Neanderthals were part of a small community. In addition, the Y-chromosome diversity is an order of magnitude lower than the mitochondrial diversity, a pattern that they find is best explained by female migration between communities. Thus the genetic data presented provides a detailed documentation of the social organization of an isolated Neanderthal community at the easternmost extent of their known range." (Laurits Skov *et al*, *Nature,* V 610, 2022-10-20 pp. 519-523)

"The first genomic portrait of a Neanderthal family"

Summary of previous article

"Ancient genomic data have been retrieved for 13 Neanderthals from 2 caves in Siberia. The genomes provide unprecedented insights into social organization of Neanderthal communities. (see previous article -"Genetic insights into the social organization of Neanderthals")

The Chagyrskay genomes, like that of an earlier Neanderthal from Denisova, contain signatures of inbreeding, in the form of long stretches of identical DMA inherited from each parent. In isolation, an individual with signs of inbreeding as extreme as one of these Neanderthals might be mistaken for the offspring of second-degree relatives. However, when a whole population shows this profile, the interpretation moves towards less-recent but more-numerous ancestors shared between parents, as a result of consistently small population sizes. It is fairly well accepted that Neanderthals lived in small communities –compressing perhaps 10-30 individuals per group—with very low population densities in many regions." (Lara M. Cassidy, *Nature,* V 610, 2022-10-20 pp. 454-5)

"First known Neanderthal family found in Siberian Cave"

"Ancient DNA from closely related individuals offers fresh insight into Neanderthal social structures." (See article above -"Genetic insights into the social organization of Neanderthals") (Ewen Callay, *Nature,* V 610, 2022-10-27 pp. 615-616)

"Denisovan-endowed immunity"

"Unlike Neanderthals, we know little about the biology of Denisovans. Indeed, most of tour knowledge of these archaic hominins is of their DNA, either from small fossil samples or the ancestry left in about 5% of the genomes of present-day indigenous Australasians. Vespasiani *et al.* examined the genomes of present-day Papua New Guineans to find out what Denisovans might have contributed to modern human physiology. Denisovan variant were not universally enriched in regions of active chromatin but were enriched for gene expression in immune cells. This indicates that having Denisovan ancestry may be an advantage for protection against pathogens." (*Science,* V 379, 2023-1-13 p. 151)

"Ancient points suggest Asian roots for early American tools

Finds may support coastal route hypothesis for first settlers"

"Thirteen razor-sharp projectile points found along a river in southwestern Idaho appear to represent the oldest evidence so far of tool making in the Americas—and may bolster the idea that the first people to reach the region migrated from Asia in boats along the coast of the Pacific Ocean. Likely deposited into pits by a group of hunter-gatherers, the points were recently dated to between 16,000 and 15,600 years ago, according to a study in *Science Advances* in December. The work at Cooper's Ferry, the site of the discovery was led by Loren Davis, an Oregon State University, Corvallis archaeologist. Davis and the study's other authors think there's a good case to be made that the first migrants from Asia brought with them the rough-and-ready stemmed point technology, with fluted ends that were wedged into spear tips. The points at Cooper's Ferry, they say, most closely resemble projectile points made by people who lived near modern-day Hokkaido, Japan, some 20,000 years ago." (Michael Price, *Science,* V 379, 2023-1-6 p. 15)

"First known map of night sky found hidden in medieval parchment – Fabled star catalogue by ancient Greek astronomer Hipparchus has been feared lost"

"A medieval parchment from a monastery in Egypt has yielded a surprising treasure. Hidden beneath Christian texts, scholars have discovered what seem to be parts of the long-lost star catalogue of the astronomer Hipparchus—believed to be the earliest known attempt to map the entire sky.

Scholars have been searching for Hipparchus's catalogue for centuries. The manuscript came from the Greek Orthodox St Catherine's Monastery on the Sinai Peninsula, Egypt, but most of its 146 leaves, or folios are now owned by the Museum of the Bible in Washington DC. The pages contain the *Codex Climaci Recriptus*, a collection of Syriac texts written in the tenth or eleventh century. But the codex is a palimpsest: parchment that was scraped clean of older text by the scribe so that it could be reused. The older writing was thought to contain further Christian texts and in 2012 biblical scholar Peter Williams at the University of Cambridge, UK asked his students to study the pages as a summer project. One of them, Jamie Klair, unexpectedly spotted a passage in Greek often attributed to the astronomer Eratosthenes. In

2017, the pages were reanalyzed using state-of-the-art multispectral images. Nine folios reveal astronomical material which was probably transcribed in the fifth or sixth centuries." (Jo Marhant, *Nature,* V 610, 2022-10-27 pp. 613-614)

"DNA offers clues to hunting habits of early Greenlanders"

"Early inhabitants of Greenland hunted more than 40 animal species, including some of the largest whales on Earth and a petite, now-extinct subspecies of reindeer, a DNA analysis finds. Scientist have long assumed that the Saqqaq, Norse and Thule people of Greenland relied on fish and whales a resources, but little is known about which species that hunted. Researchers often identify animals eaten in the past by studying bones found at archaeological sites, but intact fish and whales remains are rare. Frederk Seersholm at the University of Copenhagen and is colleagues examined DNA from 25000 bone fragments collected at 12 archaeological sites across Greenland. Analysis of the bones' DNA identified 41 animal species. Among these were nine fish species and five whale species, the common of which was the bowheads. The team also showed that miniature reindeer (also known as caribou) whose bones had previously been found at one site were genetically distinct from modern reindeer—and were probably members of a now-extinct subspecies that included Greenland's first reindeer." (*Nature,* V 610, 2022-10-20 p. 422)

"Defining the onset of the Anthropocene – Twelve sites are considered for defining the Anthropocene geological epoch"

"Earth's geological history is divided into chronostratigraphic units that distinguish phases in the planet's evolution by summarizing complex biotic, geo-chemical and climatic changes. Over the past century, many components of the Earth system have changed so much that they no longer occur within the ranges evident during the Holocene—the geological epoch that represents the past ~11,700 years. They are also distinct geological traces that warrant recognition as a new geological epoch: the Anthropocene. The Anthropocene Working Group (AWG) a task group of the Subcommission on Quaternary Stratigraphy (SQS) of the Internal Commission of Stratigraphy (ISC) has been working to decide precisely when the Anthropocene began, with a focus around the mid-20th century. The definition will need to identify specific physical properties in sediment layers, or strata, that capture the effects of recent increases in human population; unprecedented industrialization and globalization; and changes imposed on the landscape, climate and biosphere. A candidate Anthropocene global boundary stratotype section and point (GSSP) must have at least one primary stratigraphic marker to be used as a reference to correlate the boundary at the selected GSSP site to other locations across the planet. These markers include those that indicate a geochemical change---e.g. plutonium isotopes, carbon-14, and $\delta^{15}N$—or the appearance of anthropogenic particles. Twelve candidates have been proposed for consideration. These include: East Gotland Basin, Beppu Bay, West Flower Garden Bank, Flinders Reef, Palmer Ice Sheet, Ernesto Cave, Crawford Lake, Sihailongwan Maar, Searsville Lake, San Francisco Bay, Śnieżka, Sudetes, and Vienna." (Colin N. Waters and Simon D Turner, *Science,* V 378, 2022-11-18 pp. 706-708)