

Sacramento Archeological Society, Inc. Newsletter

www.sacarcheology.org.

January/February - 2023

# **HAPPY NEW YEAR** Greetings from President

It is so exciting for me to look forward to 2023. Our organization has so many things to be thankful for and excited about. We survived the Pandemic and have what seems to be a full event calendar being planned for at least the beginning of 2023. We are focusing on at least the big three: Scholarships, Meetings and Tours.

We will be accepting scholarship applications again by April 30, 2023. This year we will be hearing from 13 recipients from 2022. Their experiences provide a window into the current status of archaeological research and anthropological education. We look forward to receiving applications from another highly qualified group of applicants. Over the years the caliber of the applicants has been increasingly outstanding and the breath of their experience makes the selection process difficult.

With the Pandemic hopefully lessening as an Endemic we expect to have more face to face meetings. As you can see by the upcoming events calendar many meetings will still be offered via Zoom. This can be an advantage because we can reach a more wide flung audience but of course the disadvantage is the lack of good personal contact.

To achieve more face to face time we will also be offering day and week-long tours. We are still exploring the greater Sacramento/Bay Area to discover our heritage. We also have been exploring Nevada and will be continuing this adventure in a tour that takes us to Central, Eastern and Southern Nevada in May. If you are interested in Native American prehistory, rock art, geology, or mining, mark your calendar and make your reservation.

We have an exciting array of events planned for 2023 and more will be introduced by our expanded Board of Directors. We welcome Debra Brinson, Ranny Ekstrom and Martie Lewis to our board. Their experiences and ideas will add a new dimension to the already high caliber group.

I look forward to an exciting 2023. Join us.

Best wishes, Jan Johansen, President

# **UPCOMING EVENTS CALENDAR**

Please note that the following calendar may have some preliminary dates. Access calendar: <u>https://sacarcheology.org/archaeology-activities/calendar-of-events/</u> for the complete set of events in our website: <u>www.sacarcheology.org</u>.

#### January 2023

January 7, 2022, Saturday, 10:00 – 12:00 AM PT – Zoom Board meeting

January 9, 2023, Monday 5:00 – 6:00 PM PST - **SAS Webinar Megan Donham**, Graduate student at Cal State LA – "Disert Ireland Archaeological Field School- Excavations at an early ecclesiastical site in Co. Donegal, Ireland"

January 14, 2023, Saturday 2:00 – 4:00 PM PT - **SAS Webinar Marlena Billings**, student at UCD - Pont de Bonn Field School and **Haley Bjorklund**, student at UCD, "Finds and Methods at the University of Wyoming Field School 2022"

#### February 2023

February 11, 2023, Saturday 2:00 – 3:30 PM PT- SAS Webinar Erika Ebel, graduate student UCD – "Using ZooMS to understand osseous technology debris: A case study from NW Greenland"

February 13, 2023, Monday 5:00 – 6:00 PM PT - **SAS Webinar Dr. Bonnie J. Clark**, professor at University of Denver –"Finding Solace in the Soil: The Archaeology of Gardens and Gardeners at Colorado's Japanese American Incarceration Camp"

February 18, 2023, Saturday, 10:00 – 12:00 AM PT – Zoom Board meeting

#### March 2023

March 11, 2023, Saturday 1:00 – 3:00 PM PT - **SAS Webinar Lucy Maun**, graduate student at Oxford University, Analysis of faunal remains excavated at Wallace Great House, Colorado March 12, 2023, Sunday **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 18, 2023, Saturday, 10:00 – 12:00 AM PT – Zoom Board meeting

#### <u>April 2023</u>

April 8, 2023, Saturday 2:00 – 4:00 PM PT - **SAS 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

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 15, 2023, Saturday, 10:00 AM – 12:00 PT – Board meeting April 30, 2023 – **Scholarship Applications due** 

#### <u>May 2023</u>

May 6, 2023, Saturday 10 AM – 12:00 PT – Zoom Board meeting

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

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

# **UPCOMING EVENTS**

# **SAS Webinar**

"Disert Ireland Archaeological Field School- Excavations at an early ecclesiastical site in Co. Donegal, Ireland"

> by Megan Donham, Cal State LA Graduate Student <u>Monday, January 9, 2023</u> 5:00 – 6:00 PM PST

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. Disert is still important today for religious devotion and for pilgrims seeking miraculous cures for medical conditions. Excavation at the Disert site began in 2019. Megan will talk about the excavation and her experiences at this field school and her post excavation laboratory work.

Megan Donham is a graduate student at California State University, Los Angles. She received her B.A. at University of Nevada, Reno majoring in Anthropology. She gained experience for artifact processing with the Great Basin Consulting Group in Reno, Nevada. In 2018 she attended a University of Oregon Archaeology Field School at the Connley Caves supervised by Dr. Dennis Jenkins and Katelyn McDonough. Her publication in 2020 was Donham, Megan, Richard Rosencrance, Katelyn McDonough, Haden Kingrey and Dennis L. Jenkins, "Debitage Analysis of Younger Dryas Occupations at the Connley Caves and the Identification of New Toolstone in the Fort Rock Basin, Oregon" in *Current Archaeological Happenings in Oregon* 43(3):17-13.

The webinar will start at 5:00 pm PDT and formally conclude at 6:00 pm. You may join starting at 4:30 pm to say "Hello" and enjoy a social time.

# **SAS Webinar**

""Finds and Methods at the University of Wyoming Field School 2022" by Haley Bjorklund, Student at University of California Davis

and

"Pont de Bonn Field School" by Marlena Billings, University of California Davis Student

### <u>Saturday, January 14, 2023</u> 2:00 p.m. – 4:00 p.m. PST

"Finds and Methods at the University of Wyoming Field School 2022"  $_{\rm by}$ 

#### Haley Bjorklund, Student at University of California Davis

The La Prele Mammoth site, dating to about 13,000 cal BP is being excavated through the University of Wyoming. It was briefly excavated in the 1980s and then field schools were organized beginning in 2014. Haley attended this field school during 2022 and will discuss her field school experience at La Prele. She will also relate it to Clovis big game hunting.



Haley Bjorklund is an undergraduate student at University of California Davis majoring in Anthropology. She has interned in the Arctic Archaeology lab at UC Davis, working on collections from Greenland and Alaska.

#### "Pont de Bonn Field School" by Marlena Billings, University of California Davis Student

Pont de Bonn (Commune de Modave) is an excavation site in Belgium. 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. Marlena will talk about the history of the area and discuss her experience at the Pont de Bonn field school.



Marlena is an undergraduate in Anthropology at University of California Davis. She has been an intern at the UCD Center for Experimental Archaeology and focused on experimenting with the production process for rondelles. This research took her to France where she had access to museum artifacts and collected high resolution images of rondelles to continue her research. Sacramental Archeological Society, Inc. provided her with a scholarship in 2021 to support this work. Attendance at the Pont de Bonn field school expands her archaeological experiences.

The webinar will start at 2:00 pm PDT and formally conclude at 4:00 pm. You may join starting at 1:30 pm to say "Hello" and enjoy a social time.

### **SAS Webinar**

#### "Using ZooMS to understand osseous technology debris: A case study from NW Greenland"

by

#### Erika Ebel, Graduate Student at University of California Davis

#### <u>Saturday, February 11, 2023</u> 2:00 p.m. – 3:30 p.m. PST

The site of lita in northwestern Greenland 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 these 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.

Erika is a graduate student at University of California Davis majoring in Anthropology. She received her Bachelor of Arts in Anthropology from Humboldt State University and Master of Arts in Anthropology from UCD and had advanced to PhD candidacy. She has field experience in Poland, Alaska, and California. Her PhD research is an analysis of faunal materials excavated in 2012 and 2016 at the lita site.

The webinar will start at 2:00 pm PDT and formally conclude at 3:30 pm. You may join starting at 1:30 pm to say "Hello" and enjoy a social time.



### **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, University of Denver Monday, February 13, 2023 5:00 p.m. - 6:30 p.m. PDT

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.

Bonnie J. Clark, Ph.D. University of Denver is committed to using tangible history–objects, sites, and landscapes—to broaden understanding of our diverse past. She began her career as a professional archaeologist and now serves as a Professor in the Anthropology Department at the University of Denver (DU), as well as the Curator for Archaeology of the DU Museum of Anthropology. She is the author or editor of numerous publications including "Finding Solace in the Soil: An Archaeology of Gardens and Gardeners" at Amache and "On the Edge of Purgatory: An Archaeology of Place in Hispanic Colorado". Dr. Clark leads the DU Amache Project, a community collaboration committed to researching, preserving, and interpreting the physical history of Amache, Colorado's WWII-era Japanese American internment camp. That work has been highlighted innumerous venues including Archaeology and American Archaeology magazines.



### **SAS Tour** "Nevada Caves, Rock Art, Fossils, and Mining"

### Saturday, MAY 20, 2023 through Saturday May 27. 2023

The tour itinerary is proposed 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



Ichthyosaur Museum

Berlin

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



Gatecliff Shelter

Toquima Cave

Day 3 – May 23, Tues - Honeymoon Hill, Nevada Railway Museum and Ward Charcoal Ovens



#### Honeymoon Hill/City of Rocks



Nevada Railway Museum

**Charcoal Ovens** 

Day 4 – May 24, Wed – Baker Village, Lehman Cave, and Great Basin National Park



Baker Village

Great Basin National Park

Day 5 – May 25, Thur – Great Basin National Park

 $Day\ 6-May\ 26,$  Fri - Rainbow Canyon/Etna Caves, trilobites at Oak Springs Summit and Crystal Wash



Rainbow Canyon/Etna Caves

Trilobites at Oak Springs Summit



Crystal Wash

Day 7 – May 27, Sat, - Mount Irish Archaeological District, White River Narrows



Mount Irish Archaeological District



White River Narrows

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:

Dates	Lodging
Day 0 – May 20, Sat	<u>Motel</u> – Fallon <b>TBD</b>
	Camping - Fort Churchill St Historical Park
Day 1 – May 21, Sun	<u>Motel</u> – Austin
(1 night)	Cozy Mountain Motel
	40 Main ST. Austin NV
	775-964-2471 ~\$100/ (4 rooms) continental
	breakfast (Reserve early)
	Pony Motel (alternate)
	<u>Camping</u> – Bob Scott (8 sites) or Hickison
	Petroglyph Recreation Site
Day 2 – May 22, Mon and	Motel – Ely TBD (several options)
Day 3 – May 23, Tues	Camping – Ward Mountain Campground or Ward
(2 nights)	Charcoal Ovens @ Willow Creek Rec Area State
	Park
Day 4 – May 24, Wed	Motel - Baker
(1 night)	Stargazer inn

	99 N Baker Ave 775-264-7323 (Reserve early)
	<u>Camping</u> – Great Basin National Park
Day 5 – May 25, Thur	<u>Motel</u> – Caliente
(1 night)	Shady Motel
	430 Front St
	775-726-3106
	~\$100 (Reserve early)
	<u>Camping</u> – Kershaw Ryan Campground
Day 6 – May 26,	<u>Motel</u> – Alamo
Fri and	Alamo Inn 300 N US 93
Day 7 – May 27, Sat	775-725-3371
(2 nights)	~\$64 (Reserve early)
	<u>Camping</u> – Pahranagat National Wildlife Refuge
	Campground

The number of participants will be limited. If you are interested and wish to be put on the tour list, please contact Jan Johansen at <u>janjohansen@sbcglobal.net</u> 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 (<u>https://sacarcheology.org/society-membership/sas-donations-and-membership-payment/</u>) will confirm your reservation.

# PAST EVENTS

### SAS Webinar - "Digging Olompali"

On Monday, November 14, 2022 E. Breck Parkman presented via Zoom a fascinating story on Olompali, a State Park in Marin County. Breck was fortunate to excavate the ruins of the former Burwell Mansion. There he had the unlikely find in fire debris of photograph records that belonged to the Grateful Dead-affiliated, Chosen Family commune, the residents of the mansion when it was destroyed by fire on February 2, 1969. These were keys to provide insight into the culture of the hippie material culture.

### SAS Meeting and Webinar - "SAS Annual Meeting"

On Saturday, December 3, 2022 a group of 21 SAS members and friends met at UC Davis campus (Young Hall) for the SAS Annual Meeting. President, Tom Johansen conducted the meeting which was extended by Paul E. Davis to remote members via Zoom. Tom reviewed of the activities of year and the previous six years of his presidency, peeked into 2023 and conducted the election of officers for 2023.

Jelmer Eerkens facilitated the use of the room and gave a fascinating presentation, "Can we identify these 150 year-old remains? Recent archaeoforensic research in San Francisco". In this presentation he exemplified three individuals whose remains had been found in San Francisco but had not been identified. He discussed the methods that are being used to determine the identity of individuals from their remains and publications of the time.

## SAS Webinar - "Water and Wind: Paleoenvironmental and Archaeological

Correlations at Rimrock Draw Rockshelter"

On Monday, December, 2022 Pat O'Grady, Archaeologist at University of Oregon gave a presentation on his research at Rimrock Draw Rockshelter in Harney County, Oregon.

His excavations at Rimrock Draw Rockshelter in Harney County, Oregon which started in 2009 and have spanned 54 weeks during the years through 2021. It has produced a number of artifacts, botanical remains, and sedimentary deposits indicative of both a nearby marsh and substantial stream. Crescentic stone tools are frequently associated with shallow desert lakes and plants like wapato, bulrush, and wada, are also found in similar settings. Massive rounded boulders in the channel adjacent to the rockshelter attest to long term and high energy stream flow. Based on the artifacts found at the site it was active between ca. 18,000 to 7,000 years ago.

# **MEMBER'S CORNER** 2023 Board of Directors

During the Annual Meeting the 2023 Board of Directors were elected.

Candidate	Office	Candidate	Office
Jan Johansen	President	Rae Ann (Ranny) Eckstrom	Member at Large
Paul K. Davis	Vice-President	John Foster	Member at Large
Debra Brinson	Secretary	Kim Frasse	Member at Large
Doug La Rocca	Treasurer	Jeremy Johansen	Member at Large
Tom Johansen	Past President	Martie Lewis	Member at Large
Lynette Blumhard	Member at Large/Membership	Tori Lyon	Member at Large
		Ruth McElhinney	Member at Large
		Carolyn McGregor	Member at Large
		Lydia Peake	Member at Large
		Roger Peake	Member at Large
		Diane Sangster	Member at Large
		Knuti VanHoven	Member at Large

The slate of the board is:

### **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.

Name(s):		Email:	Phone:
		Email:	Phone:
Address:			
Student/Limited Member	\$15	\$	
Individual Membership	\$30	\$	
Family Membership	\$40	\$	
Sponsor	\$100	\$	
Scholarship Donation		\$	
Total	enclosed		¢

### **New Members**

Welcome Dean Gaumer as our newest member.

# **Support SAS through Amazon Smile**

Amazon Smile provides a means to support non-profit organizations such as Sacramento Archeological Society, Inc. It doesn't cost you anything, but you must simply designate a charity or non-profit to ear-mark a small donation from Amazon. The percentage is small, but with 50+ members and our network, maybe we can all contribute to our SAS scholarship account.

Here's the link for setting it up on your system. <u>https://www.aboutamazon.com/news/community/how-to-sign-up-for-amazonsmile</u> If you purchase from Amazon, sign into <u>https://smile.amazon.com</u> and proceed as you would when making a normal purchase through Amazon. Try it out and let us know if there are problems.

# **Major Donors for 2022/2023**

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

#### Patron (\$1000 or more)

Carolyn and Gordon McGregor Jan and Tom Johansen

#### Sponsor (\$100 - \$999)

Paul and Knuti Davis Jeremy Johansen Ruth McElhinney

# **ARCHAEOLOGICAL REFERENCES**



The Dirt – A podcast for all ages and backgrounds about archaeology, anthropology, and our shared human story https://thedirtpod.com/

#### **Recent Articles**

The reviewed article(s) are:

 "Ancient Tooth DNA Reveals How Herpes Virus Evolved – Teeth from long-dead people and animals are divulging the history of modern-day pathogens"

- "Meal remnants hint that early cooks savored flavor"
- "Prehistoric child's amputation is oldest surgery of its kind" and Surgical amputation of a limb 31,000 years ago in Borneo"
- "Standing up for the earliest bipedal hominins" and "Postcranial evidence of late Miocene hominin bipedalism in Chad"
- "Africa's oldest dinosaurs reveal early suppression of dinosaur distribution"
- "Fossil suggests ancestral bird beak was mobile and "Cretaceous ornithurine supports a neognathous crown bird ancestor"
- "How the Back Death left its mark on immune system genes"
- "Ancient forumlae for making bronze decoded at last"
- "How Anglo-Saxons settle England"

### "Ancient Tooth DNA Reveals How Herpes Virus Evolved – Teeth from long-dead people and animals are divulging the history of modern-day pathogens"

"Researchers have uncovered and sequenced ancient herpes genomes for the first time, from the teeth of long-dead Europeans. The strain of herpes virus that causes lip sores in people today—called HSV-1—was once thought to have emerged in Africa more than 50,000 years ago. But data published in *Science Advances* on 27 July, 2023 (Guellil, M. *et al. Sci. Adv.* 8, eabo4435 (2022)) indicate that it originated around 5,000 years ago during the Bronze Age. The findings hint that changing cultural practices during the Bronze Age—including the emergence of romantic kissing—could have factored into HSV-1's meteoric rise." (Freda Kreier, *Nature*, V 609, 2022-9-1 pp. 21-23)

### "Meal remnants hint that early cooks savored flavor"

"In the popular imagination, a Palaeolithic lunch is a giant hunk of meat, roasted over an open fire. Science, too, has focused more on the Stone Age hunter than the ancient gatherer. But that is changing, according to Ceren Kabukcu at the University of Liverpool, UK, and her team, who analyzed the charred remains of prehistoric food to expand our understanding of Palaeolithic menus.

A skilled eye aided by a scanning electron microscope can determine a plant's genus or even its species, from the structure of its cells. The team reports that 13,000 years ago, the people cooking in Franchthi Cave, in what is now Greece, had a varied and flavorful diet that included bitter vetch (*Vicia ervilia*) and grasses, processed into something like bread or porridge. In Shanidar Cave in Iraqi Kurdistan, the authors found remains of wild peas, mustards, and pistachios that were cooked and eaten at least 40,000 years ago.

At both sites damage to the plant cells is consistent with soaking, grinding, mashing, and heating—techniques still used to turn bitter, astringent and even potentially toxic plants into culinary delights." (*Nature*, V 612, 2022-12-1 p. 10)

### "Standing up for the earliest bipedal hominins"

"A leg bone and two arm bones of a hominin from Chad suggest that seven million years ago, around the time that the human and chimpanzee lineages split, early hominins were bipedal but were also able to climb trees." (Daniel E. Lieberman, *Nature*, V 609, 2022-9-1 pp. 33-34)

### "Postcranial evidence of late Miocene hominin bipedalism in Chad"

"Bipedal locomotion is one of the key adaptations that define the hominin clade. Evidence of bipedalism is known from postcranial remains of late Miocene hominins as early as 6 million years ago (Ma) in eastern Africa. Bipedality of *Sahelanthropus tchadensis* was hitherto inferred about 7 Ma in central Africa (Chad) based on cranial evidence. In this article the authors present postcranial evidence of the locomotor behavior of *S. tchadenis*, with new insight into bipedalism at the early stage of hominin evolutionary history. The original material was discovered at locality TM266 of the Toros-Ménalla fossiliferous area and consists of one left femur and two, right and left, ulnae. The morphology of the femur is most parsimonious with habitual bipedality, and ulnae preserve evidence of substantial aboreal behavior. Taken together, these findings suggest that hominins were already bipeds at around 7 Ma but also suggest that arboreal clambering was probably a significant part of their locomotor repertoire." (G. Daver *et al*, *Nature*, V 609, 2022-9-1 pp. 94-100)

### "Prehistoric child's amputation is oldest surgery of its kind"

"The skeleton of a person who lived 31,000 years ago bears hallmarks of the deliberate removal of their lower left leg—the earliest known evidence of surgical amputation. Found on the island of Borneo, the remains pre-date the pervious oldest known case of limb amputation by more than 20,000 years." Refer to next article. (McKenzie Prillaman, *Nature*, V 609, 2022-9-15 pp. 453-4)

### "Surgical amputation of a limb 31,000 years ago in Borneo"

"The prevailing view regarding the evolution of medicine is that the emergence of settled agricultural societies around 10,000 years ago (the Neolithic Revolution) gave rise to a host of health problems that had previously been unknown among non-sedentary foraging populations, stimulating the first major innovations in prehistoric medical practices. Such changes included the development of more advance surgical procedures, with the oldest known indication of an 'operation' formerly thought to have consisted of the skeletal remains of a European Neolithic farmer (found in Buthiers-Boulancourt, France) who left forearm had been surgically removed and then partially healed. Dating to around 7,000 years ago, this accepted case of amputation would have required comprehensive knowledge of human anatomy and considerable technical skill, and has thus been viewed as the earliest evidence of a complex medical act. In this article, the researchers reported the discovery of skeletal

remains of a young individual from Borneo who had the distal third of their left lower leg surgically amputated, probably as a child, at least 31,000 years ago. The individual survived the procedure and lived for another 6-9 years, before their remains were intentionally buried in Liang Tebo cave, which is located in East Kalimantan, Indonesian Borneo, in a limestone karst area that contains some of the world's earliest dated rock art. This unexpected early evidence of a successful limb amputation suggests that at least some modern human foraging groups in tropical Asia had developed sophisticated medical knowledge and skill long before the Neolithic farming transition." (Tim Ryan Maloney, *Nature*, V 609, 2022-9-15 pp. 547-551)

# "Africa's oldest dinosaurs reveal early suppression of dinosaur distribution"

"The vertebrate lineages that would shape Mesozoic and Cenozoic terrestrial ecosystems originated across Triassic Pangaea. By the Late Triassic (-235 million years ago) cosmopolitan 'disaster faunas' had given way to highly endemic assemblages on the supercontinent. During this time of high endemism, dinosaurs began to disperse. If dinosaurs initially dispersed under palaeolatitudianl-driven endemism, then an assemblage similar to those in South America in India—including the earliest dinosaurs—should be present in Carnian deposits in south-central Africa. This article reports on a new Carnian assemblage from Zimbabwe that includes Africa's oldest definitive dinosaurs, including a nearly complete skeleton of the sauopodomorph *Mbiresaurus raathi* gen. it sp.nov. This assemblage resembles other dinosaur-bearing Carnian assemblages, suggesting that a similar vertebrate fauna ranged high-latitude austral Pangaea. The distribution of the first dinosauian correlated with paleolatitude-linked climatic barriers, and dinosaurian dispersal to the rest of the supercontinent was delayed until these barriers relaxed." (Christopher T. Griffin *et al., Nature,* V 609, 2022-9-8 pp. 313-319)

### O"Fossil suggest ancestral bird beak was mobile"

"A 67-million-year-old fossil bird found in Europe provides evidence suggesting that scientists should reconsider centuries-old ideas about the nature of the ancestral avian beak. See next article." (Christopher R. Torres, *Nature*, V 612, 2022-12-1 pp. 35-36)

# "Cretaceous ornithurine supports a neognathous crown bird ancestor"

"The bony palate diagnoses the two deepest clades of extant birds: Neognathae and Palaeognathae. Neognaths exhibit unfused palate bones and generally kinetic skulls, whereas palaeognaths possess comparatively rigid skulls with the pterygoid and palatine fused into a single element, a condition long considered ancestral for crown birds (Neornithes). However, fossil evidence of palatal remains from taxa close to the origin of Neornithes is scarce, hindering strong inferences regarding the ancestral condition of the neornithine palate. In this article the researchers report on a complete, three-dimensionally preserved pterygoid from a 67-million-year-old relative of Ichthyornis to form new taxon of toothed Late Cretaceous ornithurine bearing an unfused pterygoid that is remarkably similar to those of the extant neognath clade

Galloanserae (waterfowl + landfowl). " (Juan Benito *et al, Nature,* V 612, 2022-12-1 pp. 100-105)

### "How the Black Death left its mark on immune system genes – Study of DNA from medieval victims and survivors finds gene that helped protect

#### people from deadly pathogen"

"In the mid-14<sup>th</sup> century, the Black Death killed 30% to 50% of all people living in Europe, the Middle East, and Africa. Over the past decade, new techniques for analyzing ancient DNA made it possible to search for legacies of pathogens in the genomes of people who died long ago. Jennifer Klunk now at Daicel Arbor Biosciences and colleagues extracted and sequenced DNA from bones from 206 individuals (some who died of Black Death and some who survived) to examine 356 genes associated with immune responses. The team identified 245 gene variants that rose or fell in frequency before and after the Black Death in people in London, four of which were also found in samples from Denmark.

Changes in the code for one gene stood out: ERAP2, which encodes a protein called endoplasmic reticulum aminopeptidase 2. Previous work had shown ERAP2 helps immune cells recognize and fight threatening viruses. The team confirmed it also can suppress Y. pestis bacteria by measuring how the genes of cultured human immune cells responded to the pathogen. The researchers found two variants, or alleles of ERAP2 in their samples. They differed by just one letter in the genetic code. But that difference-which determines whether the gene produces a full-size or truncated protein-had a big impact on immunity. People who inherited two copies of the allele for the full protein were twice as likely to have survived the plague as those who inherited the variant making the truncated version. Analysis of the 143 samples from London also indicated that, before the Black Death, 40% of Londoners carried one or two copies of the protective variant, but only 35% of plague victims carried it. And after the plague, the share of Londerers carrying the protective variant rose to more than 50% within just a few generations. Today the protective variant is still found in about 45% of British people in the 1000 Genomes database. That is surprisingly high, because the protective variant has a downside. Earlier work has shown it comes with a higher risk of developing autoimmune disorders, such as Crohn disease and rheumatoid arthritis." (Ann Gibbons, Science, V 378, 2022-10-21 pp. 237-238)

### "Ancient Formulae for Making Bronze Decoded at Last"

"Researchers might have cracked an ancient Chinese formula for making bronze.

The *Kaogongji*, a Chinese technical encyclopedia dating to around 300 BC, includes six recipes for making various kinds of bronze. But scholars have struggled to decipher the formulae, which describe range of ratios of two main ingredients, Kin and Xi, thought to be copper and tin. Ruiliang Liu, at the British Museum in London, and Mark Pollard, at the University of Oxford, UK studied the chemical composition of various bronze Chinese coins from the same period as the Kaogongji. The coins seemed to be made from combinations of two alloys: a copper-tin-lead alloy and a copper-lead alloy.

The analysis suggests that Chinese bronze-casters might have worked with pre-made alloys instead of pure metals, the authors say, revealing an invisible step in early metallurgy." (*Nature*, V 608, 2022-8-18 p. 452)

### "How the Anglo-Saxons settled England – Genetic study of burials

#### suggests whole families migrated to the island in the first millennium C.E."

"New DNA samples from 494 people who died in England between 400 and 900 C.E. show they derived more than ¾ of their ancestry from Northern Europe. Analysis suggests a rapid, largescale migration from Northern Europe, beginning by 450 C.E. at the latest. Researchers have proposed changing climate and pressure from other groups pushed people to migrate, and that the end of Roman control opened new opportunities in England. Traces of western British and Irish ancestry in people buried on the continent suggest a reverse migration, too, with migrants' descendants moving back after generations in Great Britain. " (Andrew Curry, *Science*, V 377, 2022-9-23 p. 1371)

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