

References

Afrika

COLLINS 2022

Benjamin R. Collins & Amy Hatton, *Beads reveal long-distance connections in early Africa*. [nature 601 \(2022\), 199–200](#).

Beads made from ostrich eggshells, produced by people over the past 50,000 years, provide evidence for a long period of social connection between eastern and southern Africa, followed by isolation and then reconnection.

MILLER 2022

Jennifer M. Miller & Yiming V. Wang, *Ostrich eggshell beads reveal 50,000-year-old social network in Africa*. [nature 601 \(2022\), 234–239](#).
[n601-0234-Supplement.pdf](#)

Humans evolved in a patchwork of semi-connected populations across Africa^{1,2}; understanding when and how these groups connected is critical to interpreting our present-day biological and cultural diversity. Genetic analyses reveal that eastern and southern African lineages diverged sometime in the Pleistocene epoch, approximately 350–70 thousand years ago (ka)^{3,4}; however, little is known about the exact timing of these interactions, the cultural context of these exchanges or the mechanisms that drove their separation. Here we compare ostrich eggshell bead variations between eastern and southern Africa to explore population dynamics over the past 50,000 years. We found that ostrich eggshell bead technology probably originated in eastern Africa and spread southward approximately 50–33 ka via a regional network. This connection breaks down approximately 33 ka, with populations remaining isolated until herders entered southern Africa after 2 ka. The timing of this disconnection broadly corresponds with the southward shift of the Intertropical Convergence Zone, which caused periodic flooding of the Zambezi River catchment (an area that connects eastern and southern Africa). This suggests that climate exerted some influence in shaping human social contact. Our study implies a later regional divergence than predicted by genetic analyses, identifies an approximately 3,000-kilometre stylistic connection and offers important new insights into the social dimension of ancient interactions.

Aktuell

MADSEN 2022

David B. Madsen, Loren G. Davis, David Rhode & Charles G. Oviatt, *Comment on “Evidence of humans in North America during the Last Glacial Maximum”*. [science 375 \(2022\), eabm4678](#).

Bennett et al. (Reports, 24 September 2021, p. 1528) report human footprints from Lake Otero, New Mexico, USA \approx 22,000 years ago. Critical assessment suggests that their radiocarbon chronology may be inaccurate. Reservoir effects may have caused radiocarbon ages to appear thousands of years too old. Independent verification of the ages of the footprint horizons is imperative and is possible through other means.

Radiocarbon reservoir effects in pluvial lakes around the world [...] tend to be in the range of only a few thousand years, so we suspect that the actual age of the Lake Otero footprints may still date to as much as 4000 to 5000 years before the opening of an ice-free corridor during the post-LGM period, probably overlapping in time with other very early North American sites.

We disagree [with Bennett et al.] and assert that whether the footprints reliably date to >20 ka remains an open question.

MOYER 2022

Melinda Wenner Moyer, *The pandemic generation*. [nature](#) **601** (2022), 180–183.

Child-development researchers are investigating whether the pandemic is shaping early brain development and behaviour.

When they compared results across participants, the pandemic-born babies scored almost two standard deviations lower than those born before it on a suite of tests that measure development in a similar way to IQ tests. They also found that babies from low-income families experienced the largest drops, that boys were more affected than girls² and that gross motor skills were affected the most.

A growing body of research suggests that among school-aged children, remote learning might be widening the already-large learning and development gaps between children from affluent and low-income backgrounds and between white kids and children of colour. In the Netherlands, researchers found that kids did worse on national assessments in 2020 — compared with the three previous years — and that learning losses were up to 60 % larger for children from less-educated families.

MÜLLER 2022

Andrew Müller, *Ameisen mit Approbation*. [taz.de](#) **2022**, Jan. 8, 42.

PIGATI 2022

Jeffrey S. Pigati et al., “Evidence of humans in North America during the Last Glacial Maximum”, *Response to Comment*. [science](#) **375** (2022), eabm6987.

Madsen et al. question the reliability of calibrated radiocarbon ages associated with human footprints discovered recently in White Sands National Park, New Mexico, USA. On the basis of the geologic, hydrologic, stratigraphic, and chronologic evidence, we maintain that the ages are robust and conclude that the footprints date to between $\approx 23,000$ and 21,000 years ago.

Jeffrey S. Pigati, Kathleen B. Springer, Matthew R. Bennett, David Bustos, Thomas M. Urban, Vance T. Holliday, Sally C. Reynolds & Daniel Odess

REYNOLDS 2022

Catherine J. Reynolds, Joseph M. Gibbons, Corinna Pade, Áine McKnight, Daniel M. Altmann & Rosemary J. Boyton et al., *Heterologous infection and vaccination shapes immunity against SARS-CoV-2 variants*. [science](#) **375** (2022), 183–192. DOI:10.1126/science.abm0811. s375-0183-Supplement.pdf

The impact of the initial severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infecting strain on downstream immunity to heterologous variants of concern (VOCs) is unknown. Studying a longitudinal healthcare worker cohort, we found that after three antigen exposures (infection plus two vaccine doses), S1 antibody, memory B cells, and heterologous neutralization of B.1.351, P.1, and

B.1.617.2 plateaued, whereas B.1.1.7 neutralization and spike T cell responses increased. Serology using the Wuhan Hu-1 spike receptor binding domain poorly predicted neutralizing immunity against VOCs. Neutralization potency against VOCs changed with heterologous virus encounter and number of antigen exposures. Neutralization potency fell differentially depending on targeted VOCs over the 5 months from the second vaccine dose. Heterologous combinations of spike encountered during infection and vaccination shape subsequent cross-protection against VOC, with implications for future-proof next-generation vaccines.

Catherine J. Reynolds, Joseph M. Gibbons, Corinna Pade, Kai-Min Lin, Diana Muñoz Sandoval, Franziska Pieper, David K. Butler, Siyi Liu, Ashley D. Otter, George Joy, Katia Menacho, Marianna Fontana, Angelique Smit, Beatrix Kele, Teresa Cutino-Moguel, Mala K. Maini, Mahdad Noursadeghi, COVIDsortium Immune Correlates Network, Tim Brooks, Amanda Semper, Charlotte Manisty, Thomas A. Treibel, James C. Moon, COVIDsortium Investigators, Áine McKnight, Daniel M. Altmann & Rosemary J. Boyton

WCISLO 2021

Alex Wcislo, Xavier Graham, Stan Stevens, Johannes Ehoulé Toppe, Lucas Wcislo & William T. Wcislo, *Azteca ants repair damage to their Cecropia host plants*. *JHymenopteraR* **88** (2021), 61–70.

JHymenopteraR088-061-Supplement1.mp4, JHymenopteraR088-061-Supplement2.mp4, JHymenopteraR088-061-Supplement3.pdf

Some Azteca ants are well-known symbionts that defend their *Cecropia* host plants against herbivory, although there is considerable variability in behavior among colonies, conditions, and species. In exchange, ants receive food, and also shelter within the plants' internodes. Here we demonstrate that ants repair damage to the host plant when their brood is directly threatened. Using comminuted plant fibers and an unidentified binding liquid (probably plant sap) ants generally began patching holes in the tree trunk immediately, and significantly reduced the size of the hole 2.5 hours after it was created, and they generally completed the repairs within 24 hours.

Keywords: Ant-plant interactions | mutualism | nest construction | nest repair

Bibel

GRESSMANN 1909

Hugo Gressmann, *Altorientalische Texte und Bilder zum Alten Testament*. (Tübingen 1909).

Datierung

VIDAL 2022

Céline M. Vidal et al., *Age of the oldest known Homo sapiens from eastern Africa*. *nature* (2022), preprint, 1–10. DOI:10.1038/s41586-021-04275-8.

n2022.01-Vidal-Supplement.pdf

Efforts to date the oldest modern human fossils in eastern Africa, from Omo-Kibish1–3 and Herto4,5 in Ethiopia, have drawn on a variety of chronometric evidence, including 40Ar/39Ar ages of stratigraphically associated tuffs. The ages that are generally reported for these fossils are around 197 thousand years (kyr)

for the Kibish Omo I^{3,6,7}, and around 160–155 kyr for the Herto hominins^{5,8}. However, the stratigraphic relationships and tephra correlations that underpin these estimates have been challenged^{6,8}. Here we report geochemical analyses that link the Kamoya’s Hominid Site (KHS) Tuff⁹, which conclusively overlies the member of the Omo-Kibish Formation that contains Omo I, with a major explosive eruption of Shala volcano in the Main Ethiopian Rift. By dating the proximal deposits of this eruption, we obtain a new minimum age for the Omo fossils of 233 ± 22 kyr. Contrary to previous arguments^{6,8}, we also show that the KHS Tuff does not correlate with another widespread tephra layer, the Waidedo Vitric Tuff, and therefore cannot anchor a minimum age for the Herto fossils. Shifting the age of the oldest known *Homo sapiens* fossils in eastern Africa to before around 200 thousand years ago is consistent with independent evidence for greater antiquity of the modern human lineage¹⁰.

Céline M. Vidal, Christine S. Lane, Asfawossen Asrat, Dan N. Barfod, Darren F. Mark, Emma L. Tomlinson, Amdemichael Zafu Tadesse, Gezahegn Yirgu, Alan Deino, William Hutchison, Aurélien Mounier & Clive Oppenheimer

Energie

GUTERMAN 2022

Lila Guterman, *China pioneers small reactor*. [science](#) **375** (2022), 125–126.

At the Shidao Bay Nuclear Power Plant in eastern China, designers opted for a “pebble bed” design, in which nuclear fuel is encased in spherical graphite “pebbles” the size of tennis balls that are packed into a cylindrical vessel like gumballs in a jar. Circulating helium is heated by the pebbles to 750°C.

Klima

PALMER 2022

Jane Palmer, *The One-Two Punch of Fires and Mudslides*. [nature](#) **601** (2022), 184–186.

Regions that never used to burn are now suffering from forest fires — and that raises the risks of devastating mudslides that are hard to forecast.

TAYLOR 2022

Christopher M. Taylor, Cornelia Klein, Douglas J. Parker, France Gerard, Valiyaveetil Shamsudheen Semeena, Emma J. Barton “Late-stage” deforestation enhances storm trends in coastal West Africa. [PNAS](#) **119** (2022), e2109285119.

Deforestation affects local and regional hydroclimate through changes in heating and moistening of the atmosphere. In the tropics, deforestation leads to warming, but its impact on rainfall is more complex, as it depends on spatial scale and synoptic forcing. Most studies have focused on Amazonia, highlighting that forest edges locally enhance convective rainfall, whereas rainfall decreases over drier, more extensive, deforested regions. Here, we examine Southern West Africa (SWA), an example of “late-stage” deforestation, ongoing since 1900 within a 300-km coastal belt. From three decades of satellite data, we demonstrate that the upward trend in convective activity is strongly modulated by deforestation patterns. The frequency of afternoon storms is enhanced over and downstream

of deforested patches on length scales from 16 to 196 km, with greater increases for larger patches. The results are consistent with the triggering of storms by mesoscale circulations due to landscape heterogeneity. Near the coast, where sea breeze convection dominates the diurnal cycle, storm frequency has doubled in deforested areas, attributable to enhanced land–sea thermal contrast. These areas include fastgrowing cities such as Freetown and Monrovia, where enhanced storm frequency coincides with high vulnerability to flash flooding. The proximity of the ocean likely explains why ongoing deforestation across SWA continues to increase storminess, as it favors the impact of mesoscale dynamics over moisture availability. The coastal location of deforestation in SWA is typical of many tropical deforestation hotspots, and the processes highlighted here are likely to be of wider global relevance.

Keywords: deforestation | West Africa | convective storms | rainfall | sea breeze
Christopher M. Taylor, Cornelia Klein, Douglas J. Parker, France Gerard,
Valiyaveetil Shamsudheen Semeena, Emma J. Barton & Bethan L. Harris

Significance: Tropical deforestation tends to increase regional air temperatures, but its impacts on rainfall are more complex. The conventional picture, based largely on studies over Amazonia, is that storm frequency can increase over small, deforested areas but is reduced when the landscape is predominantly deforested. This study examines Southern West Africa, a coastal region that has little remaining intact forest. Here, the ongoing patchy deforestation increases the frequency of afternoon storms locally. Deforestation appears especially effective at triggering storms near the coast, where temperature-sensitive sea breezes dominate, and rapidly urbanizing populations are vulnerable to flood risk. Our results emphasize dynamical processes over moisture limitation and are highly relevant for many tropical deforestation hotspots, which, unlike Amazonia, are located near the coastline.

Metallzeiten

KHUDAVERDYAN 2021

Anahit Y. Khudaverdyan, Azat A. Yengibaryan, Hamazasp H. Khachatryan & Arshak A. Hovhanesyan, *Warrior burial of the Late Bronze Age and Early Iron Age, The phenomenon of women warriors from the Jrapi cemetery (Shirak Province, Armenia)*. [International Journal of Osteoarchaeology \(2021\), preprint, 1–12.](#) DOI:10.1002/oa.3077.

Study of the bone remains of two female warriors from Jrapi (Shirak Province, Armenia) burial ground (Burial 3) revealed a multiple array of traumatic lesions, which shed light on their daily activities, occupation, and warfare practice. Both women had compressive cranial lesions with the signs of healing. A bronze arrowhead once embedded in the soft tissues of the intercostal space was discovered as well as a canal in the lower epiphysis of the tibia probably left by the broken point of a bronze arrowhead. The women were likely horse riders and archers. The remains unearthed in Burial N 3 belonged to two females who seemed to live as professional warriors and were buried as individuals of rank. This tomb is the third burial discovered in Armenia that provides evidence on female warriors.

Keywords: Armenia | Jrapi | Late Bronze and Early Iron Ages | traumas | women warriors

Mittelalter

AMEEN 2021

Carly Ameen et al., *Interdisciplinary Approaches to the Medieval Warhorse*. *Cheiron* **1** (2021), 100–119.

The warhorse is arguably the most characteristic animal of the English Middle Ages. But while the development and military uses of warhorses have been intensively studied by historians, the archaeological evidence is too often dispersed, overlooked or undervalued. Instead, we argue that to fully understand the cultural significance and functional role of the medieval warhorse, a systematic study of the full range of archaeological evidence for warhorses (and horses more generally) from medieval England is necessary. This requires engagement with material evidence at a wide variety of scales — from individual artefacts through to excavated assemblages and landscape-wide distributions — dating between the late Saxon and Tudor period (c. AD 800–1600). We present here a case study of our interdisciplinary engaged research design focusing upon an important English royal stud site at Odiham in Hampshire. This brings together several fields of study, including (zoo)archaeology, history, landscape survey, and material culture studies to produce new understandings about a beast that was an unmistakable symbol of social status and a decisive weapon on the battlefield.

Keywords: Archaeology | warhorse | material culture | landscape | zooarchaeology | deer park | stud

Carly Ameen, Gary Paul Baker, Helene Benkert, Camille Vo Van Qui, Robert Webley, Robert Liddiard, Alan K. Outram & Oliver H. Creighton

AMEEN 2021

Carly Ameen et al., *In search of the ‘great horse’: A zooarchaeological assessment of horses from England (AD 300–1650)*. *International Journal of Osteoarchaeology* **31** (2021), 1247–1257.

Popular culture presents a deep-rooted perception of medieval warhorses as massive and powerful mounts, but medieval textual and iconographic evidence remains highly debated. Furthermore, identifying warhorses in the zooarchaeological record is challenging due to both a paucity of horse remains relative to other domesticates, and the tendency of researchers to focus on osteological size, which makes it difficult to reconstruct in-life usage of horses and activity related changes. This paper presents the largest zooarchaeological dataset of English horse bones ($n = 1964$) from 171 unique archaeological sites dating between AD 300 and 1650. Using this dataset alongside a modern comparative sample of known equids ($n = 490$), we examine trends in size and shape to explore how the skeletal conformation of horses changed through time and reflected their domestic, elite and military roles. In addition to evidencing the generally small stature of medieval horses relative to both earlier and later periods, we demonstrate the importance of accurately exploring the shape of skeletal elements to describe the morphological characteristics of domestic animals. Furthermore, we highlight the need to examine shape variation in the context of enthesal changes and biomechanics to address questions of functional morphology and detect possible markers of artificial selection on past horses.

Keywords: biometry | conformation | England | horse | medieval | warhorse | zooarchaeology

Carly Ameen, Helene Benkert, Tamsyn Fraser, Rebecca Gordon, Matilda Holmes, Will Johnson, Malene Lauritsen, Mark Maltby, Karina Rapp, Tess Townsend, Gary Paul Baker, Laura May Jones, Camille Vo Van Qui, Robert Webley,

Robert Liddiard, Naomi Sykes, Oliver H. Creighton, Richard Thomas & Alan K. Outram

Sprachlehre

CHOMSKY 1967

William Chomsky, *The Growth of Hebrew during the Middle Ages*. [Jewish Quarterly Review](#) **57** (1967), 121–136.

When the twenty-eight elders were convoked by the Hakham Bashi in Jerusalem, in 1855, to listen to a proposal by Dr. Ludwig A. Frankel, an emissary of the Lämél family in Austria, for founding a school in Jerusalem as a memorial to the father of the family, the proceedings were conducted entirely in Hebrew. What other language could serve as a means of intercommunication among the Jews hailing from all parts of the world, employing a variety of dialects? The Hebrew they employed may have been stilted, bookish, and grammatically inaccurate. A variety of pronunciations were certainly heard there, but the language was mutually intelligible. It is, accordingly, quite obvious that the Hebrew language must still have been very much alive during the medieval period in Spain.