

## References

### Afrika

KOILE 2022

Ezequiel Koile, Simon J. Greenhill, Damían E. Blasi, Remco Bouckaert & Russell D. Gray, *Phylogeographic analysis of the Bantu language expansion supports a rainforest route*. [PNAS 119 \(2022\), e2112853119](#).  
pnas119-e2112853119-Supplement.pdf

The Bantu expansion transformed the linguistic, economic, and cultural composition of sub-Saharan Africa. However, the exact dates and routes taken by the ancestors of the speakers of the more than 500 current Bantu languages remain uncertain. Here, we use the recently developed “break-away” geographical diffusion model, specially designed for modeling migrations, with “augmented” geographic information, to reconstruct the Bantu language family expansion. This Bayesian phylogeographic approach with augmented geographical data provides a powerful way of linking linguistic, archaeological, and genetic data to test hypotheses about large language family expansions. We compare four hypotheses: an early major split north of the rainforest; a migration through the Sangha River Interval corridor around 2,500 BP; a coastal migration around 4,000 BP; and a migration through the rainforest before the corridor opening, at 4,000 BP. Our Results produce a topology and timeline for the Bantu language family, which supports the hypothesis of an expansion through Central African tropical forests at 4,420 BP (4,040 to 5,000, 95 % highest posterior density interval), well before the Sangha River Interval was open.

**Keywords:** Bantu expansion | phylogeography | linguistic geography | Central African rainforest

**Significance:** Southern Africa has been shaped by the large-scale expansion of Bantu populations fueled by agriculture: Currently, 240 million people speak one of the more than 500 Bantu languages. However, the timing and geographic routes undergone by the Bantu populations remain largely unknown. We use cutting-edge phylogeographic techniques to show that Bantu populations migrated through the Central African tropical rainforest around 4,400 y ago. This adds to the growing evidence that agricultural expansions can successfully overcome ecological challenges as they unfold.

### Anthropologie

CALLAWAY 2022

Ewen Callaway, *How humans evolved the ability to digest milk*. [nature 608 \(2022\), 251–252](#).

Landmark study shows that famine and disease shaped lactose tolerance.

EVERSHED 2022

Richard P. Evershed et al., *Dairying, diseases and the evolution of lactase persistence in Europe*. [nature 608 \(2022\), 336–345](#).  
n608-0336-Supplement.pdf

In European and many African, Middle Eastern and southern Asian populations, lactase persistence (LP) is the most strongly selected monogenic trait to have evolved over the past 10,000 years<sup>1</sup>. Although the selection of LP and the consumption of prehistoric milk must be linked, considerable uncertainty remains concerning their spatiotemporal configuration and specific interactions<sup>2,3</sup>. Here we provide detailed distributions of milk exploitation across Europe over the past 9,000 years using around 7,000 pottery fat residues from more than 550 archaeological sites. European milk use was widespread from the Neolithic period onwards but varied spatially and temporally in intensity. Notably, LP selection varying with levels of prehistoric milk exploitation is no better at explaining LP allele frequency trajectories than uniform selection since the Neolithic period. In the UK Biobank<sup>4,5</sup> cohort of 500,000 contemporary Europeans, LP genotype was only weakly associated with milk consumption and did not show consistent associations with improved fitness or health indicators. This suggests that other reasons for the beneficial effects of LP should be considered for its rapid frequency increase. We propose that lactase non-persistent individuals consumed milk when it became available but, under conditions of famine and/or increased pathogen exposure, this was disadvantageous, driving LP selection in prehistoric Europe. Comparison of model likelihoods indicates that population fluctuations, settlement density and wild animal exploitation—proxies for these drivers—provide better explanations of LP selection than the extent of milk exploitation. These findings offer new perspectives on prehistoric milk exploitation and LP evolution.

Richard P. Evershed, George Davey Smith, Mélanie Roffet-Salque, Adrian Timpson, Yoan Diekmann, Matthew S. Lyon & Mark G. Thomas et al.

## GOUZOULES 2022

Harold Gouzoules, *When less is more in the evolution of language, Did loss of vocal fold membranes typical of nonhuman primates enable human speech?* [science 377 \(2022\), 706–707](#).

If there has been a loss of a tendency or capacity to exaggerate size vocally in humans, there are other means to offset them: Humans can, of course, speak softly and carry a big stick.

## NISHIMURA 2022

Takeshi Nishimura, Isao T. Tokuda & W. Tecumseh Fitch et al., *Evolutionary loss of complexity in human vocal anatomy as an adaptation for speech*. [science 377 \(2022\), 760–763](#).

s377-0760-Supplement1.pdf, s377-0760-Supplement2.zip

Human speech production obeys the same acoustic principles as vocal production in other animals but has distinctive features: A stable vocal source is filtered by rapidly changing formant frequencies. To understand speech evolution, we examined a wide range of primates, combining observations of phonation with mathematical modeling. We found that source stability relies upon simplifications in laryngeal anatomy, specifically the loss of air sacs and vocal membranes. We conclude that the evolutionary loss of vocal membranes allows human speech to mostly avoid the spontaneous nonlinear phenomena and acoustic chaos common in other primate vocalizations. This loss allows our larynx to produce stable, harmonic-rich phonation, ideally highlighting formant changes that convey most phonetic information. Paradoxically, the increased complexity of human spoken language thus followed simplification of our laryngeal anatomy.

Takeshi Nishimura, Isao T. Tokuda, Shigehiro Miyachi, Jacob C. Dunn, Christian T. Herbst, Kazuyoshi Ishimura, Akihisa Kaneko, Yuki Kinoshita, Hiroki Koda,

Jaap P.P. Saers, Hirohiko Imai, Tetsuya Matsuda, Ole Næsbye Larsen, Uwe Jürgen, Hideki Hirabayashi, Shozo Kojima & W. Tecumseh Fitch

## WILKIN 2022

Shevan Wilkin, *The mystery of early milk consumption in Europe. nature* **608** (2022), 268–269.

What underpins how humans evolved the capacity to consume milk during adulthood? A look at the connection between health and the genetic changes needed to break down milk offers a surprising new perspective.

## ZOLLIKOFER 2022

Christoph P. E. Zollikofer, Tim D. White & Marcia S. Ponce de León et al., *Endocranial ontogeny and evolution in early Homo sapiens, The evidence from Herto, Ethiopia. PNAS* **119** (2022), e2123553119. [pnas119-e2123553119-Supplement.pdf](#)

Fossils and artifacts from Herto, Ethiopia, include the most complete child and adult crania of early *Homo sapiens*. The endocranial cavities of the Herto individuals show that by 160,000 y ago, brain size, inferred from endocranial size, was similar to that seen in modern human populations. However, endocranial shape differed from ours. This gave rise to the hypothesis that the brain itself evolved substantially during the past  $\approx 200,000$  y, possibly in tandem with the transition from Middle to Upper Paleolithic techno-cultures. However, it remains unclear whether evolutionary changes in endocranial shape mostly reflect changes in brain morphology rather than changes related to interaction with maxillofacial morphology. To discriminate between these effects, we make use of the ontogenetic fact that brain growth nearly ceases by the time the first permanent molars fully erupt, but the face and cranial base continue to grow until adulthood. Here we use morphometric data derived from digitally restored immature and adult *H. sapiens* fossils from Herto, Qafzeh, and Skhul (HQS) to track endocranial development in early *H. sapiens*. Until the completion of brain growth, endocasts of HQS children were similar in shape to those of modern human children. The similarly shaped endocasts of fossil and modern children indicate that our brains did not evolve substantially over the past 200,000 y. Differences between the endocranial shapes of modern and fossil *H. sapiens* adults developed only with continuing facial and basicranial growth, possibly reflecting substantial differences in masticatory and/or respiratory function.

**Keywords:** paleoanthropology | Ethiopia | endocast | Herto | digital restoration

Christoph P. E. Zollikofer, Thibault Bienvenu, Yonas Beyene, Gen Suwa, Berhane Asfaw, Tim D. White & Marcia S. Ponce de León

**Significance:** Fossils of early *Homo sapiens* from Herto, Ethiopia, show that populations living in Africa 160,000 years ago had already evolved brains broadly equivalent in size to those of humans living today. However, these early human braincases were shaped differently than ours, raising the question of whether the actual brains they housed were also structurally different. We used high-resolution computed tomography to perform accurate digital restorations of the fossil remains. These data allowed direct comparisons between endocranial shape development from childhood to adulthood in both fossil and living humans. Our Results suggest that the peculiar shape of early *Homo sapiens* adult braincases was likely due to dietary and lifestyle differences rather than different brain anatomy.

## Biologie

NEUMANN 2022

Gunnar U. Neumann, Eirini Skourtanioti, Maria A. Spyrou & Philipp W. Stockhammer et al., *Ancient Yersinia pestis and Salmonella enterica genomes from Bronze Age Crete*. *Cell* (2022), preprint, 1–9. DOI:10.1016/j.cub.2022.06.094.

### Highlights:

- We provide genetic evidence of *Y. pestis* and *S. enterica* from Bronze Age Crete
- The *Y. pestis* genome is part of an extinct lineage of non-fleaadapted strains
- Ancient *S. enterica* genomes cluster with contemporary nonhostadapted strains
- The isolates coincide with societal changes ca. 2,000 BCE in Eastern Mediterranean

During the late 3rd millennium BCE, the Eastern Mediterranean and Near East witnessed societal changes in many regions, which are usually explained with a combination of social and climatic factors.<sup>1–4</sup> However, recent archaeogenetic research forces us to rethink models regarding the role of infectious diseases in past societal trajectories.<sup>5</sup> The plague bacterium *Yersinia pestis*, which was involved in some of the most destructive historical pandemics,<sup>5–8</sup> circulated across Eurasia at least from the onset of the 3rd millennium BCE,<sup>9–13</sup> but the challenging preservation of ancient DNA in warmer climates has restricted the identification of *Y. pestis* from this period to temperate climatic regions. As such, evidence from culturally prominent regions such as the Eastern Mediterranean is currently lacking. Here, we present genetic evidence for the presence of *Y. pestis* and *Salmonella enterica*, the causative agent of typhoid/enteric fever, from this period of transformation in Crete, detected at the cave site Hagios Charalambos. We reconstructed one *Y. pestis* genome that forms part of a now-extinct lineage of *Y. pestis* strains from the Late Neolithic and Bronze Age that were likely not yet adapted for transmission via fleas. Furthermore, we reconstructed two ancient *S. enterica* genomes from the Para C lineage, which cluster with contemporary strains that were likely not yet fully host adapted to humans. The occurrence of these two virulent pathogens at the end of the Early Minoan period in Crete emphasizes the necessity to re-introduce infectious diseases as an additional factor possibly contributing to the transformation of early complex societies in the Aegean and beyond.

Gunnar U. Neumann, Eirini Skourtanioti, Marta Burri, Elizabeth A. Nelson, Megan Michel, Alina N. Hiss, Photini J. P. McGeorge, Philip P. Betancourt, Maria A. Spyrou, Johannes Krause & Philipp W. Stockhammer

## Grabung

NIGRO 2022

Lorenzo Nigro, *The sacred pool of Ba'al, A reinterpretation of the 'Kothon' at Motya*. *Antiquity* **96** (2022), 354–371.

Antiquity096-0354-Supplement.pdf

The Phoenician island-city of Motya, off the west coast of Sicily, has long been a focus of archaeological research. Earlier excavations identified a large rectangular basin interpreted, by analogy with Carthage, as a 'kothon' or artificial inner harbour. Recent investigations of this feature, however, lead the author to a new interpretation. Rather than a harbour, the so-called 'Kothon' is revealed as a sacred freshwater pool at the centre of a monumental circular sanctuary hosting three large temples. The pool, watched over by a statue of Ba'al, also served as a surface

for observing and mapping the movement of stars, as emphasised by the alignment of structures and features positioned around the sacred enclosure.

Keywords: Sicily | Motya | Mediterranean urbanism | Phoenician religion | sanctuary | archaeoastronomy

## Kultur

### DARVILL 2022

Timothy Darvill, *Keeping time at Stonehenge*. *Antiquity* **96** (2022), 319–335.

Scholars have long seen in the monumental composition of Stonehenge evidence for prehistoric timereckoning—a Neolithic calendar. Exactly how such a calendar functioned, however, remains unclear. Recent advances in understanding the phasing of Stonehenge highlight the unity of the sarsen settings. Here, the author argues that the numerology of these sarsen elements materialises a perpetual calendar based on a tropical solar year of 365.25 days. The indigenous development of such a calendar in north-western Europe is possible, but an Eastern Mediterranean origin is also considered. The adoption of a solar calendar was associated with the spread of solar cosmologies during the third millennium BC and was used to regularise festivals and ceremonies.

Keywords: Britain | Wessex | Stonehenge | solar calendar | time-reckoning

### HERMANN 2022

Raphael Hermann, *Weight regulation in British and Irish Bronze Age gold objects, A reanalysis and reinterpretation*. *Antiquity* **96** (2022), 336–353.

Antiquity096-0336-Supplement1.xlsx, Antiquity096-0336-Supplement2.pdf

Sophisticated metrological systems were common in the European Bronze Age and mass-regulation has been argued for various classes of object, including gold artefacts. A recent study published in *Antiquity* used Cosine Quantogram Analysis to demonstrate mass-regulation in a small sample of gold objects from Britain, Ireland and France. Since then, substantial quantities of new data from British Bronze Age gold objects have been collated. Here, the author presents the results of Cosine Quantogram Analysis on nearly 1000 such objects—the largest sample analysed to date. The results demonstrate that, even though some regularities can be discerned, massregulation is no longer a tenable interpretation of gold objects from Bronze Age Britain.

Keywords: Britain | Ireland | Bronze Age | gold | weight regulation | Cosine Quantogram Analysis

## Methoden

### WRIGLEY-FIELD 2022

Elizabeth Wrigley-Field, *There’s a simple fix for skewed pandemic estimates*. *nature* **608** (2022), 241.

Demographers must work together so that officials can produce numbers all can trust.

## Politik

SIDIK 2022

Saima May Sidik, *The effects of overturning Roe v. Wade*. [nature 608 \(2022\)](#), 254–257.

Abortions will continue, but might be harder to access safely.

*Editor's note: Nature recognizes that transgender men and non-binary people might become pregnant and seek abortion care. We use 'women' in this story to reflect how participants are described in the studies we cite.*

## Story or Book

HARRIS 2022

Barney Harris, *How to build Stonehenge*. [Antiquity 96 \(2022\)](#), 502–504.

Mike Pitts. 2022. *How to build Stonehenge*. New York: Thames & Hudson; 978-0-500-02419-5 hardback \$29.95.

Overall the scope of the book is perhaps reflective of a broader revival of British archaeological interest in the mechanics of monument building, following a sustained focus on its social implications from the 1970s onwards. Research trends are often cyclical and, as noted in the text, this volume is the first in around 60 years to unashamedly foreground the literal construction of Stonehenge, following Richard Atkinson's contributions in the late 1950s.

KIDDEY 2022

Rachael Kiddey, *The dawn of everything*. [Antiquity 96 \(2022\)](#), 500–502.

David Graeber & David Wengrow. 2021. *The dawn of everything: a new history of humanity*. London: Penguin/Allen Lane; 978-0-241-40242-9 hardback £30.

While much remains unknown, this book poses serious challenges to evolutionary assumptions that there are causal connections between the origins of cities, the rise of state apparatuses, and inequalities.