

References

Afrika

CHAMPION 2021

L. Champion, N. Gestrich, K. MacDonald, L. Nieblas-Ramirez & D. Q. Fuller, *Pearl millet and iron in the West African Sahel, Archaeobotanical investigation at Tongo Maaré Diabal, Mali*. [Journal of Archaeological Science: Reports](#) **39** (2021), 103110, 1–9.

Recent archaeobotanical analysis revealed that the botanical remains from the site of Tongo Maaré– Diabal (Mali) are composed primarily of pearl millet remains (up to 85 %). Contemporaneous West African sites (500–1200 Cal AD) usually display more diverse patterns, especially by the end of this period. Indeed, contemporary urban sites of the West African Sahel often comprise combined and diversified farming systems of millet (*Pennisetum glaucum*), African rice (*Oryza glaberrima*), sorghum (*Sorghum bicolor*), *Echinochloa* sp. and fonio (*Digitaria exilis*). This article seeks to explain the near-exclusive focus of Tongo Maaré– Diabal’s agricultural economy on millet, particularly with regard to the site’s status as a settlement of iron workers.

Keywords: Inland Niger Delta | Urbanisation | *Pennisetum glaucum* | Craft production | Cash crops

Aktuell

BASHOR 2021

Laura Bashor, Roderick B. Gagne, Angela M. Bosco-Lauth, Richard A. Bowen, Mark Stenglein & Sue VandeWoude, *SARS-CoV-2 evolution in animals suggests mechanisms for rapid variant selection*. [PNAS](#) **118** (2021), e2105253118. DOI:10.1073/pnas.2105253118.

[pnas118-e2105253118-Supplement.pdf](#)

SARS-CoV-2 spillback from humans into domestic and wild animals has been well documented, and an accumulating number of studies illustrate that human-to-animal transmission is widespread in cats, mink, deer, and other species. Experimental inoculations of cats, mink, and ferrets have perpetuated transmission cycles. We sequenced full genomes of Vero cell–expanded SARS-CoV-2 inoculum and viruses recovered from cats (n = 6), dogs (n = 3), hamsters (n = 3), and a ferret (n = 1) following experimental exposure. Five nonsynonymous changes relative to the USA-WA1/2020 prototype strain were near fixation in the stock used for inoculation but had reverted to wild-type sequences at these sites in dogs, cats, and hamsters within 1- to 3-d postexposure. A total of 14 emergent variants (six in nonstructural genes, six in spike, and one each in orf8 and nucleocapsid) were detected in viruses recovered from animals. This included substitutions in spike residues H69, N501, and D614, which also vary in human lineages of concern. Even though a live virus was not cultured from dogs, substitutions in replicase genes were detected in amplified sequences. The rapid selection of SARS-CoV-2 variants in vitro and in vivo reveals residues with functional significance during host switching. These observations also illustrate the potential for spillback from animal hosts to accelerate the evolution of new viral lineages, findings of particular concern for

dogs and cats living in households with COVID-19 patients. More generally, this glimpse into viral host switching reveals the unrealized rapidity and plasticity of viral evolution in experimental animal model systems.

Keywords: SARS-CoV-2 | viral variants | companion animals | host adaptation | spillover

Significance: SARS-CoV-2 emerged because of viral spillover from animals to humans, and spillback to other animal species has been observed with accelerating frequency. Cross-species transmission generally results in the rapid adaptation of the virus to the new host, and repeated transmissions may hasten viral evolution and novel strain emergence. We report the surprisingly rapid selection of numerous SARS-CoV-2 variants in cell culture and following infection of nonhuman mammalian hosts, including dogs and cats. These molecular changes in SARS-CoV-2 provide insight into mechanisms of viral host adaptation, lay the groundwork for additional studies assessing dominant variant fitness and phenotype, and highlight the potential for human reinfection with new viral variants arising in species in close and frequent contact with humans.

KOZLOV 2021

Max Kozlov, *What Covid vaccines for young kids could mean for the pandemic.* [nature](#) **599** (2021), 18–19.

As US regulator authorizes shots for children aged 5 to 11, researchers predict the pandemic's trajectory.

LADHANI 2021

Shamez N. Ladhani & the sKIDs Investigation Team, *Children and COVID-19 in schools.* [science](#) **374** (2021), 680–682.
[DOI:10.1126/science.abj2042](https://doi.org/10.1126/science.abj2042).

The benefits of in-person schooling with mitigations in place outweigh the risks of COVID-19 for children.

Educational settings were closed in many countries as part of national lockdown mitigation strategies, and the net effect was a rapid decline in cases across all age groups, although the specific contribution of school closures compared to all the other lockdown measures implemented at the same time was difficult to estimate.

Some countries such as Iceland and Sweden had successfully kept their preschools (age 1 to 6 years) and schools (age 7 to 16 years) open throughout the pandemic.

THACKER 2021

Paul D. Thacker, *Researcher blows the whistle on data integrity issues in Pfizer's vaccine trial, Covid-19.* [British Medical Journal](#) **375** (2021), n2635. [DOI:10.1136/bmj.n2635](https://doi.org/10.1136/bmj.n2635).

Revelations of poor practices at a contract research company helping to carry out Pfizer's pivotal covid-19 vaccine trial raise questions about data integrity and regulatory oversight. Paul D Thacker reports.

Anthropologie

MADISON 2021

Paige Madison & Bernard Wood, *Birth of Australopithecus.* [Evolutionary Anthropology](#) **30** (2021), 298–306.

The announcement of a fossilized child's skull discovered in a quarry in 1924 subSaharan Africa might not have seemed destined to be a classic paper. This contribution focuses on anatomist Raymond Dart's 1925 paper in which he designated the Taungs skull the type specimen of *Australopithecus africanus*. We combine an account of Dart's training and experience, with a telling of the fossil's discovery, analysis, the initial response of a mostly skeptical community, and a review of subsequent discoveries that consolidated the case Dart made for a hitherto unknown human close relative. Dart's paper presented evidence that confirmed the prescience of Charles Darwin's prediction that Africa was the birthplace of modern humans. The Taungs skull's unique mix of great ape and human attributes eventually led to a paradigm shift in our understanding of human evolution.

MALLAPATY 2021

Smriti Mallapaty, *DNA reveals surprise ancestry of Xinjiang mummies*. *nature* **599** (2021), 19–20.

Genomes of 4,000-year-old remains suggest they weren't migrants, as previously supposed.

WILKINS 2021

Jayne Wilkins, *Homo sapiens origins and evolution in the Kalahari Basin, southern Africa*. *Evolutionary Anthropology* **30** (2021), 327–344.

The Kalahari Basin, southern Africa preserves a rich archeological record of human origins and evolution spanning the Early, Middle and Late Pleistocene. Since the 1930s, several stratified and dated archeological sites have been identified and investigated, together with numerous open-air localities that provide landscape-scale perspectives. However, next to recent discoveries from nearby coastal regions, the Kalahari Basin has remained peripheral to debates about the origins of *Homo sapiens*. Though the interior region of southern Africa is generally considered to be less suitable for hunter-gatherer occupation than coastal and near-coastal regions, especially during glacial periods, the archeological record documents human presence in the Kalahari Basin from the Early Pleistocene onwards, and the region is not abandoned during glacial phases. Furthermore, many significant behavioral innovations have an early origin in the Kalahari Basin, which adds support to poly-centric, pan-African models for the emergence of our species.

Bibel

JOOSTEN 2021

Jan Joosten, *Do ut des in biblical law? The textual criticism of Lev 19:25*. *unknown* (2021), preprint, 1–11. .

The present paper may seem overly long as a commentary on a single textual problem. As a case study, however, the paper illustrates some important methodological principles, such as the need for an integrated approach. Textual criticism is not a preliminary step in exegesis: a correct interpretation of the textual data needs to take account of many inputs, including the evolution of the Hebrew language and the various theologies underlying the text of the Hebrew Bible.

Biologie

BALISI 2021

Mairin A. Balisi, Abhinav K. Sharma, Carrie M. Howard, Christopher A. Shaw, Robert Klapper & Emily L. Lindsey, *Computed tomography*

reveals hip dysplasia in the extinct Pleistocene saber-tooth cat *Smilodon*. [Scientific Reports 11 \(2021\), 21271. DOI:10.1038/s41598-021-99853-1.](#)

[SciRep11-21271-Supplement.pdf](#)

Reconstructing the behavior of extinct species is challenging, particularly for those with no living analogues. However, damage preserved as paleopathologies on bone can record how an animal moved in life, potentially reflecting behavioral patterns. Here, we assess hypothesized etiologies of pathology in a pelvis and associated right femur of a *Smilodon fatalis* saber-toothed cat, one of the best-studied species from the Pleistocene-age Rancho La Brea asphalt seeps, California, USA, using visualization by computed tomography (CT). The pelvis exhibits massive destruction of the right hip socket that was interpreted, for nearly a century, to have developed from trauma and infection. CT imaging reveals instead that the pathological distortions characterize chronic remodeling that began at birth and led to degeneration of the joint over the animal's life. These results suggest that this individual suffered from hip dysplasia, a congenital condition common in domestic dogs and cats. This individual reached adulthood but could not have hunted properly nor defended territory on its own, likely relying on a social group for feeding and protection. While extant social felids are rare, these fossils and others with similar pathologies are consistent with a spectrum of social strategies in *Smilodon* supported by a predominance of previous studies.

Kultur

EREN 2021

Metin I. Eren, David J. Meltzer, Brett Story, Briggs Buchanan, Don Yeager & Michelle R. Bebbler, *On the efficacy of Clovis fluted points for hunting proboscideans*. [Journal of Archaeological Science: Reports 39 \(2021\), 103166, 1–14.](#)

Clovis fluted points are deemed efficient weapon tips for hunting large game, including Pleistocene proboscideans. However, experimental and archaeological studies cast doubt on their effectiveness as hunting weapons. Owing to the broad and thick tip geometry of Clovis points, their penetration depth into a carcass would have been relatively limited, which would have rendered them unlikely to reach the well-protected vital organs of a proboscidean and inflict lethal wounds. Nor do Clovis points display the types of breakage patterns and impact damage that would be expected were they routinely used as hunting weapons for megafauna, especially when compared with Folsom points found in bison kill sites. Our results question the long-assumed effectiveness of Clovis points for dispatching proboscideans; while these may have on occasion been used as weapon tips on proboscidean prey, they likely had other functions as well.

Keywords: North America | Clovis | Weaponry | Megafauna | Hunting

LOMBARD 2021

Marlize Lombard & John J. Shea, *Did Pleistocene Africans use the spearthrower-and-dart?* [Evolutionary Anthropology 30 \(2021\), 307–315.](#)

Archeologists commonly suppose that among complex projectile weapons humans use as subsistence aids, the spearthrower-and-dart preceded bow-and-arrow use. And yet, neither ethnographic nor archeological records furnish any robust evidence for spearthrower-and-dart use in Africa. Instead, evidence grows apace

for ever-more ancient bow-and-arrow use. Here we explore these findings and their implications for models of early Homo sapiens behavior.

Keywords: Africa | bow-and-arrow | dart versus bow hunting | hunting weapons | spearthrower-and-dart

MCDERMOTT 2021

Amy McDermott, *What was the first “art”? How would we know?* [PNAS 118 \(2021\), e2117561118](#).

Recently discovered cave paintings and bone carvings offer new perspectives on long-held questions about art’s origins—not to mention the nature of art itself.

Methoden

HEATON 2021

T. J. Heaton, E. Bard, C. Bronk Ramsey, M. Butzin, P. Köhler, R. Muscheler, P. J. Reimer & L. Wacker, *Radiocarbon: A key tracer for studying Earth’s dynamo, climate system, carbon cycle, and Sun*. [science 374 \(2021\), 707](#).

Radiocarbon (¹⁴C), as a consequence of its production in the atmosphere and subsequent dispersal through the carbon cycle, is a key tracer for studying the Earth system. Knowledge of past ¹⁴C levels improves our understanding of climate processes, the Sun, the geodynamo, and the carbon cycle. Recently updated radiocarbon calibration curves (IntCal20, SHCal20, and Marine20) provide unprecedented accuracy in our estimates of ¹⁴C levels back to the limit of the ¹⁴C technique (≈55,000 years ago). Such improved detail creates new opportunities to probe the Earth and climate system more reliably and at finer scale. We summarize the advances that have underpinned this revised set of radiocarbon calibration curves, survey the broad scientific landscape where additional detail on past ¹⁴C provides insight, and identify open challenges for the future.

Mittelalter

HÄRTEL 2011

Reinhard Härtel, *Notarielle und kirchliche Urkunden im frühen und hohen Mittelalter*. Historische Hilfswissenschaften ([Wien 2011](#)).

Hartel_Urkunden-Mittelalter-Abb.zip

Der vorliegende Band gilt dem notariellen und dem kirchlichen Urkundenwesen des lateinischen Europa einschließlich der britischen Inseln. Außer Betracht bleiben also die Kreuzfahrerstaaten und das lateinische Urkundenwesen im Oströmischen Reich nach 1204. Außerhalb des Territoriums des Reichs Karls des Großen ist die Darstellung allerdings weniger eingehend als für die europäische Mitte. Die vorgeführten Beispiele sind alle dem europäischen Zentralraum entnommen. Andere Bereiche des Privaturkundenwesens werden zur Abrundung kurz angesprochen. Der zeitliche Rahmen reicht vom Beginn des Frühmittelalters bis über die Mitte des 13. Jh. Das ist die Periode von der Übernahme antiken Erbes bis zur Blüte des Notariats und damit zugleich jene einer weithin gegebenen Dominanz kirchlichen Schriftwesens wie auch der Dominanz des Lateinischen als Urkundensprache. Der Zeitraum entspricht damit zugleich der Periode des ‘reinen’ Urkundenwesens im Gegensatz zur Antike wie auch zur Folgezeit, in welcher Aktenwesen und Amtsbücher sich ausbreiten.

REDLICH 1911

Oswald Redlich, *Die Privaturkunden des Mittelalters*. Handbuch der Mittelalterlichen und Neueren Geschichte ([München 1911](#)).

SANTIFALLER 1937

Leo Santifaller, *Urkundenforschung, Methoden, Ziele, Ergebnisse*. ([Köln 1986](#)).

Die vorliegende Veröffentlichung ist die erweiterte Bearbeitung des Vortrages, den ich in der Reihe der aus Anlaß der 125-Jahrfeier der Universität Breslau veranstalteten Abendvorträge am 5. November 1936 gehalten habe. Der Zweck dieser Vorträge war, einem weiteren Kreise von Freunden der Wissenschaft und der Universität einen Einblick in unsere Arbeiten zu gewähren, zu zeigen, was auf den verschiedenen Gebieten der Wissenschaft bei uns in den letzten Jahren geleistet wurde und mit welchen Problemen wir uns beschäftigen.

VOGTHERR 2008

Thomas Vogtherr, *Einführung in die Urkundenlehre*. Hahnsche historische Hilfswissenschaften 3 ([Stuttgart 2017](#)).

[Vogtherr_Einfuehrung-Urkundenlehre-Abb.zip](#)

Thomas Vogtherr bietet in diesem Band eine Einführung in Urkunden als Quellen, in den wissenschaftlichen Umgang mit diesen Quellen und in ihre Bedeutung für die Erschließung der mittelalterlichen Geschichte. Er gibt dem Leser das notwendige Handwerkszeug für den Umgang mit Urkunden der Kaiser und Könige, der Päpste sowie anderer Aussteller. Darüber hinaus behandelt er wesentliche Stationen der Wissenschaftsgeschichte und gibt erste Anregungen zur Auswertung von Urkunden – auch im Rahmen kulturwissenschaftlicher Fragestellungen. Abgerundet wird der Band durch umfangreiche Illustrationen und weiterführende Literaturhinweise.

Physik

SKORDIS 2021

Constantinos Skordis & Tom Złośnik, *New Relativistic Theory for Modified Newtonian Dynamics*. [Physical Review Letters](#) **127** (2021), [161302](#). DOI:10.1103/PhysRevLett.127.161302.

We propose a relativistic gravitational theory leading to modified Newtonian dynamics, a paradigm that explains the observed universal galactic acceleration scale and related phenomenology. We discuss phenomenological requirements leading to its construction and demonstrate its agreement with the observed cosmic microwave background and matter power spectra on linear cosmological scales. We show that its action expanded to second order is free of ghost instabilities and discuss its possible embedding in a more fundamental theory.

Religion

ARMSTRONG 1993

Karen Armstrong, *A History of God, From Abraham to the present – the 4000-year quest for God*. (London 1994).

BELLAH 2011

Robert Bellah, *Religion in human evolution, From the Paleolithic to the Axial Age*. (Cambridge 2017).