Liste erstellt am 2019-05-26

References

Afrika

Carey 2019

Chris Carey, Frank Stremke & Jane Humphris, *The ironworking remains in the royal city of Meroe, New insights on the Nile Corridor and the Kingdom of Kush*. Antiquity **93** (2019), 432–449.

Meroe is one of Africa's most famous archaeological sites, renowned not least for its evidence of ironworking. Yet, the extensive slagheaps that characterise the site have received little archaeological attention. To illuminate the chronology and distribution of these remains, this article combines extant excavation data with the results of recent site-wide surface and geoprospection survey, and ongoing slagheap excavation and radiocarbon dating. The slagheaps date predominantly to either the Early (Napatan) or Late (late/post-Meroitic) periods, with little evidence for activity between c. 300 BC and AD 300—precisely when Meroe was the capital of the Kingdom of Kush—indicating significant reorganisation of the city's industrial base at this time.

Keywords: Sudan | Meroe | Kush | iron production | slag | archaeometallurgy

Pennisi 2019

Elizabeth Pennisi, *Plant genomics unearths Africa's 'fertile crescent'*. science **364** (2019), 422–423.

Scarcelli 2019

Nora Scarcelli et al., *Yam genomics supports West Africa as a major cradle of crop domestication*. Science Advances **5** (2019), eaaw1947. DOI:10.1126/sciadv.aaw1947.

SciAdv05-eaaw1947-Supplement.pdf

Nora Scarcelli, Philippe Cubry, Roland Akakpo, Anne-Céline Thuillet, Jude Obidiegwu, Mohamed N. Baco, Emmanuel Otoo, Bonaventure Sonké, Alexandre Dansi, Gustave Djedatin, Cédric Mariac, Marie Couderc, Sandrine Causse, Karine Alix, Hâna Chaïr, Olivier François & Yves Vigouroux

While there has been progress in our understanding of the origin and history of agriculture in sub-Saharan Africa, a unified perspective is still lacking on where and how major crops were domesticated in the region. Here, we investigated the domestication of African yam (Dioscorea rotundata), a key crop in early African agriculture. Using whole-genome resequencing and statistical models, we show that cultivated yam was domesticated from a forest species. We infer that the expansion of African yam agriculture started in the Niger River basin. This result, alongside with the origins of African rice and pearl millet, supports the hypothesis that the vicinity of the Niger River was a major cradle of African agriculture.

Aktuell

Chambers 2019

Alan H. Chambers, *How I became easy prey*. science **364** (2019), 602.

I was nursing my wounds from my latest manuscript rejection when the email arrived. I was about 2 years into my assistant professorship, with the tenure clock running at full speed, and the pressure to publish was immense. I knew that navigating rejection was part of the job, but I was also starting to wonder whether my study—a modest project designed to be feasible with the minimal lab space and skeleton crew of a new professor—would ever see the light of day. So when I received the email from a newly launched journal inviting me to publish with them, I saw a lifeline. That's when my troubles started.

Grimm 2019

David Grimm, *Ready to pounce*. science **364** (2019), 522–525.

After years of favoring dogs, researchers are finally probing the secrets of the feline mind.

Cats like Carl were supposed to be a contrast. Like dogs, cats have lived with us in close quarters for thousands of years. But unlike our canine pals, cats descend from antisocial ancestors, and humans have spent far less time aggressively molding them into companions. So researchers thought cats couldn't possibly share our brain waves the way dogs do.

Still, Nawroth and Taylor say it's too early to tell whether the social intelligence of cats and dogs is more advanced than that of other domesticated animals. If we shared our beds with pigs, they might be just as good at following the human gaze.

He 2019

Mike Z. He, *Singing for science*. science **364** (2019), 506.

I wake up in the middle of the night and cannot fall back to sleep. I feel I've reached the lowest point in my life, with little hope that I will be able to finish my Ph.D. It has only been 8 days since I agreed to give up singing, yet it feels like an eternity. Singing had provided a welcome balance to my scientific pursuits. But after a roller-coaster year, including a switch to a new adviser and myriad family and relationship issues, my work had suffered. Something had to give. I thought it needed to be music.

Pfennig 2019

Karin S. Pfennig, *How to survive in a human-dominated world*. science **364** (2019), 433–434.

Mating between species can yield adaptive genes that facilitate species survival.

The process of adaptive introgression observed by Oziolor et al. is not specific to extreme situations of human-introduced species or human-impacted environments. Genomic studies have revealed that hybridization is more common than expected in many species and that it might have fueled bursts of adaptive diversification throughout Earth's evolutionary history (6, 7, 10). But despite its potential to contribute to diversity, hybridization carries risks and can even threaten species with extinction (8, 9). To guide conservation efforts, scientists need to clarify the conditions under which hybridization diminishes rather than enhances biodiversity in a rapidly changing world.

Anthropologie

Gibbons 2019

Ann Gibbons, *Ancient jaw gives elusive Denisovans a face*. science **364** (2019), 418–419.

New protein method identifies first Denisovan outside of Siberia, on Tibetan Plateau.

Thirty-nine years ago, a Buddhist monk meditating in a cave on the edge of the Tibetan Plateau found something strange: a human jawbone with giant molars. Recognizing the jaw's unusual nature, the monk gave it to the sixth Gung-Thang living Buddha, one of China's officially designated "living Buddhas," who consulted scholars and then gave the jaw to Lanzhou University. The jawbone was so "weird" that researchers there didn't know how to classify it, and it sat on shelves for years, Zhang says.

Jungpaläolithikum

Ruiz-Redondo 2019

Aitor Ruiz-Redondo et al., *Expanding the horizons of Palaeolithic rock art, The site of Romualdova Pećina*. Antiquity **93** (2019), 297–312.

Aitor Ruiz-Redondo, Darko Komšo, Diego Garate Maidagan, Oscar Moro-Abadía, Manuel Ramón González-Morales, Jacques Jaubert & Ivor Karavanić

Rock art is key for understanding European Palaeolithic societies. Long thought to have been restricted to South-west Europe, recent discoveries on the Balkan Peninsula have expanded significantly the geographic distribution of Upper Palaeolithic figurative rock art, calling into question the idea of its limited distribution. This article presents the first example of figurative cave art discovered in the Balkan region, at Romualdova Pe'cina ('Romuald's Cave') in Croatia, discussing its chronology and relevance in the context of recent research in Pleistocene art.

Keywords: Balkan Peninsula | Upper Palaeolithic | Pleistocene | cave art | symbolism

Klima

Osman 2019

Matthew B. Osman et al., *Industrial-era decline in subarctic Atlantic productivity*. nature **569** (2019), 551–555.

n569-0551-Supplement1.pdf, n569-0551-Supplement2.xlsx, n569-0551-Supplement3.xlsx, n569-0551-Supplement4.xlsx

Matthew B. Osman, Sarah B. Das, Luke D. Trusel, Matthew J. Evans, Hubertus Fischer, Mackenzie M. Grieman, Sepp Kipfstuhl, Joseph R. Mcconnell & Eric S. Saltzman

Marine phytoplankton have a crucial role in the modulation of marine-based food webs1, fishery yields2 and the global drawdown of atmospheric carbon dioxide3. However, owing to sparse measurements before satellite monitoring in the twenty-first century, the long-term response of planktonic stocks to climate forcing is unknown. Here, using a continuous, multi-century record of subarctic Atlantic marine productivity, we show that a marked $10 \pm 7\,\%$ decline in net primary productivity has occurred across this highly productive ocean basin over the past two centuries. We support this conclusion by the application of a marine-productivity proxy, established using the signal of the planktonic-derived aerosol methanesulfonic acid, which is commonly identified across an array of Greenlandic ice cores. Using contemporaneous satellite-era observations, we demonstrate the use of this signal as a robust and high-resolution proxy for past variations in spatially integrated marine productivity. We show that the initiation of declining subarctic Atlantic productivity broadly coincides with the onset of Arctic surface warming4,

and that productivity strongly covaries with regional sea-surface temperatures and basin-wide gyre circulation strength over recent decades. Taken together, our results suggest that the decline in industrial-era productivity may be evidence of the predicted5 collapse of northern Atlantic planktonic stocks in response to a weakened Atlantic Meridional Overturning Circulation6–8. Continued weakening of this Atlantic Meridional Overturning Circulation, as projected for the twenty-first century9,10, may therefore result in further productivity declines across this globally relevant region.

Mathematik Klima

Cookson 2019

Evangeline Cookson, Daniel J. Hill & Dan Lawrence, *Impacts of long term climate change during the collapse of the Akkadian Empire*. Journal of Archaeological Science **106** (2019), 1–9.

Four thousand years ago what is often considered to be the world's rst empire, the Akkadian Empire, collapsed. Proxy data has suggested a regional aridication event coincided with this collapse, but there is a lack of records collected from within the Mesopotamian region, where the Akkadian Empire was based. Here we analyse a suite of simulations from the HadCM3 climate model covering the last 6000 years. The results show that long-term drivers produced a shift to a more arid climate, showing minima in both precipitation and river ow at 2000 BCE, whilst temperatures were colder at 2250 BCE. These changes were sucient to have a negative impact on the natural vegetation in Mesopotamia, suggesting that this climate change would have also impacted the agriculture sustaining local communities. We suggest that the combined eects of climate change and land mismanagement would lead to shortages of water and food, which may have contributed to social disruption and the collapse of the Akkadian Empire. We also nd examples of resilience through the surviving cities such as Tell Brak and Tell Mozan. These could provide lessons for adapting to climate change in the future, as modern-day climate change threatens food and water security.

Keywords: Climate | Mesopotamia | 4.2kyr event | Societal collapse | Holocene

Metallzeiten

Preunkert 2019

Susanne Preunkert et al., *Lead and Antimony in Basal Ice From Col du Dome (French Alps) Dated With Radiocarbon, A Record of Pollution During Antiquity*. Geophysical Research Letters (2019), preprint, 1–. DOI:10.1029/2019GL082641.

GeoResLet2019.05-Preunkert-Supplement1.pdf, GeoResLet2019.05-Preunkert-Supplement2.xlsx, GeoResLet2019.05-Preunkert-Supplement3.xlsx

Key Points:

- Lead and antimony Alpine ice records spanning European antiquity provide evidence of past Roman mining activities
- Radiocarbon analysis of Col du Dome (Mont Blanc, French Alps) basal glacier ice suggests ice as old as $\approx$5,000 $\pm$ 600 cal years BP
- Comparison between Greenland and Alpine lead ice records consistently shows the effect of Roman mining in proximity to the Alps

Susanne Preunkert, Joseph R. McConnell, Helene Hoffmann, Michel Legrand, Andrew I. Wilson, Sabine Eckhardt, Andreas Stohl, Nathan J. Chellman, Monica M. Arienzo & Ronny Friedrich

Lead and antimony measurements in basal ice from the Col du Dome glacier document heavy metal pollution in western Europe associated with emissions from mining and smelting operations during European antiquity. Radiocarbon dating of the particulate organic carbon fraction in the ice suggests that the basal ice dates to ≈5,000 ± 600 cal years BP. In agreement with a precisely dated Greenland lead record, the Col du Dome record indicates two periods of signicant lead pollution during the Roman period, that is, the last centuries before the Common Era to the second century of the Common Era. Atmospheric modeling and the Col du Dome record consistently show an overall magnitude of the lead perturbation 100 times larger than in the Greenland record. Antimony closely tracked lead, with antimony pollution about 2 orders of magnitude lower, consistent with European peat records.

Plain Language Summary: Measurements of radiocarbon on particulate organic matter trapped in ice showed that the deepest ice of the Mont Blanc glacier covers the entire period of antiquity (from 800 BCE to 250 CE). Lead measurements indicated signicant metal pollution during the Roman Republican and the Imperial period, that is, during the last centuries before the Common Era to the second century of the Common Era, with much lower levels before and after. We show that the Roman-era emissions enhanced the natural lead level by at least a factor of 10, which was already signicant compared to the modern enhancement by a factor of 100 due to lead emissions related to the use of leaded gasoline. This rst ice record of pollution by antimony, another toxic heavy metal, during antiquity showing large Roman-era increases in parallel with lead, conrms that early mining and smelting activities had environmental implications beyond simply lead contamination.

Ostasien

Hung 2019

Hsiao-chun Hung, *Prosperity and complexity without farming, The South China Coast, c. 5000–3000 BC*. Antiquity **93** (2019), 325–341.

Around 5000 BC, affluent village communities emerged along the South China Coast. Although traditionally regarded as ancestors of Austronesian migrants, whose farming economies expanded into the Asia-Pacific region, the new synthesis presented here shows that these coastal groups actually lived as huntergatherers and fishers, with evidence of sociocultural complexity. Around c. 3000–2500 BC, this 'first layer' of hunter-gatherers witnessed the arrival of a 'second layer', associated with rice farming and Austronesian assemblages. This new synthesis positions global coastlines as centres of socio-economic and political complexity, long-distance contact and technological advancement.

Keywords: South China | Vietnam | Neolithic | hunter-gatherers | coastal adaptation

Story or Book

McCray 2019

W. Patrick McCray, *Snow's storm*. science **364** (2019), 430–432.

C. P. Snow's 1959 diagnosis of a divide between British scientists and humanists took on new meaning in America.

The Two Cultures and the Scientif c Revolution. C. P. Snow. Cambridge Univ. Press, 1959. 52 pp.

The question of exposing future technologists to "culture" was seen as an even more pressing issue when it came to educating engineers. Engineers still struggled to be accepted as the professional equal of scientists. Caricatured as defiantly "crass, materialistic, insensitive" people whose acquaintance with the arts and literature was "limited to cheap movies and comic books," such stereotypes (these are from a 1956 study on engineering education) suggested that "humanizing" future technologists would be an even tougher task.

At a time rife with a disregard for facts and the methods used to produce them (even when they portend a catastrophic future), perhaps Snow, were he alive today, would encourage scientists and humanists, engineers and artists, to focus on the one culture to which we all belong.