

References

Aktuell

MARCHIO 2018

Elizabeth Marchio, *Climbing out of the bottle*. [science](#) **362** (2018), 862.

I opened my swollen, bleary eyes to see a young police officer crouched close to my face, pen hovering over a clipboard. It was the same officer who had taken my mugshot. I had woken from an uncomfortable sleep, my body draped across three chairs in the police station holding room, my arms pulled inside my shirt in a futile attempt to keep warm. I peeked at the clock: 3:13 a.m. My body ached so much that I couldn't focus on his words. Methodically, he ran through the intake form. "Are you feeling hopeless or have nothing to look forward to?" I blinked back a new round of tears, slowly understanding that he was asking me whether I intended to commit suicide while I was held in jail. This was rock bottom. It was also the wake-up call I needed.

MILOJEVIC 2018

Staša Milojević, Filippo Radicchi & John P. Walsh, *Changing demographics of scientific careers, The rise of the temporary workforce*.

[PNAS](#) **115** (2018), 12616–12623.

[pnas115-12616-Supplement.pdf](#)

Contemporary science has been characterized by an exponential growth in publications and a rise of team science. At the same time, there has been an increase in the number of awarded PhD degrees, which has not been accompanied by a similar expansion in the number of academic positions. In such a competitive environment, an important measure of academic success is the ability to maintain a long active career in science. In this paper, we study workforce trends in three scientific disciplines over half a century. We find dramatic shortening of careers of scientists across all three disciplines. The time over which half of the cohort has left the field has shortened from 35 y in the 1960s to only 5 y in the 2010s. In addition, we find a rapid rise (from 25 to 60 % since the 1960s) of a group of scientists who spend their entire career only as supporting authors without having led a publication. Altogether, the fraction of entering researchers who achieve full careers has diminished, while the class of temporary scientists has escalated. We provide an interpretation of our empirical results in terms of a survival model from which we infer potential factors of success in scientific career survivability. Cohort attrition can be successfully modeled by a relatively simple hazard probability function. Although we find statistically significant trends between survivability and an author's early productivity, neither productivity nor the citation impact of early work or the level of initial collaboration can serve as a reliable predictor of ultimate survivability.

Keywords: scientific workforce | scientific careers | career success

Bibel

JANZEN 1987

J. Gerald Janzen, *On the Most Important Word in the Shema (Deuteronomy VI 4–5)*. [Vetus Testamentum](#) **37** (1987), 280–300.

The divine faithfulness to Israel is what it is because of an even deeper internal divine faithfulness. The fidelity of the divine relation to Israel rooted in the divine self-relation that I have been calling integrity and that the Shema calls 'ehad.

Biologie

RASCOVAN 2018

Nicolás Rascovan et al., *Emergence and Spread of Basal Lineages of Yersinia pestis during the Neolithic Decline*. *Cell* (2018), preprint, 1–11. DOI:10.1016/j.cell.2018.11.005.

Nicolás Rascovan, Karl-Göran Sjögren, Kristian Kristiansen, Rasmus Nielsen, Eske Willerslev, Christelle Desnues, Simon Rasmussen

In Brief:

The genome of an ancient strain of *Yersinia pestis* from Neolithic farmers 4,900 years ago represents the oldest discovered case of the plague and allows characterization of the spread and diversification of multiple basal lineages, potentially contributing to the Neolithic decline.

Highlights:

- Discovery of the most ancient case of plague in humans, 4,900 years ago in Sweden
- Basal lineages of *Y. pestis* emerged and spread during the Neolithic decline
- Plague infections in distinct Eurasian populations during Neolithic and Bronze Age
- A plague pandemic likely emerged in large settlements and spread over trade routes

Between 5,000 and 6,000 years ago, many Neolithic societies declined throughout western Eurasia due to a combination of factors that are still largely debated. Here, we report the discovery and genome reconstruction of *Yersinia pestis*, the etiological agent of plague, in Neolithic farmers in Sweden, pre-dating and basal to all modern and ancient known strains of this pathogen. We investigated the history of this strain by combining phylogenetic and molecular clock analyses of the bacterial genome, detailed archaeological information, and genomic analyses from infected individuals and hundreds of ancient human samples across Eurasia. These analyses revealed that multiple and independent lineages of *Y. pestis* branched and expanded across Eurasia during the Neolithic decline, spreading most likely through early trade networks rather than massive human migrations. Our results are consistent with the existence of a prehistoric plague pandemic that likely contributed to the decay of Neolithic populations in Europe.

Judentum

GOLDMAN 2018

Liora Goldman, *The Admonitions in the Damascus Document as a Series of Thematic Pesharim*. *Dead Sea Discoveries* 25 (2018), 385–411.

This study reveals a mosaic of artful rearrangement, rewriting, and creative interpretation of prophetic texts within the Admonitions of the Damascus Document. Many explicit quotations from scriptures and implicit allusions are interwoven and interpreted in the Admonitions through various methods, including peshar interpretation. The textual backdrop of the Admonitions helps us to determine the borders of the different discourses and to define the structure of the composition, which is divided into ten discourses built in a symmetrical chiasmic structure. Each

discourse comprises layers of quotations and allusions arranged around a central explicit pesher. Therefore, the explicit pesher in each discourse should not be viewed as an isolated pesher, as some have claimed, but rather as part of a larger thematic pesher. Each discourse/thematic pesher presents a different aspect of the work's central theme: a polemic introduction to the rules of interpreting the Torah.

Keywords: Damascus Document | CD | Admonitions | thematic pesher | cluster of pesharim | implicit pesher | final redaction | manuscripts A and B

Jungpaläolithikum

AUBERT 2018

M. Aubert et al., *Palaeolithic cave art in Borneo*. [nature 564 \(2018\), 254–257](#).

n564-0254-Supplement1.pdf, n564-0254-Supplement2.xls, n564-0254-Supplement3.xlsx

M. Aubert, P. Setiawan, A. A. Oktaviana, A. Brumm, P. H. Sulistyarto, E. W. Saptomo, B. Istiawan, T. A. Ma'Rifat, V. N. Wahyuono, F. T. Atmoko, J.-X. Zhao, J. Huntley, P. S. C. Taçon, D. L. Howard & H. E. A. Brand

Figurative cave paintings from the Indonesian island of Sulawesi date to at least 35,000 years ago (ka) and hand-stencil art from the same region has a minimum date of 40 ka. Here we show that similar rock art was created during essentially the same time period on the adjacent island of Borneo. Uranium-series analysis of calcium carbonate deposits that overlie a large reddish-orange figurative painting of an animal at Lubang Jeriji Saléh—a limestone cave in East Kalimantan, Indonesian Borneo—yielded a minimum date of 40 ka, which to our knowledge is currently the oldest date for figurative artwork from anywhere in the world. In addition, two reddish-orange-coloured hand stencils from the same site each yielded a minimum uranium-series date of 37.2 ka, and a third hand stencil of the same hue has a maximum date of 51.8 ka. We also obtained uranium-series determinations for cave art motifs from Lubang Jeriji Saléh and three other East Kalimantan karst caves, which enable us to constrain the chronology of a distinct younger phase of Pleistocene rock art production in this region. Dark-purple hand stencils, some of which are decorated with intricate motifs, date to about 21–20 ka and a rare Pleistocene depiction of a human figure—also coloured dark purple—has a minimum date of 13.6 ka. Our findings show that cave painting appeared in eastern Borneo between 52 and 40 ka and that a new style of parietal art arose during the Last Glacial Maximum. It is now evident that a major Palaeolithic cave art province existed in the eastern extremity of continental Eurasia and in adjacent Wallacea from at least 40 ka until the Last Glacial Maximum, which has implications for understanding how early rock art traditions emerged, developed and spread in Pleistocene Southeast Asia and further afield.

Klima

DANINO 2017

Michel Danino, *Climate, Environment, and the Harappan Civilization*. In: *Forthcoming collection on India's environmental history*. (unpublished 2017). Do not cite.

A wide range of factors has been invoked to explain the decline and disappearance of the urban phase of the Indus or Harappan civilization. Earlier theories

based on invasions or man-made conflicts have been increasingly discarded; on the other hand, there has been growing evidence and acceptance that climatic and environmental factors played a significant role. While climatic studies from the 1970s to 1990s tended to support the view that a marked trend towards aridity had set in even before the urban or Mature Harappan phase (2600–1900 BCE), more recent studies have pushed this shift to the end of the third millennium BCE. This is also the time when, in the eastern domain of the Harappan civilization, the Sarasvati dwindled to a minor seasonal river, while floods appear to have been caused by a shifting Indus in the west. Other possible causes include the pressure put on remaining forests by intensive industrial activities. In any case, the archaeological evidence records the abandonment of Harappan sites in the Sarasvati's central basin, and a migration of Late Harappan settlements: north-eastward towards the foot of the Shivalik Hills, eastward across the Yamuna, possibly too westward towards the Indus plains and southward towards the Vindhya. This paper attempts to correlate archaeological evidence with sedimentological, palynological and other palaeoclimatic studies and suggests a few possible conclusions and lines of further exploration.

GIBBONS 2018

Ann Gibbons, *Eruption made 536 'the worst year to be alive'*. [science 362 \(2018\), 733–734](#).

Core from glacier reveals the Icelandic volcano that plunged Europe into darkness.

KJÆR 2018

Kurt H. Kjær et al., *A large impact crater beneath Hiawatha Glacier in northwest Greenland*. [Science Advances 4 \(2018\), eaar8173](#). DOI:10.1126/sciadv.aar8173.

[SciAdv04-eaar8173-Supplement.pdf](#)

Kurt H. Kjær, Nicolaj K. Larsen, Tobias Binder, Anders A. Bjørk, Olaf Eisen, Mark A. Fahnestock, Svend Funder, Adam A. Garde, Henning Haack, Veit Helm, Michael Houmark-Nielsen, Kristian K. Kjeldsen, Shfaqat A. Khan, Horst Machguth, Iain McDonald, Mathieu Morlighem, Jérémie Mouginot, John D. Paden, Tod E. Waight, Christian Weikusat, Eske Willerslev & Joseph A. MacGregor

We report the discovery of a large impact crater beneath Hiawatha Glacier in northwest Greenland. From airborne radar surveys, we identify a 31-kilometer-wide, circular bedrock depression beneath up to a kilometer of ice. This depression has an elevated rim that cross-cuts tributary subglacial channels and a subdued central uplift that appears to be actively eroding. From ground investigations of the deglaciated foreland, we identify overprinted structures within Precambrian bedrock along the ice margin that strike tangent to the subglacial rim. Glaciofluvial sediment from the largest river draining the crater contains shocked quartz and other impact-related grains. Geochemical analysis of this sediment indicates that the impactor was a fractionated iron asteroid, which must have been more than a kilometer wide to produce the identified crater. Radiostratigraphy of the ice in the crater shows that the Holocene ice is continuous and conformable, but all deeper and older ice appears to be debris rich or heavily disturbed. The age of this impact crater is presently unknown, but from our geological and geophysical evidence, we conclude that it is unlikely to predate the Pleistocene inception of the Greenland Ice Sheet.

VOOSEN 2018

Paul Voosen, *Ice Age Impact*. [science 362 \(2018\), 738–742](#).

A large asteroid struck Greenland in the time of humans. How did it affect the planet?

Kultur

BORTOLINI 2017

Eugenio Bortolini et al., *Inferring patterns of folktale diffusion using genomic data*. *PNAS* **114** (2017), 9140–9145.

[pnas114-09140-Supplement1.pdf](#), [pnas114-09140-Supplement2.xlsx](#)

Eugenio Bortolini, Luca Pagani, Enrico R. Crema, Stefania Sarno, Chiara Barbieri, Alessio Boattini, Marco Sazzini, Sara Graça da Silva, Gessica Martini, Mait Metspalu, Davide Pettener, Donata Luiselli & Jamshid J. Tehrani

Observable patterns of cultural variation are consistently intertwined with demic movements, cultural diffusion, and adaptation to different ecological contexts [Cavalli-Sforza and Feldman (1981) *Cultural Transmission and Evolution: A Quantitative Approach*; Boyd and Richerson (1985) *Culture and the Evolutionary Process*]. The quantitative study of gene–culture coevolution has focused in particular on the mechanisms responsible for change in frequency and attributes of cultural traits, the spread of cultural information through demic and cultural diffusion, and detecting relationships between genetic and cultural lineages. Here, we make use of worldwide whole-genome sequences [Pagani et al. (2016) *Nature* 538:238–242] to assess the impact of processes involving population movement and replacement on cultural diversity, focusing on the variability observed in folktale traditions (n = 596) [Uther (2004) *The Types of International Folktales: A Classification and Bibliography*. Based on the System of Antti Aarne and Stith Thompson] in Eurasia. We find that a model of cultural diffusion predicted by isolation-by-distance alone is not sufficient to explain the observed patterns, especially at small spatial scales (up to 4,000 km). We also provide an empirical approach to infer presence and impact of ethnolinguistic barriers preventing the unbiased transmission of both genetic and cultural information. After correcting for the effect of ethnolinguistic boundaries, we show that, of the alternative models that we propose, the one entailing cultural diffusion biased by linguistic differences is the most plausible. Additionally, we identify 15 tales that are more likely to be predominantly transmitted through population movement and replacement and locate putative focal areas for a set of tales that are spread worldwide.

Keywords: cultural diffusion | demic diffusion | whole-genome sequences | folktales | Eurasia

Significance: This paper presents unprecedented evidence on the transmission mechanism underlying the spread of a broad cross-cultural assemblage of folktales in Eurasia and Africa. State-of-the-art genomic evidence is used to directly assess the relevance of demic diffusion processes, in particular on the distribution of Old World folktales at intermediate geographic scales, and identify individual stories that are more likely to be transmitted through population movement and replacement. The results provide an empirical solution to operate with linguistic barriers and highlight the impossibility of disentangling genetic from geographic relationships at a cross-continental scale, warning against the direct use of extant genetic variability to infer processes of long-range cultural transmission.

GRAÇA DA SILVA 2015

Sara Graça da Silva & Jamshid J. Tehrani, *Comparative phylogenetic analyses uncover the ancient roots of Indo-European folktales*. *Royal Society Open Science* **3** (2015), 150645. DOI:10.1098/rsos.150645.

Ancient population expansions and dispersals often leave enduring signatures in the cultural traditions of their descendants, as well as in their genes and languages. The international folktale record has long been regarded as a rich context in which to explore these legacies. To date, investigations in this area have been complicated by a lack of historical data and the impact of more recent waves of diffusion. In this study, we introduce new Methods for tackling these problems by applying comparative phylogenetic methods and autologistic modelling to analyse the relationships between folktales, population histories and geographical distances in Indo-European-speaking societies. We find strong correlations between the distributions of a number of folktales and phylogenetic, but not spatial, associations among populations that are consistent with vertical processes of cultural inheritance. Moreover, we show that these oral traditions probably originated long before the emergence of the literary record, and find evidence that one tale ('The Smith and the Devil') can be traced back to the Bronze Age. On a broader level, the kinds of stories told in ancestral societies can provide important insights into their culture, furnishing new perspectives on linguistic, genetic and archaeological reconstructions of human prehistory.

Keywords: cultural evolution | Indo-European | folktales | oral tradition | phylogenetics