

Literatur

Aktuell

BAR-OZ 2012

Guy Bar-Oz & Simcha Lev-Yadun, *Paleolithic cave rock art, animal coloration, and specific animal habitats*. [PNAS 109 \(2012\), E1212](#).

Dark-spotted coats are common among many forest-dwelling mammals living in open forest habitats. Dark spots support background matching against typical dappled forest illumination (3). Similarly, dark eyes and ears as in the Trois-Frères feline are common among forest-dwelling carnivores (2). On the other hand, a plain, dark coat is associated with camouflage in dense forests (3). We propose that plain light-colored, spotted, and black animals in Paleolithic rock art reflect the variability of their specific habitats.

BENILOV 2012

E. S. Benilov, C. P. Cummins & W. T. Lee, *Why do bubbles in Guinness sink?* [arXiv \(2012\), 1205.5233](#). <<http://arxiv.org/pdf/1205.5233>>. [arXiv-1205.5233-Supplement.avi](#)

Stout beers show the counter-intuitive phenomena of sinking bubbles while the beer is settling. Previous research suggests that this phenomena is due the small size of the bubbles in these beers and the presence of a circulatory current, directed downwards near the side of the wall and upwards in the interior of the glass. The mechanism by which such a circulation is established and the conditions under which it will occur has not been clarified. In this paper, we demonstrate using simulations and experiment that the flow in a glass of stout depends on the shape of the glass. If it narrows downwards (as the traditional stout glass, the pint, does), the flow is directed downwards near the wall and upwards in the interior and sinking bubbles will be observed. If the container widens downwards, the flow is opposite to that described above and only rising bubbles will be seen.

LUDWIG 2012

Arne Ludwig et al., *Reply to Bar-Oz and Lev-Yadun: Horse colors in time and space*. [PNAS 109 \(2012\), E1213](#).

Arne Ludwig, Melanie Pruvost, Rebecca Bellone, Norbert Benecke, Edson Sandoval-Castellanos, Arturo Morales-Muñiz, Terry O'Connor, Monika Reissmann and Michael Hofreiter

NOF 2012

R. N. Nof, A. Ziv, M.-P. Doin, G. Baer, Y. Fialko, S. Wdowinski, Y. Eyal & Y. Bock, *Rising of the lowest place on Earth due to Dead Sea water-level drop: Evidence from SAR interferometry and GPS*. [Journal of Geophysical Research 117 \(2012\), B05412](#). DOI:10.1029/2011JB008961.

The Dead Sea water-level has been dropping at an exceedingly increasing rate since 1960, and between 1993 and 2001, the interval of the InSAR data examined in this study, it has dropped at an average rate of 0.88 m per year. Such a water-level change could potentially give rise to a resolvable lithospheric rebound and regional uplift, with spatial extent and amplitude that are controlled by the effective mechanical properties of the crust and upper mantle combined. We measure that deformation for the years 1993 to 2001, using

149 short baseline interferograms made of 31 ERS-1 and ERS-2 Synthetic Aperture Radar (SAR) images and continuous GPS data from the Survey of Israel recorded between 1997 and 2011. The uplift rate at the Dead Sea is small (up to 4 mm/year), and the basin topography is almost a mirror of the displacement, introducing a strong trade-off between uplift and stratified atmosphere noise. To overcome this complication, we impose a linearity constraint on the satellite to ground Line Of Sight (LOS) phase changes based on the steady uplift observed by a continuous GPS station in the area of interest, and simultaneously solve for the LOS change rate, Digital Elevation Model (DEM) errors and the elevation-phase correlation. While the LOS rate and DEM errors are solved for each pixel independently, the elevation-phase correlation is solved for each SAR acquisition independently. Using this approach we separated the stratified atmospheric delay from the ground displacement. We observed a regional uplift around the Dead Sea northern basin, with maximum uplift close to the shorelines, and diminishing to zero by the Mediterranean coast. We modeled the effect of water load changes using a homogeneous elastic half-space, and found a good agreement between modeled and observed ground displacements using elastic properties that are compatible with seismic and gravity data down to a depth of 15 km below the Dead Sea basin, suggesting that the response of the crust to the sea level drop is controlled mainly by the elastic properties of the upper-crust immediately below the Dead Sea basin.

SHELLNHUBER 2012

Hans Joachim Schellnhuber, *Reply to Schuiling: Last things last.* [PNAS 109 \(2012\), E1211.](#)

SCHUILING 2012

Roelof D. Schuiling, *Capturing CO2 from air.* [PNAS 109 \(2012\), E1210.](#)

We have shown that enhanced weathering of olivine leads to mineral carbonation at \$10 per tonne of CO2. This estimate is based on data for the cost of mining and milling of bulk rocks. The crushed rock is then left to nature, without costly add-on technologies to speed up its weathering.

YONG 2012

Ed Yong, *Bad Copy, In the wake of high-profile controversies, psychologists are facing up to problems with replication.* [nature 485 \(2012\), 298–300.](#)

Positive results in psychology can behave like rumours: easy to release but hard to dispel. They dominate most journals, which strive to present new, exciting research. Meanwhile, attempts to replicate those studies, especially when the findings are negative, go unpublished, languishing in personal file drawers or circulating in conversations around the water cooler. “There are some experiments that everyone knows don’t replicate, but this knowledge doesn’t get into the literature,” says Wagenmakers. The publication barrier can be chilling, he adds. “I’ve seen students spending their entire PhD period trying to replicate a phenomenon, failing, and quitting academia because they had nothing to show for their time.” These problems occur throughout the sciences, but psychology has a number of deeply entrenched cultural norms that exacerbate them.

Simmons says that the blame lies partly in the review process. “When we review papers, we’re often making authors prove that their findings are novel or interesting,” he says. “We’re not often making them prove that their findings are true.”

But all the factors making replication difficult helped him to cover his tracks. The scientific committee that investigated his case wrote, “Whereas all these excessively neat findings should have provoked thought, they were embraced. People accepted, if they even attempted to replicate the results for themselves, that they had failed because they lacked Mr Stapel’s skill.” It is now clear that Stapel manipulated and fabricated data in at least 30 publications.

Anthropologie

BERNA 2012

Francesco Berna, Paul Goldberg, Liora Kolska Horwitz, James Brink, Sharon Holt, Marion Bamford & Michael Chazan, *Microstratigraphic evidence of in situ fire in the Acheulean strata of Wonderwerk Cave, Northern Cape province, South Africa*. [PNAS 109 \(2012\), 7593–7594](#).

[pnas109-07593-Fulltext.pdf](#)

The ability to control fire was a crucial turning point in human evolution, but the question when hominins first developed this ability still remains. Here we show that micromorphological and Fourier transform infrared microspectroscopy (mFTIR) analyses of intact sediments at the site of Wonderwerk Cave, Northern Cape province, South Africa, provide unambiguous evidence—in the form of burned bone and ashed plant remains—that burning took place in the cave during the early Acheulean occupation, approximately 1.0 Ma. To the best of our knowledge, this is the earliest secure evidence for burning in an archaeological context.

micromorphology | cooking hypothesis | Homo erectus

Datierung

HIGHAM 2012

Thomas Higham, Laura Basell, Roger Jacobi, Rachel Wood, Christopher Bronk Ramsey & Nicholas J. Conard, *Testing models for the beginnings of the Aurignacian and the advent of figurative art and music: The radiocarbon chronology of Geißenklösterle*. [Journal of Human Evolution \(2012\) preprint, 1–13](#). [DOI:10.1016/j.jhevol.2012.03.003](#).

[JHumEvo2012-preprint-Supplement1.docx](#), [JHumEvo2012-preprint-Supplement2.xlsx](#)

The German site of Geißenklösterle is crucial to debates concerning the European Middle to Upper Palaeolithic transition and the origins of the Aurignacian in Europe. Previous dates from the site are central to an important hypothesis, the Kulturpumpe model, which posits that the Swabian Jura was an area where crucial behavioural developments took place and then spread to other parts of Europe. The previous chronology (critical to the model), is based mainly on radiocarbon dating, but remains poorly constrained due to the dating resolution and the variability of dates. The cause of these problems is disputed, but two principal explanations have been proposed: a) larger than expected variations in the production of atmospheric radiocarbon, and b) taphonomic influences in the site mixing the bones that were dated into different parts of the site. We reinvestigate the chronology using a new series of radiocarbon determinations obtained from the Mousterian, Aurignacian and Gravettian levels. The results strongly imply that the previous dates were affected by insufficient decontamination of the bone collagen prior to dating. Using an ultrafiltration protocol the chronometric picture becomes much clearer. Comparison of the results against other recently dated sites in other parts of Europe suggests the Early Aurignacian levels are earlier than other sites in the south of France and Italy, but not as early as recently dated sites which suggest a pre-Aurignacian dispersal of modern humans to Italy by ≈ 45000 cal BP. They are consistent with the importance of the Danube Corridor as a key route for the movement of people and ideas. The new dates fail to refute the Kulturpumpe model and suggest that Swabian Jura is a region that contributed significantly to the evolution of symbolic behaviour as indicated by early evidence for figurative art, music and mythical imagery.

Keywords: AMS radiocarbon dating | Middle and upper Palaeolithic | Pre-treatment chemistry | Ultrafiltration | Bone collagen | Swabian Jura

Grundlagen

SMITH 2012

Michael E. Smith, Gary M. Feinman, Robert D. Drennan, Timothy Earle & Ian Morris, *Archaeology as a social science*. [PNAS 109 \(2012\), 7617–7621](#).

Because of advances in methods and theory, archaeology now addresses issues central to debates in the social sciences in a far more sophisticated manner than ever before. Coupled with methodological innovations, multiscalar archaeological studies around the world have produced a wealth of new data that provide a unique perspective on long-term changes in human societies, as they document variation in human behavior and institutions before the modern era. We illustrate these points with three examples: changes in human settlements, the roles of markets and states in deep history, and changes in standards of living. Alternative pathways toward complexity suggest how common processes may operate under contrasting ecologies, populations, and economic integration.

anthropology | cultural evolution | economics | sociology | political science

Klima

VAN HOESEL 2012

Annelies van Hoesel, Wim Z. Hoek, Freek Braadbaart, Johannes van der Plicht, Gillian M. Pennock & Martyn R. Drury, *Nanodiamonds and wildfire evidence in the Usselo horizon postdate the Allerød-Younger Dryas boundary*. [PNAS 109 \(2012\), 7648–7653](#).

The controversial Younger Dryas impact hypothesis suggests that at the onset of the Younger Dryas an extraterrestrial impact over North America caused a global catastrophe. The main evidence for this impact—after the other markers proved to be neither reproducible nor consistent with an impact—is the alleged occurrence of several nanodiamond polymorphs, including the proposed presence of lonsdaleite, a shock polymorph of diamond. We examined the Usselo soil horizon at Geldrop-Aalsterhut (The Netherlands), which formed during the Allerød/Early Younger Dryas and would have captured such impact material. Our accelerator mass spectrometry radiocarbon dates of 14 individual charcoal particles are internally consistent and show that wildfires occurred well after the proposed impact. In addition we present evidence for the occurrence of cubic diamond in glass-like carbon. No lonsdaleite was found. The relation of the cubic nanodiamonds to glass-like carbon, which is produced during wildfires, suggests that these nanodiamonds might have formed after, rather than at the onset of, the Younger Dryas. Our analysis thus provides no support for the Younger Dryas impact hypothesis.

radiocarbon dating | carbon spherules | wildfire temperature | electron microscopy

Kultur

CLARKE 2012

Joanne Clarke, *Decorating the Neolithic: an Evaluation of the Use of Plaster in the Enhancement of Daily Life in the Middle Pre-pottery Neolithic B of the Southern Levant*. [Cambridge Archaeological Journal 22 \(2012\), 177–186](#).

During the Middle Pre-pottery Neolithic B in the southern Levant the use of lime plaster in both ritual and domestic contexts increased significantly relative to previous periods. Its properties of whiteness, purity, plasticity and antisepsis would have made it a natural choice for decorating, and through the act of colouring disparate categories of objects were linked together. Plaster appears to have transcended its own inherent value as a

material due to its interconnectedness with mortuary ritual. Because of its ubiquity, this socially ascribed value was accessible to everyone. This article will claim that plaster, and the act of plastering both ritual and domestic contexts played a key role in the creation and maintenance of community cohesion and social well-being.

SCHUIDEL 2010

Walter Scheidel, *Real Wages in Early Economies: Evidence for Living Standards from 1800 BCE to 1300 CE*. [Journal of the Economic and Social History of the Orient](#) **53** (2010), 425–462.

Price and wage data from Roman Egypt in the first three centuries CE indicate levels of real income for unskilled workers that are comparable to those implied by price and wage data in Diocletian's price edict of 301 CE and to those documented in different parts of Europe and Asia in the eighteenth or early nineteenth centuries. In all these cases, consumption was largely limited to goods that were essential for survival and living standards must have been very modest. A survey of daily wages expressed in terms of wheat in different Afroeurasian societies from 1800 BCE to 1300 CE yields similar results: with a few exceptions, the real incomes of unskilled laborers tended to be very low.

Methoden

SIMMONS 2011

Joseph P. Simmons, Leif D. Nelson & Uri Simonsohn, *False-Positive Psychology: Undisclosed Flexibility in Data Collection and Analysis Allows Presenting Anything as Significant*. [Psychological Science](#) **22** (2011), 1359–1366.

In this article, we accomplish two things. First, we show that despite empirical psychologists' nominal endorsement of a low rate of false-positive findings ($\leq .05$), flexibility in data collection, analysis, and reporting dramatically increases actual false-positive rates. In many cases, a researcher is more likely to falsely find evidence that an effect exists than to correctly find evidence that it does not. We present computer simulations and a pair of actual experiments that demonstrate how unacceptably easy it is to accumulate (and report) statistically significant evidence for a false hypothesis. Second, we suggest a simple, low-cost, and straightforwardly effective disclosure-based solution to this problem. The solution involves six concrete requirements for authors and four guidelines for reviewers, all of which impose a minimal burden on the publication process.

Keywords: methodology, motivated reasoning, publication, disclosure