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References

Afrika

Henshilwood 2018

Christopher S. Henshilwood, Francesco d'Errico, Karen L. van Niekerk, Laure Dayet, Alain Queffelec & Luca Pollarolo, *An abstract drawing from the 73,000-year-old levels at Blombos Cave, South Africa*. nature **562** (2018), 115–118.

n562-0115-Supplement1.pdf, n562-0115-Supplement2.mp4

Abstract and depictive representations produced by drawing—known from Europe, Africa and Southeast Asia after 40,000 years ago—are a prime indicator of modern cognition and behaviour1. Here we report a cross-hatched pattern drawn with an ochre crayon on a ground silcrete flake recovered from approximately 73,000-year-old Middle Stone Age levels at Blombos Cave, South Africa. Our microscopic and chemical analyses of the pattern confirm that red ochre pigment was intentionally applied to the flake with an ochre crayon. The object comes from a level associated with stone tools of the Still Bay techno-complex that has previously yielded shell beads, cross-hatched engravings on ochre pieces and a variety of innovative technologies2–5. This notable discovery predates the earliest previously known abstract and figurative drawings by at least 30,000 years. This drawing demonstrates the ability of early Homo sapiens in southern Africa to produce graphic designs on various media using different techniques.

Aktuell

Anderson 2018

Sarah Anderson, *Outsmarting our instruments*. science **361** (2018), 1042.

I'm a graduate student in a lab that seemingly has an instrument for everything. Peptide synthesizer? We've got it. Liquid-handling instrument for 96-well plates? No problem. You name it, we've got a robot that can do it. The convenience and efficiency can't be beat. But when I first joined the lab, I feared that these tools would make grad students like me obsolete. I thought the single quality that defined a great scientist was perfect experimental technique, and that scientists are essentially supposed to function as living, breathing instruments. Gradually, though, I accepted that these instruments had better experimental technique than I ever could master, and that I had better rethink what it really means to be a scientist.

Bibel

Finkelstein 1990

Israel Finkelstein, *Excavations at Khirbet ed-Dawwara, An Iron Age site northeast of Jerusalem*. Tel Aviv: Archaeology **17** (1990), 163–209.

As seen above, in the region where the site of Gilgal should be looked for, there are only a few unidentified Iron I sites. Hence, after the first visits to Khirbet

ed-Dawwara, impressed by its shape, I was tempted to consider its possible identification with Gilgal of the late 11th century. The results of the excavation were inconclusive. On one hand this identification would clarify some of the special features of the site — the time of construction and desertion, the location east of all the other desert fringe villages, the lack of evidence for daily agricultural activity — and would shed light on events connected with the struggle with the Philistines. On the other hand, there are serious textual problems. While archaeology can rule out an identification of a site (when no finds of the relevant period are discovered), seldom can it prove an identification. The excavations at Khirbet ed-Dawwara are no exception. This site could be Beth-aven, one of the Gilgals, or some other site the name of which has been forgotten during the ages. Therefore, the questions of Gilgal's location and of Khirbet ed-Dawwara's identification remain unresolved.

Finkelstein 2010

Israel Finkelstein & Eli Piasetzky, *Khirbet Qeiyafa, Absolute Chronology*. Tel Aviv: Archaeology **37** (2010), 84–88.

Based on averaging four radiocarbon determinations, Garfinkel and Ganor (2009) have dated the Iron Age layer at Khirbet Qeiyafa to ca. 1025-975 BCE and declared the demise of the Low Chronology for the Iron Age strata in the Levant. We show that in the case of Khirbet Qeiyafa averaging is not a legitimate procedure. The five available measurements represent the life-span of the site rather than a single event. With the available data, all one can say is that activity at the site started ca. 1050 BCE and ended sometime during the loth century, no later than 915 BCE. The Khirbet Qeiyafa 14C determinations line up with the large number of measurements from late Iron I sites in both the north and south of Israel and support the Low Chronology.

Keywords: Khirbet Qeiyafa | Radiocarbon dating | Low Chronology | Iron Age | Late Iron I

Biologie

Festa-Bianchet 2018

Marco Festa-Bianchet, *Learning to migrate*. science **361** (2018), 972–973.

Hoofed animals, such as bighorn sheep and moose, learn migratory behaviors from other herd members.

In recently established populations, migratory skills improved over time. Newly translocated animals did not migrate, except for a few that followed migratory residents. The authors show that it can take 90 years, or 12 to 13 generations, for half of the descendants of translocated animals to become migratory. Surfing skills were correlated with the development of migration but improved less markedly over time. Even in native herds, surfing performance was lower than that expected of a theoretical omniscient ungulate that surfed the green wave perfectly.

Jesmer 2018

Brett R. Jesmer et al., *Is ungulate migration culturally transmitted? Evidence of social learning from translocated animals*. science **361** (2018), 1023–1025.

s361-1023-Supplement.pdf

Brett R. Jesmer, Jerod A. Merkle, Jacob R. Goheen, Ellen O. Aikens, Jeffrey L. Beck, Alyson B. Courtemanch, Mark A. Hurley, Douglas E. McWhirter, Hollie M. Miyasaki, Kevin L. Monteith & Matthew. J. Kauffman

Ungulate migrations are assumed to stem from learning and cultural transmission of information regarding seasonal distribution of forage, but this hypothesis has not been tested empirically. We compared the migratory propensities of bighorn sheep and moose translocated into novel habitats with those of historical populations that had persisted for hundreds of years. Whereas individuals from historical populations were largely migratory, translocated individuals initially were not. After multiple decades, however, translocated populations gained knowledge about surfing green waves of forage (tracking plant phenology) and increased their propensity to migrate. Our findings indicate that learning and cultural transmission are the primary mechanisms by which ungulate migrations evolve. Loss of migration will therefore expunge generations of knowledge about the locations of high-quality forage and likely suppress population abundance.

Islam

Masood 2009

Ehsan Masood, *Science and Islam, A history.* (London 2009).

From Musa al-Khwarizmi who developed algebra in 9th century Baghdad to al-Jazari, a 13th-century Turkish engineer whose achievements include the crank, the camshaft and the reciprocating piston, Science and Islam tells the story of one of history's most misunderstood yet rich and fertile periods in science: the extraordinary Islamic scientific revolution between 700 and 1400 CE.

Kultur

Christakis 2018

Dimitri A. Christakis, Julian S. Benedikt Ramirez, Susan M. Ferguson, Shilpa Ravinder & Jan-Marino Ramirez, *How early media exposure may affect cognitive function, A review of results from observations in humans and experiments in mice.* PNAS **115** (2018), 9851–9858.

Attention deficit hyperactivity disorder (ADHD) is now among the most commonly diagnosed chronic psychological dysfunctions of childhood. By varying estimates, it has increased by 30 % in the past 20 years. Environmental factors that might explain this increase have been explored. One such factor may be audiovisual media exposure during early childhood. Observational studies in humans have linked exposure to fast-paced television in the first 3 years of life with subsequent attentional deficits in later childhood. Although longitudinal and well controlled, the observational nature of these studies precludes definitive conclusions regarding a causal relationship. As experimental studies in humans are neither ethical nor practical, mouse models of excessive sensory stimulation (ESS) during childhood, akin to the enrichment studies that have previously shown benefits of stimulation in rodents, have been developed. Experimental studies using this model have corroborated that ESS leads to cognitive and behavioral deficits, some of which may be potentially detrimental. Given the ubiquity of media during childhood, these findings in humansand rodents perhaps have important implications for public health.

Keywords: ADHD | cognition | overstimulation | child development | media

Morris 2010

Ian Morris, *Why the West Rules – For Now, The patterns of history, and what they reveal about the future.* (London 2011).

Morris' main focus is "energy capture". He examines how organisms capture energy from the sun and from their surrounding environments and use that energy to remain active and build things. His particular interest is in how various groups of humans have captured and used energy over time to build the civilizations we have built throughout history. In addition to energy capture, he looks at the social, cultural, and economical forces that shaped various empires and political systems. What a novel approach to this subject! Far better than Jared Diamond's Guns, Germs, and Steel.

Describing the patterns of human history, the archaeologist and historian Ian Morris offers surprising new answers. It is not, he reveals, differences of race or culture, or even the strivings of great individuals, that explain Western dominance. It is the effects of geography on the everyday efforts of ordinary people as they deal with crises of resources, disease, migration, and climate. As geography and human ingenuity continue to interact, the world will change in astonishing ways, transforming Western rule in the process.

Deeply researched and brilliantly argued, Why the West Rules–for Now spans fifty thousand years of history and offers fresh insights on nearly every page. The book brings together the latest findings across disciplines–from ancient history to neuroscience–not only to explain why the West came to rule the world but also to predict what the future will bring in the next hundred years.

Mathematik Energie

Li 2018

Yan Li, Eugenia Kalnay, Safa Motesharrei, Jorge Rivas, Fred Kucharski, Daniel Kirk-Davidoff, Eviatar Bach & Ning Zeng, *Climate model shows large-scale wind and solar farms in the Sahara increase rain and vegetation*. science **361** (2018), 1019–1022.

s361-1019-Supplement.pdf

Wind and solar farms offer a major pathway to clean, renewable energies. However, these farms would significantly change land surface properties, and, if sufficiently large, the farms may lead to unintended climate consequences. In this study, we used a climate model with dynamic vegetation to show that large-scale installations of wind and solar farms covering the Sahara lead to a local temperature increase and more than a twofold precipitation increase, especially in the Sahel, through increased surface friction and reduced albedo. The resulting increase in vegetation further enhances precipitation, creating a positive albedo–precipitation–vegetation feedback that contributes ≈80 % of the precipitation increase for wind farms. This local enhancement is scale dependent and is particular to the Sahara, with small impacts in other deserts.

Methoden

Hendy 2018

Jessica Hendy et al., *Ancient proteins from ceramic vessels at Çatalhöyük West reveal the hidden cuisine of early farmers*. Nature Communications **9** (2018), 4064, 1–10. DOI:10.1038/s41467-018-06335-6.

Jessica Hendy, Andre C. Colonese, Ingmar Franz, Ricardo Fernandes, Roman Fischer, David Orton, Alexandre Lucquin, Luke Spindler, Jana Anvari, Elizabeth Stroud, Peter F. Biehl, Camilla Speller, Nicole Boivin, Meaghan Mackie, Rosa R.

Jersie-Christensen, Jesper V. Olsen, Matthew J. Collins, Oliver E. Craig & Eva Rosenstock

The analysis of lipids (fats, oils and waxes) absorbed within archaeological pottery has revolutionized the study of past diets and culinary practices. However, this technique can lack taxonomic and tissue specificity and is often unable to disentangle signatures resulting from the mixing of different food products. Here, we extract ancient proteins from ceramic vessels from the West Mound of the key early farming site of Çatalhöyük in Anatolia, revealing that this community processed mixes of cereals, pulses, dairy and meat products, and that particular vessels may have been reserved for specialized foods (e.g., cow milk and milk whey). Moreover, we demonstrate that dietary proteins can persist on archaeological artefacts for at least 8000 years, and that this approach can reveal past culinary practices with more taxonomic and tissue-specific clarity than has been possible with previous biomolecular techniques.

Physik

Ananthaswamy 2018

Anil Ananthaswamy, *How fast is the universe expanding, Clashing measurements may point to new physics.* PNAS **115** (2018), 9810–9812.

The neutron star merger, named GW170817, gave Holz and his colleagues an entirely new way to measure how fast the universe is expanding. This method could settle a simmering dispute between the two established ways of measuring expansion, and it could mean rethinking the makeup of our universe—perhaps requiring new types of a subatomic particle or unexpected forms of dark matter or dark energy.

The consequences are hard to overstate. Such a scenario would suggest that "there is physics beyond the standard model," says Scolnic. "Everything is on the table."

Religion

van Eyghen 2018

Hans van Eyghen, *Is supernatural belief unreliably formed?* International Journal for Philosophy of Religion (2018), preprint, 1–24. DOI:10.1007/s11153-018-9671-4.

I criticize 5 arguments for the conclusion that religious belief is unreliably formed and hence epistemically tainted. The arguments draw on scientific evidence from Cognitive Science of Religion. They differ considerably as to why the evidence points to unreliability. Two arguments conclude to unreliability because religious belief is shaped by evolutionary pressures; another argument states that the mechanism responsible for religious belief produces many false godbeliefs; a similar argument claims that the mechanism produces incompatible godbeliefs; and a final argument states that the mechanism is offtrack. I argue that the arguments fail to make the case for unreliability or that the unreliability can be overcome.

Keywords: Cognitive science of religion | Religious epistemology | Debunking arguments | Reliabilism | Rationality of religious belief

Launonen 2017

Lari Launonen, *Cognitive Science of Religion and the Debunking Debate.* In: Hanne Appelqvist & Dan-Johan Eklund

(Hrsg.), *The Origin of Religion, Perspectives from Philosophy, Theology, and Religious Studies*. (Helsinki 2017), 151–162.

So far, it seems that debunking arguments employing CSR theories do not survive closer scrutiny. They do not provide any obvious threat to theistic belief. However, reliabilists may have more work to do than internalists in securing the rationality of god-belief.