Liste erstellt am 2017-02-05

References

Aktuell

Rozek 2017

Christopher S. Rozek, Ryan C. Svoboda, Judith M. Harackiewicz, Chris S. Hulleman & Janet S. Hyde, *Utility-value intervention with parents increases students' STEM preparation and career pursuit*. PNAS **114** (2017), 909–914.

During high school, developing competence in science, technology, engineering, and mathematics (STEM) is critically important as preparation to pursue STEM careers, yet students in the United States lag behind other countries, ranking 35th in mathematics and 27th in science achievement internationally. Given the importance of STEM careers as drivers of modern economies, this deficiency in preparation for STEM careers threatens the United States' continued economic progress. In the present study, we evaluated the long-term effects of a theory-based intervention designed to help parents convey the importance of mathematics and science courses to their high-school–aged children. A prior report on this intervention showed that it promoted STEM course-taking in high school; in the current follow-up study, we found that the intervention improved mathematics and science standardized test scores on a college preparatory examination (ACT) for adolescents by 12 percentile points. Greater high-school STEM preparation (STEM course-taking and ACT scores) was associated with increased STEM career pursuit (i.e., STEM career interest, the number of college STEM courses, and students' attitudes toward STEM) 5 y after the intervention. These results suggest that the intervention can affect STEM career pursuit indirectly by increasing high-school STEM preparation. This finding underscores the importance of targeting high-school STEM preparation to increase STEM career pursuit. Overall, these findings demonstrate that a motivational intervention with parents can have important effects on STEM preparation in high school, as well as downstream effects on STEM career pursuit 5 y later.

Keywords: academic motivation | educational intervention | STEM motivation | achievement | parent intervention

Significance: The need for students trained in science, technology, engineering, and mathematics (STEM) jobs is growing rapidly in the United States, yet students do not enroll in the necessary courses to prepare for STEM careers. In a randomized controlled trial, parents in the utility–value intervention group received materials detailing the importance of STEM for their adolescents in high school. The intervention increased mathematics and science ACT scores and course-taking in high school. This greater high-school STEM preparation was associated, 5 y later, with increased STEM career pursuit. These findings suggest that educational policies should promote the personal relevance of high-school mathematics and science courses and involve parents in helping to promote STEM preparation and career pursuit.

Anthropologie

Kong 2017

Augustine Kong et al., *Selection against variants in the genome associ-*

ated with educational attainment. PNAS **114** (2017), E727–E732.

Augustine Kong, Michael L. Frigge, Gudmar Thorleifsson, Hreinn Stefansson, Alexander I. Young, Florian Zink, Gudrun A. Jonsdottir, Aysu Okbay, Patrick Sulem, Gisli Masson, Daniel F. Gudbjartsson, Agnar Helgason, Gyda Bjornsdottir, Unnur Thorsteinsdottir & Kari Stefansson

Epidemiological and genetic association studies show that genetics play an important role in the attainment of education. Here, we investigate the effect of this genetic component on the reproductive history of 109,120 Icelanders and the consequent impact on the gene pool over time. We show that an educational attainment polygenic score, POLYEDU, constructed from results of a recent study is associated with delayed reproduction (P < 10E100) and fewer children overall. The effect is stronger for women and remains highly significant after adjusting for educational attainment. Based on 129,808 Icelanders born between 1910 and 1990, we find that the average POLYEDU has been declining at a rate of ≈0.010 standard units per decade, which is substantial on an evolutionary timescale. Most importantly, because POLYEDU only captures a fraction of the overall underlying genetic component the latter could be declining at a rate that is two to three times faster.

Keywords: selection | educational attainment | genes | fertility | sequence variants

Significance: Epidemiological studies suggest that educational attainment is affected by genetic variants. Results from recent genetic studies allow us to construct a score from a person's genotypes that captures a portion of this genetic component. Using data from Iceland that include a substantial fraction of the population we show that individuals with high scores tend to have fewer children, mainly because they have children later in life. Consequently, the average score has been decreasing over time in the population. The rate of decrease is small per generation but marked on an evolutionary timescale. Another important observation is that the association between the score and fertility remains highly significant after adjusting for the educational attainment of the individuals.

Archäologie

Veyrat 2007

Nicolas Veyrat, Eric Blanco & Pascale Trompette, *When shape does not induce function, Why designers must not loose the big picture (of use)*. In: *International Conference On Engineering Design, ICED'07, 28–31 August 2007, Cite des Sciences et de l'Industrie, Paris, France*. (2007), 1–12. <http://hal.archives-ouvertes.fr/hal-00184068>.

Shape does not induce function. That is what this paper first tries to demonstrate. Affordances must be perceived to link a structure to a function, to make an object look like what it is designed for. It takes palaeontologists the understanding of a hybrid socio-technical context to interpret the structure of an artefact. A brief backward look at historical simple optical systems bears it out: structure must be replaced in a larger network to understand why it is like it is, why rivet spectacles had no sidepieces.

Then if function has a systemic nature, if it has never been inscribed on shape, but on the sociotechnical context of objects, it necessary has implications for design. Recommended methods as value analysis involve socio-technical networks in function identification; they follow designers in building a compulsory and forecasted set of connections to surrounding actants, embodying concepts in unspoken scripts of use. Still, what this paper illustrates is the enormous significance given to those implicit and hardly discussed representations. Mentioning the case of

axiomatic design, it is shown how then functions are translated into functional requirements, distinct design parameters, and independent teams: unspoken scripts are behind product's and organisation's structures, behind 'indisputable' dominant designs. Moreover, original 'big pictures of use' fade out during the breakdown, creating numerous short-sighted (and still implicit) models of use.

What this paper suggests is the need for intermediary objects (scenarios?) that could consider use representations as an influential parameter of design, and maintain throughout the design process shared, partially-explicit, and discussed visions of socio-technical contexts where artefacts are imagined.

Keywords: Function | structure | affordance | representations of uses | dominant design | scenario-based design

Bibel

Clines 2015

David J. A. Clines, *The Most High Male, Divine Masculinity in the Bible*. unknown (2015), preprint, 1–18.

The purpose of the paper is to examine the profile of the deity, as a literary character in the Bible, from the perspective of gender. Following a set of earlier papers in which I explored the masculinity of various biblical figures, I intend to consider the figure of the biblical deity under the major categories that indicate masculinity in biblical texts: strength, violence, honour, holiness, etc. It is no secret that the God of the Bible is represented as a male, but the extent to which characteristically male values permeate the depiction of the Deity in the Bible is rarely acknowledged. In the case of honour, for example, the traditional translation of kabod and doxa as 'glory' rather than 'honour' when used of God obscures the fact that the deity is represented as engaged in the same competitive quest for honour as the typical Mediterranean male. In the case of holiness, which is the quintessential quality of divinity, it is likewise rarely observed that the term is totally gendered, relating solely to the male sphere, from which women are excluded. The paper aims to exemplify the importance of masculinity studies for feminist criticism.

It remains to be said that none of the evidence presented in this paper is to be found in any Hebrew or Greek lexica, in any theological dictionaries of the Hebrew Bible or the New Testament, in any Bible dictionaries, or (as far as I am aware) in any commentaries on biblical books. All these resources are astonishingly gender blind. It is striking that after 40 years of feminist biblical criticism so much grist for the feminist mill still awaits us.

This paper, along with the others I referred to at the beginning, is intended as a contribution to the still far from completed project of feminist biblical criticism. Not only women, but men of conscience also committed to social justice, are still in need of a bout of consciousness—raising on the subject of the oppressive masculinity adopted by the Bible's language about the deity.

Diehl 2008

Jonathan Stökl, *Kings, Heroes, Gods, The History of the Translation of the term 'r'l dwdh in Line Twelve of the Meša'-Stele*. In: Johannes Diehl (Hrsg.), *Kleine Untersuchungen zur Sprache des Alten Testaments und seiner Umwelt*. KUSATU 8/9 (Waltrop 2008).

Does dwdh in the Mesa-inscription refer to a deity or to a human named David? This leaves us with either a deity Död, a different deity who is being referred to as 'beloved', King David or David of Ataroth.

But first a short evaluation of the debate on the potential suffix on dwd-h. Xella and Rainey have given strong indication that the long-held view that Hebrew names cannot bear suffixes will have to be revised: if dwd is an appellative or epithet, then it could easily carry a suffix and yet function as a name. There are many examples of epithets and nicknames bearing possessive suffixes.

Deity or David: neither is unproblematic. As Na'aman shows, it is difficult to imagine something of Moabite origin being called 'their Davidic altar-hearth'. Especially within more conservative circles, the word dwdh has been interpreted as referring to King David, Israel's eponymous king. Through Gibbon's seminal textbook of Semitic inscriptions, it has surely remained the most common translation, definitely in English speaking scholarship. Neither of the translations 'David of Israel' nor 'David of Ataroth', provide an explanation for the parallelism with lines 17-18.

Unless this parallelism is, in fact, not a parallelism at all, and unless y-h-w-h is not supposed to stand for YHWH, I cannot see how dwdh could stand for anything but a deity's appellation. The lack of any substantial evidence for the existence of a deity Död elsewhere means that we should not use it as an interpretative key for our text. This leaves us with the translation 'beloved' for dwd, in all likelihood for the god of Israel, YHWH.

Biologie

Kravchenko 2017

Alexandra N. Kravchenko, Sieglinde S. Snapp & G. Philip Robertson, *Field-scale experiments reveal persistent yield gaps in low-input and organic cropping systems*. PNAS **114** (2017), 926–931.

Knowledge of production-system performance is largely based on observations at the experimental plot scale. Although yield gaps between plot-scale and field-scale research are widely acknowledged, their extent and persistence have not been experimentally examined in a systematic manner. At a site in southwest Michigan, we conducted a 6-y experiment to test the accuracy with which plot-scale crop-yield results can inform field-scale conclusions. We compared conventional versus alternative, that is, reduced-input and biologically based–organic, management practices for a corn– soybean–wheat rotation in a randomized complete block-design experiment, using 27 commercial-size agricultural fields. Nearby plot-scale experiments (0.02-ha to 1.0-ha plots) provided a comparison of plot versus field performance. We found that plot-scale yields well matched field-scale yields for conventional management but not for alternative systems. For all three crops, at the plot scale, reduced-input and conventional managements produced similar yields; at the field scale, reduced-input yields were lower than conventional. For soybeans at the plot scale, biological and conventional managements produced similar yields; at the field scale, biological yielded less than conventional. For corn, biological management produced lower yields than conventional in both plot- and field-scale experiments. Wheat yields appeared to be less affected by the experimental scale than corn and soybean. Conventional management was more resilient to field-scale challenges than alternative practices, which were more dependent on timely management interventions; in particular, mechanical weed control. Results underscore the need for much wider adoption of field-scale experimentation when assessing new technologies and production-system performance, especially as related to closing yield gaps in organic farming and in low-resourced systems typical of much of the developing world.

Keywords: field experiments | scaling | corn soybean wheat rotation | weed control | organic agriculture

Significance: Meeting future food needs requires a substantial increase in the yields obtained from existing cropland. Prior global analyses have suggested that these gains could come from closing yield gaps—differences between yields from small-plot research versus those in farmer fields. However, closing this gap requires knowledge of causal factors not yet identified experimentally. Results here suggest that yield gaps can be closed using farming practices that use conventional synthetic chemicals, but practices that rely more on biological management—as is the case throughout much of the developing world and in organic agriculture—require renewed attention to field-scale resource demands and place greater emphasis on the importance of field-scale experimental research.

Datierung

Jusseret 2012

Simon Jusseret & Manuel Sintubin, *All That Rubble Leads to Trouble, Reassessing the Seismological Value of Archaeological Destruction Layers in Minoan Crete and Beyond*. Seismological Research Letters **83** (2012), 736–742.

Recent works by Nur and Cline (2000) and Nur and Burgess (2008) relate destruction evidence at Late Bronze Age settlements (including Knossos and Chania on Crete) all over the Eastern Mediterranean region ca. 1200 B.C. to an earthquake storm—the Late Bronze Age paroxysm. The time span of the earthquake storm, ca. 50 yr, explains chronological discrepancies between individual destructions and allows avoiding the trap of calling upon a single regional seismic event "beyond the limits of possible" (Ambraseys et al., 2002).

McClure 2014

Sarah B. McClure, Emil Podrug, Andrew M. T. Moore, Brendan J. Culleton & Douglas J. Kennett, *AMS ^{14}C chronology and ceramic sequences of early farmers in the eastern Adriatic*. Radiocarbon **56** (2014), 1019–1038.

The eastern Adriatic is a key area for understanding the mechanisms and effects of the spread of agriculture. This article presents an accelerator mass spectrometry (AMS) radiocarbon chronology for the introduction and subsequent development of farming villages on the eastern shore of the Adriatic (≈6000–4700 cal BC) and evaluates this in comparison with the established pottery chronology based on stylistic data from Pokrovnik (Drniš) on the Dalmatian coast of Croatia. Models for the spread of agriculture rely heavily on changing pottery styles to define cultural groups and trace geographic relationships. Based on AMS 14C dates presented here, Impressed Wares first appear in central Dalmatia by 6000 cal BC and persist until 5300 cal BC, well into what is generally termed the Middle Neolithic. Similarly, a typical Middle Neolithic ware, figulina, appeared earlier than anticipated. These findings stand in contrast to cave and rockshelter assemblages in the eastern Adriatic, but mirror assemblages from farming villages on the Italian Adriatic coast. This study argues that the similarities in ceramic assemblage composition and change through time may have less to do with direct contacts between areas, but more with the nature of ceramic production and consumption at village sites in general. These data shed light on the limitations of regional ceramic chronologies in the eastern Adriatic and highlight the necessity for systematic expansion of 14C chronologies to address the social, economic, and ecological relevance of early farming in the Adriatic for the spread of agriculture in Europe and the Mediterranean.

Miyake 2017

Fusa Miyake et al., *Large ^{14}C excursion in 5480 BC indicates an abnormal sun in the mid-Holocene*. PNAS **114** (2017), 881–884.

Fusa Miyake, A. J. Timothy Jull, Irina P. Panyushkina, Lukas Wacker, Matthew Salzer, Christopher H. Baisan, Todd Lange, Richard Cruz, Kimiaki Masuda & Toshio Nakamura

Radiocarbon content in tree rings can be an excellent proxy of the past incoming cosmic ray intensities to Earth. Although such past cosmic ray variations have been studied by measurements of 14C contents in tree rings with ≥10-y time resolution for the Holocene, there are few annual 14C data. There is a little understanding about annual 14C variations in the past, with the exception of a few periods including the AD 774775 14C excursion where annual measurements have been performed. Here, we report the result of 14C measurements using the bristlecone pine tree rings for the period from 5490 BC to 5411 BC with 1- to 2-y resolution, and a finding of an extraordinarily large 14C increase (20‰) from 5481 BC to 5471 BC (the 5480 BC event). The 14C increase rate of this event is much larger than that of the normal grand solar minima. We propose the possible causes of this event are an unknown phase of grand solar minimum, or a combination of successive solar proton events and a normal grand solar minimum.

Keywords: radiocarbon | cosmic ray event | solar proton event | grand solar minimum | tree rings

Significance: Carbon-14 contents in tree rings tell us information of the past cosmic ray intensities because cosmic rays produce 14C in the atmosphere. We found a signature of a quite large increase of incoming cosmic ray intensity in the mid-Holocene (the 5480 BC event) from the measurement of 14C content in North American tree rings. The cause of this event is supposed to be an extremely weak sun, or a combination of successive strong solar bursts and variation of a solar magnetic activity. In any case, 14C variation of the 5480 BC event is extraordinary in the Holocene, and this event indicates the abnormal solar activity compared with other periods.

Wilson 2017

Rob Wilson et al., *Facilitating tree-ring dating of historic conifer timbers using Blue Intensity*. Journal of Archaeological Science **78** (2017), 99–111.

JAS078-0099-Supplement.png

Rob Wilson, David Wilson, Miloš Rydval, Anne Crone, Ulf Büntgen, Sylvie Clark, Janet Ehmer, Emma Forbes, Mauricio Fuentes, Björn E. Gunnarson, Hans W. Linderholm, Kurt Nicolussi, Cheryl Wood & Coralie Mills

Dendroarchaeology almost exclusively uses ring-width (RW) data for dating historical structures and artefacts. Such data can be used to date tree-ring sequences when regional climate dominates RW variability. However, the signal in RW data can be obscured due to site specific ecological influences (natural and anthropogenic) that impact crossdating success. In this paper, using data from Scotland, we introduce a novel tree-ring parameter (Blue Intensity – BI) and explore its utility for facilitating dendrohistorical dating of conifer samples. BI is similar to latewood density as they both reflect the combined hemicellulose, cellulose and lignin content in the latewood cell walls of conifer species and the amount of these compounds is strongly controlled, at least for trees growing in temperature limited locations, by late summer temperatures. BI not only expresses a strong climate signal, but is also less impacted by site specific ecological influences. It can be concurrently produced with RW data from images of finely sanded conifer samples but at a significantly reduced cost compared to traditional latewood density. Our study

shows that the probability of successfully crossdating historical samples is greatly increased using BI compared to RW. Furthermore, due to the large spatial extent of the summer temperature signal expressed by such data, a sparse multi-species conifer network of long BI chronologies across Europe could be used to date and loosely provenance imported material.

Keywords: Tree-ring dating | Dendroarchaeology | Blue Intensity | Conifers

Klima

Dargie 2017

Greta C. Dargie, Simon L. Lewis, Ian T. Lawson, Edward T. A. Mitchard, Susan E. Page, Yannick E. Bocko & Suspense A. , *Age, extent and carbon storage of the central Congo Basin peatland complex*. nature **542** (2017), 86–90.

n542-0086-Supplement.pdf

Peatlands are carbon-rich ecosystems that cover just three per cent of Earth's land surface1, but store one-third of soil carbon2. Peat soils are formed by the build-up of partially decomposed organic matter under waterlogged anoxic conditions. Most peat is found in cool climatic regions where unimpeded decomposition is slower, but deposits are also found under some tropical swamp forests2,3. Here we present field measurements from one of the world's most extensive regions of swamp forest, the Cuvette Centrale depression in the central Congo Basin4. We find extensive peat deposits beneath the swamp forest vegetation (peat defined as material with an organic matter content of at least 65 per cent to a depth of at least 0.3 metres). Radiocarbon dates indicate that peat began accumulating from about 10,600 years ago, coincident with the onset of more humid conditions in central Africa at the beginning of the Holocene5. The peatlands occupy large interfluvial basins, and seem to be largely rain-fed and ombrotrophic-like (of low nutrient status) systems. Although the peat layer is relatively shallow (with a maximum depth of 5.9 metres and a median depth of 2.0 metres), by combining in situ and remotely sensed data, we estimate the area of peat to be approximately 145,500 square kilometres (95 per cent confidence interval of 131,900–156,400 square kilometres), making the Cuvette Centrale the most extensive peatland complex in the tropics. This area is more than five times the maximum possible area reported for the Congo Basin in a recent synthesis of pantropical peat extent2. We estimate that the peatlands store approximately 30.6 petagrams (30.6 × 10E15 grams) of carbon belowground (95 per cent confidence interval of 6.3–46.8 petagrams of carbon)—a quantity that is similar to the above-ground carbon stocks of the tropical forests of the entire Congo Basin6. Our result for the Cuvette Centrale increases the best estimate of global tropical peatland carbon stocks by 36 per cent, to 104.7 petagrams of carbon (minimum estimate of 69.6 petagrams of carbon; maximum estimate of 129.8 petagrams of carbon2). This stored carbon is vulnerable to land-use change and any future reduction in precipitation7,8.

Fatoyinbo 2017

Lola Fatoyinbo, *Vast peatlands found in the Congo Basin*. nature **542** (2017), 38–39.

The discovery of what is potentially the world's largest continuous tropical peat complex has great implications for global carbon stocks, land management and scientific investment in central Africa.

Basin wetlands are mainly rain-fed rather than river-fed. This means that any change in precipitation patterns, such as reduced rainfall or stronger seasonal

effects, could alter wetland water levels and extent, potentially reducing the ability of these regions to store carbon as peat. Such changes are predicted to happen across equatorial regions as a result of climate change, which could result in the Cuvette Centrale switching from being a carbon sink to a source.

Zhu 2017

Zongmin Zhu, Joshua M. Feinberg, Shucheng Xie, Mark D. Bourne, Chunju Huang, Chaoyong Hu & Hai Cheng, *Holocene ENSO-related cyclic storms recorded by magnetic minerals in speleothems of central China*. PNAS **114** (2017), 852–857.

Extreme hydrologic events such as storms and floods have the potential to severely impact modern human society. However, the frequency of storms and their underlying mechanisms are limited by a paucity of suitable proxies, especially in inland areas. Here we present a record of speleothem magnetic minerals to reconstruct paleoprecipitation, including storms, in the eastern Asian monsoon area over the last 8.6 ky. The geophysical parameter IRMsoft-flux represents the flux of soil-derived magnetic minerals preserved in stalagmite HS4, which we correlate with rainfall amount and intensity. IRMsoft-flux exhibits relatively higher values before 6.7 ky and after 3.4 ky and lower values in the intervening period, consistent with regional hydrological changes observed in independent records. Abrupt enhancements in the flux of pedogenic magnetite in the stalagmite agree well with the timing of known regional paleofloods and with equatorial El Niño-Southern Oscillation (ENSO) patterns, documenting the occurrence of ENSOrelated storms in the Holocene. Spectral power analyses reveal that the storms occur on a significant 500-y cycle, coincident with periodic solar activity and ENSO variance, showing that reinforced (subdued) storms in central China correspond to reduced (increased) solar activity and amplified (damped) ENSO. Thus, the magnetic minerals in speleothem HS4 preserve a record of the cyclic storms controlled by the coupled atmosphere-oceanic circulation driven by solar activity.

Keywords: storms | paleoprecipitation | speleothems | environmental magnetism | paleoclimate

Significance: High-resolution reconstructions of storm history and storms' underlying mechanisms in inland areas are critical but limited by a paucity of suitable paleoproxies. Here we use soil-derived magnetic minerals preserved in a stalagmite as a new paleohydrological proxy. This proxy enables us to rebuild decadal resolution storm records in the eastern Asian monsoon area since 8.6 ky. Variance of storms in central China was found to exhibit close correlation with El Niño-Southern Oscillation activity at millennial and centennial time scales, and also occur on a significant 500-y cycle related to periodic solar activity. These findings shed light on the forecasting of future floods and improve our understanding of the potential mechanism of strong precipitation in monsoon regions.

Kultur

Dong 2017

Yu Dong, Chelsea Morgan, Yurii Chinenov, Ligang Zhou, Wenquan Fan, Xiaolin Ma & Kate Pechenkina, *Shifting diets and the rise of male-biased inequality on the Central Plains of China during Eastern Zhou*. PNAS **114** (2017), 932–937.

pnas114-00932-Supplement1.xlsx, pnas114-00932-Supplement2.xlsx, pnas114-00932-Supplement3.xlsx, pnas114-00932-Supplement4.xlsx

Farming domesticated millets, tending pigs, and hunting constituted the core of human subsistence strategies during Neolithic Yangshao (5000–2900 BC). Introduction of wheat and barley as well as the addition of domesticated herbivores during the Late Neolithic (≈2600–1900 BC) led to restructuring of ancient Chinese subsistence strategies. This study documents a dietary shift from indigenous millets to the newly introduced cereals in northcentral China during the Bronze Age Eastern Zhou Dynasty (771–221 BC) based on stable isotope analysis of human and animal bone samples. Our results show that this change affected females to a greater degree than males. We find that consumption of the newly introduced cereals was associated with less consumption of animal products and a higher rate of skeletal stress markers among females. We hypothesized that the observed separation of dietary signatures between males and females marks the rise of male-biased inequality in early China. We test this hypothesis by comparing Eastern Zhou human skeletal data with those fromNeolithic Yangshao archaeological contexts. We find no evidence of male–female inequality in early farming communities. The presence of male-biased inequality in Eastern Zhou society is supported by increased body height difference between the sexes as well as the greater wealth of male burials.

Keywords: stable isotopes | bioarchaeology | paleo diet | Yangshao | East Asia

Significance: Male-biased inequality in Imperial China imposed strong limitations on the economic and intellectual contribution of women to the society and fostered male-biased resource distribution, because females were subordinated to the priorities of the patriarchal state. Analyzing human skeletal remains from early agricultural and later preimperial archaeological sites, we find no evidence of inequality between males and females in early farming communities. The observed differences between male and female skeletons from Eastern Zhou archaeological contexts allow us to infer a decline in female social status after the introduction of new crop plants and domesticated herbivores in preimperial China. The analysis reveals that male-biased inequality and subsistence change became intertwined with the rise of social complexity.

Sahlins 1963

Marshall D. Sahlins, *Poor Man, Rich Man, Big-Man, Chief, Political Types in Melanesia and Polynesia.* Comparative Studies in Society and History **5** (1963), 285–303.

Mathematik

Isern 2017

Neus Isern, João Zilhão, Joaquim Fort & Albert J. Ammerman, *Modeling the role of voyaging in the coastal spread of the Early Neolithic in the West Mediterranean.* PNAS **114** (2017), 897–902.

pnas114-00897-Supplement.xlsx

The earliest dates for the West Mediterranean Neolithic indicate that it expanded across 2,500 km in about 300 y. Such a fast spread is held to be mainly due to a demic process driven by dispersal along coastal routes. Here, we model the Neolithic spread in the region by focusing on the role of voyaging to understand better the core elements that produced the observed pattern of dates. We also explore the effect of cultural interaction with Mesolithic populations living along the coast. The simulation study shows that (i) sea travel is required to obtain reasonable predictions, with a minimum sea-travel range of 300 km per generation; (ii) leapfrog coastal dispersals yield the best results (quantitatively and qualitatively);

and (iii) interaction with Mesolithic people can assist the spread, but long-range voyaging is still needed to explain the archaeological pattern.

Keywords: Neolithic | coastal spread | computational model | voyaging | cultural transmission

Significance: The Neolithic expansion in Europe took place at an average rate of 1 km/y. In the West Mediterranean, the archaeological record yields a much faster rate of spread, one that cannot be explained by classical overland models. Voyaging has been put forward as an alternative line of explanation. Here, we develop a computational model to identify the key elements and mechanisms and to estimate the values that yield outcomes that fit the observations. The results show that voyaging is indeed required to explain the pattern. We have also found that interactions with local hunter-gatherers played a lesser part in the fast rate of spread.

Mesolithikum

Oras 2017

Ester Oras, Alexandre Lucquin, Lembi Lõugas, Mari Tõrv, Aivar Kriiska & Oliver E. Craig, *The adoption of pottery by north-east European hunter-gatherers, Evidence from lipid residue analysis.* Journal of Archaeological Science **78** (2017), 112–119.

JAS078-0112-Supplement.pdf

Pottery was adopted by hunter-gatherers in the Eastern Baltic at the end of the 6th millennium cal BC. To examine the motivations for this cultural and technological shift, here we report the organic residue analysis of ceramic vessels from the earliest pottery horizon (Narva) in this region. A combined approach using GC-MS, GC-C-IRMS and bulk IRMS of residues absorbed into the ceramic and charred surface deposits was employed. The results show that despite variable preservation, Narva ceramic vessels were preferentially used for processing aquatic products. We argue that pottery was part of a new Late Mesolithic subsistence strategy which included more intensive exploitation of aquatic foods and may have had important implications, such as increased sedentism and population growth.

Keywords: Lipid residue analysis | Early pottery use | Aquatic resources | Mesolithic | Neolithic | Eastern Baltic

Metallzeiten

Wiktorowicz 2017

Conner J. Wiktorowicz, Bettina Arnold, John E. Wiktorowicz, Matthew L. Murray & Alexander Kurosky, *Hemorrhagic fever virus, human blood, and tissues in Iron Age mortuary vessels.* Journal of Archaeological Science **78** (2017), 29–39.

JAS078-0029-Supplement1.pdf, JAS078-0029-Supplement2.ods, JAS078-0029-Supplement2.pdf

This study identifies and interprets the proteins present on sherds from six ceramic mortuary vessels from a burial mound near the Heuneburg, an early Iron Age (750–400 BCE) hillfort in southwest Germany, using a novel adaptation of proteomic analysis that identified 166 proteins with high confidence. Surprisingly, among the identified proteins were peptides from Crimean-Congo hemorrhagic fever virus (CCHFV), a pathogen previously unknown in this geographic region

and time period, as well as peptides from human blood and tissues. These results highlight the first example of a viral cause of death of at least one high-status individual from the Iron Age west-central Europe and provide the first archaeological evidence for the interment of human organs in mortuary vessels in the region. We also demonstrate the suitability and value of a proteomics approach for discovery-based residue analysis of archaeological ceramic vessels and reveal how identification of adsorbed proteins can provide insight into prehistoric mortuary practices.

Keywords: Proteomics | Mortuary practice | Crimean-Congo hemorrhagic fever virus | Organ removal | Exsanguination | Iron Age Europe | Residue analysis

Ostasien

BATES 2017

J. Bates, C. A. Petrie & R. N. Singh, *Approaching rice domestication in South Asia, New evidence from Indus settlements in northern India.* Journal of Archaeological Science **78** (2017), 193–201.

The nature and timing of rice domestication and the development of rice cultivation in South Asia is much debated. In northern South Asia there is presently a significant gap (c.4200 years) between earliest evidence for the exploitation of wild rice (Lahuradewa c.6000 BCE) and earliest dated evidence for the utilisation of fully domesticated rice (Mahagara c.1800 BCE). The Indus Civilisation (c.3000–1500 BCE) developed and declined during the intervening period, and there has been debate about whether rice was adopted and exploited by Indus populations during this 'gap'. This paper presents new analysis of spikelet bases and weeds collected from three Indus Civilisation settlements in north-west India, which provide insight into the way that rice was exploited. This analysis suggests that starting in the period before the Indus urban phase (Early Harappan) and continuing through the urban (Mature Harappan/ Harappan), post-urban (Late Harappan) and on into the post-Indus Painted Grey Ware (PGW) period, there was a progressive increase in the proportion of domesticated-type spikelet bases and a decrease in wild-types. This pattern fits with a model of the slow development of rice exploitation from wild foraging to agriculture involving full cultivation. Importantly, the accompanying weeds show no increased proportions of wetland species during this period. Instead a mix of wetland and dryland species was identified, and although these data are preliminary, they suggest that the development of an independent rice tradition may have been intertwined with the practices of the eastern most Indus peoples. These data also suggest that when fully domesticated Oryza sativa ssp. japonica was introduced around 2000 BCE, it arrived in an area that was already familiar with domesticated rice cultivation and a range of cultivation techniques.

Keywords: Rice (Oryza sativa) | Indus Civilisation | South Asia | Macrobotanical analysis | Cultivation systems

Politik

HART 2017

Keith Hart, *How my generation let down our students.* unknown (2017), preprint, 1–5. .

The combination of mad bureaucratic directives and expanded enrolment has broken the moral adhesion of university teachers to a common calling. Upcoming

scholars have been reduced to performing casual labour with no long-term prospects. The same lower-class provincials, like me, who once struggled to keep their heads above water, now ignore their responsibilities to the next generation, taking leave for research and writing, while their university saves money by hiring a post-doc for a pittance.

There is no reason why people seeking higher education in the 21st century should look to these universities for it. The names and the buildings may still be there in a few decades time, but what goes on within them will be unrecognizable today. And it was us, the lucky beneficiaries of our parents' war and its aftermath, who threw it all away.

Sprachlehre

PEISKER 1967
Carl Heinz Peisker, *Hebräische Wortkunde*. (Göttingen ²1967).