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References

Afrika

Babatunde 2017

Abidemi Babatunde Babalola, Susan Keech McIntosh, Laure Dussubieux & Thilo Rehren, *Ile-Ife and Igbo Olokun in the history of glass in West Africa*. Antiquity **91** (2017), 732–750.

Antiquity091-0732-Supplement.pdf

Recent excavations at the site of Igbo Olokun in the Yoruba city of Ile-Ife, in south-western Nigeria, have shed light on early glass manufacturing techniques in West Africa. The recovery of glass beads and associated production materials has enabled compositional analysis of the artefacts and preliminary dating of the site, which puts the main timing of glass-working between the eleventh and fifteenth centuries AD. The results of these studies suggest that glass bead manufacture at this site was largely independent of glass-making traditions documented farther afield, and that Igbo Olokun may represent one of the earliest known glass-production workshops in West Africa.

Keywords: Nigeria | Yoruba | glass production | beads | trade

Freestone 2006

Ian C. Freestone, *An Indigenous Technology? A Commentary on Lankton et al. "Early Primary Glass Production in Southern Nigeria"*. Journal of African Archaeology **4** (2006), 139–141.

the cullet MgO in exglasses are also indeed indimelting not in the exception-which contain chloride (CI) are very How many times was glass invented? I am fairly confident that this happened at least twice in the cient world. It happened for the first time somewhere in the Near East in the first half of the second millennium BCE. Here craftsmen developed a material upon quartz and ash which when hot was plastic could be manipulated into a required form but which cooled to give a hard, gem-like, material. This resulting glass could be coloured with metal oxides and used to manufacture beads and small vessels.

This metaluminous (alkalis approximately equal alumina) composition could be explained by the addition of alkali feldspar minerals (KAlSi3O8 – NaAlSi3O8) to the batch. If alkalis and alumina had been added independently, significant variation in this ratio might be expected, with some of the glasses having a significant excess of alkalis, as is the case with the non-HLHA glass from Ile-Ife. The feldspars might have been added as components of an immature granitic sand, or granitic/syenitic rock or pegmatite.

If the alkalis were added in mineral form, what of the lime? [...] Perhaps more likely is the possibility that the lime was added to HLHA glass in the form of a rock such as limestone or marble, or even as shell, all of which are fairly pure forms of calcium carbonate. If this were the case we might have here a truly African technology where the raw materials were added as rock or mineral, something without precedent in early glassmaking as we currently understand it.

Koleini 2017

Farahnaz Koleini, Innocent Pikirayi & Philippe Colomban, *Revisiting Baranda, A multi-analytical approach in classifying*

sixteenth/seventeenth-century glass beads from northern Zimbabwe. Antiquity **91** (2017), 751–764.

Antiquity091-0751-Supplement.pdf

The glass bead trade in southern Africa provides important evidence of interregional contact during the early modern period. Compositional analysis of a large assemblage of imported glass beads from the sixteenthto seventeenth-century AD trading site of Baranda in northern Zimbabwe reveals a south Asian origin of the majority of the beads. Combining stratigraphic data and morphological analysis with innovative compositional XRF and Raman spectroscopy approaches, the research was able to assign the Baranda beads accurately to their correct chronological range. This coincides with the period of Portuguese dominance of Indian Ocean trade.

Keywords: southern Africa | northern Zimbabwe | Indo-Pacific trade | sixteenth-seventeenth centuries AD | glass beads | glass composition | Raman spectroscopy | pXRF

Lankton 2006

James W. Lankton, O. Akin Ige & Thilo Rehren, *Early Primary Glass Production in Southern Nigeria.* Journal of African Archaeology **4** (2006), 111–138.

Fragmentary glass-working crucibles, drawn glass beads and ritual glass objects (aje ileke) from Ile-Ife, southwestern Nigeria, were analysed using scanning electron microscopy (SEM-EDS), electron probe microanalysis (EPMA) and X-ray fluorescence (XRF). The very unusual high-lime, high-alumina glass lining the crucibles matched the composition of the dark blue drawn beads and some of the blue and green glass fragments in the aje ileke. Similar crucible fragments, glass cullet and drawn glass beads were recovered during Frank Willett's excavations (1956-63) of two sites in Ile-Ife, and Claire Davison's unpublished chemical analyses from 1972 show the same high-lime, highalumina glass from Ita Yemoo, with radiocarbon dates from the eleventh to thirteenth century CE, and Orun Oba Ado, with radiocarbon dates from the eighth to twelfth century. Such high-lime, high-alumina glass has been found only in West Africa, including Igbo-Ukwu in southern Nigeria, and is not known from Europe, the Middle East or Asia, ruling out the possibility that the glass was imported. We interpret these findings to propose the primary manufacture of high-lime, high-alumina glass in sub-Saharan Africa in the early second millennium CE, with production centred in southern Nigeria, and quite possibly in or near Ile-Ife. The results of our study, combined with those of Davison, provide the first strong evidence for early primary glass production in sub-Saharan Africa.

Keywords: West Africa | Nigeria | Yoruba | Ile-Ife | glass | primary glass production | chemical analysis

Aktuell

Becker 2017

Joshua Becker, Devon Brackbill & Damon Centola, *Network dynamics of social influence in the wisdom of crowds.* PNAS **114** (2017), E5070–E5076.

pnas114-E5070-Supplement.csv

A longstanding problem in the social, biological, and computational sciences is to determine how groups of distributed individuals can form intelligent collective judgments. Since Galton's discovery of the "wisdom of crowds" [Galton F (1907)

Nature 75:450–451], theories of collective intelligence have suggested that the accuracy of group judgments requires individuals to be either independent, with uncorrelated beliefs, or diverse, with negatively correlated beliefs [Page S (2008) The Difference: How the Power of Diversity Creates Better Groups, Firms, Schools, and Societies]. Previous experimental studies have supported this view by arguing that social influence undermines the wisdom of crowds. These results showed that individuals' estimates became more similar when subjects observed each other's beliefs, thereby reducing diversity without a corresponding increase in group accuracy [Lorenz J, Rauhut H, Schweitzer F, Helbing D (2011) Proc Natl Acad Sci USA 108:9020–9025]. By contrast, we show general network conditions under which social influence improves the accuracy of group estimates, even as individual beliefs become more similar. We present theoretical predictions and experimental results showing that, in decentralized communication networks, group estimates become reliably more accurate as a result of information exchange. We further show that the dynamics of group accuracy change with network structure. In centralized networks, where the influence of central individuals dominates the collective estimation process, group estimates become more likely to increase in error.

Keywords: social networks | collective intelligence | social learning | wisdom of crowds | experimental social science

Significance: Since the discovery of the wisdom of crowds over 100 years ago theories of collective intelligence have held that group accuracy requires either statistical independence or informational diversity among individual beliefs. Empirical evidence suggests that allowing people to observe the beliefs of others leads to increased similarity of individual estimates, reducing independence and diversity without a corresponding increase in group accuracy. As a result, social influence is expected to undermine the wisdom of crowds. We present theoretical predictions and experimental findings demonstrating that, in decentralized networks, social influence generates learning dynamics that reliably improve the wisdom of crowds. We identify general conditions under which influence, not independence, produces the most accurate group judgments.

de Beer 2017

Joop de Beer, Anastasios Bardoutsos & Fanny Janssen, *Maximum human lifespan may increase to 125 years*. nature **546** (2017), e16–e20.

Brown 2017

Nicholas J. L. Brown, Casper J. Albers & Stuart J. Ritchie, *Contesting the evidence for limited human lifespan*. nature **546** (2017), e6–e7.

Finally, and perhaps most importantly, the purported post-1995 decline in maximum longevity shown in figure 2a of ref. 1 seems to be entirely dependent on the exceptional case of Jeanne Calment.

Dekel 2017

Yaron Dekel, Yossy Machluf, Rachel Brand, Oshrat Noked Partouche, Izhar Ben-Shlomo & Dani Bercovich, *Mammal domestication and the symbiotic spectrum*. PNAS **114** (2017), E5280.

In conclusion, adjusting to the nomadic/semisedentary human niche was the first driving force of domestication. Both dogs and mice underwent this process, but they differ from each other in the initial nature of their relationship with humans: mutualism and parasitism, respectively, rather than commensalism.

Dong 2017
Xiao Dong, Brandon Milholland & Jan Vijg, *Dong et al. reply*. nature **546** (2017), e7.
We agree that Jeanne Calment's death is an influential point, but our findings, far from being "entirely dependent" on this data point, as they assert, do not require its presence at all: a regression split at 1995 would still find a plateau if Jeanne Calment were omitted entirely. The alternative models suggested by Brown et al. consist of changing Jeanne Calment's age and dates of birth and death without any biological or statistical justification.

Dong 2017
Xiao Dong, Brandon Milholland & Jan Vijg, *Dong et al. reply*. nature **546** (2017), e9–e10.
In their figure 2c, Hughes and Hekimi1 claim that shifting the breakpoint may produce a spurious decline in the MRAD. We suspect that the post-breakpoint decline in both our2 and their1 analyses merely reflects a regression to the mean after the exceptional case of Jeanne Calment and not a long-term trend of decline.

Dong 2017
Xiao Dong, Brandon Milholland & Jan Vijg, *Dong et al. reply*. nature **546** (2017), e12.
The fact that a significant increase in the maximum reported age at death (MRAD) value is obtained when all data from the 1960s to 2015 are considered is obvious and does not preclude a finding that the MRAD value reaches a plateau in the 1990s. Indeed, the fact that such an increase has been lacking for more than 20 years (not a decade, as Rozing et al. state) in spite of the fact that the number of centenarians over that same time period has increased exponentially speaks for itself.

Dong 2017
Xiao Dong, Brandon Milholland & Jan Vijg, *Dong et al. reply*. nature **546** (2017), e14–e15.

Dong 2017
Xiao Dong, Brandon Milholland & Jan Vijg, *Dong et al. reply*. nature **546** (2017), e21.
The authors claim out that our findings do not necessarily suggest that no one will survive beyond age 115 in the future. We agree, and that is why we made the distinction between the level at which yearly maximum reported age at death (MRAD) has plateaued (115 years) and the absolute maximum age beyond which it is unlikely anyone will live, which we estimated to be 125 years2. de Beer et al.1 calculated that by 2070, at least one person in Japan will live to age 118 when assuming no change in mortality, which does not contradict our model. They also present models in which ages 120 and 125 are reached owing to a decrease in mortality before age 100 and a decrease in mortality at all ages, respectively. However, we do not think that these latter two scenarios are plausible in light of the evidence.

Hughes 2017
Bryan G. Hughes & Siegfried Hekimi, *Many possible maximum lifespan trajectories*. nature **546** (2017), e8–e9.

The third assumption made by Dong et al. is that the correct year to partition the data is 1994. If the partition date is moved two years, from 1994 to 1996, it no longer shows a lifespan plateau. Instead, there is a very pronounced decrease in maximum lifespan over time (R2 = 0.61, P = 0.008 or R2 = 0.51, P = 0.03 if the 122-year-old Jeanne Calment is excluded as an outlier) (Fig. 2c). This would be an interesting finding. However, many scientists would probably view it as an artefact of the unnecessary truncation of a complex dataset.

Jacobson 2017

Mark Z. Jacobson, Mark A. Delucchi, Mary A. Cameron & Bethany A. Frew, *The United States can keep the grid stable at low cost with 100 % clean, renewable energy in all sectors despite inaccurate claims.* PNAS **114** (2017), E5021–E5023.

Johannsen 2017

Niels N. Johannsen, Greger Larson, David J. Meltzer & Marc Vander Linden, *A composite window into human history.* science **356** (2017), 1118–1120.

Better integration of ancient DNA studies with archaeology promises deeper insights.

Kakkar 2017

Hemant Kakkar & Niro Sivanathan, *When the appeal of a dominant leader is greater than a prestige leader.* PNAS **114** (2017), 6734–6739.

Across the globe we witness the rise of populist authoritarian leaders who are overbearing in their narrative, aggressive in behavior, and often exhibit questionable moral character. Drawing on evolutionary theory of leadership emergence, in which dominance and prestige are seen as dual routes to leadership, we provide a situational and psychological account for when and why dominant leaders are preferred over other respected and admired candidates. We test our hypothesis using three studies, encompassing more than 140,000 participants, across 69 countries and spanning the past two decades. We find robust support for our hypothesis that under a situational threat of economic uncertainty (as exemplified by the poverty rate, the housing vacancy rate, and the unemployment rate) people escalate their support for dominant leaders. Further, we find that this phenomenon is mediated by participants' psychological sense of a lack of personal control. Together, these results provide large-scale, globally representative evidence for the structural and psychological antecedents that increase the preference for dominant leaders over their prestigious counterparts.

Keywords: dominance | prestige | uncertainty | personal control | leadership emergence

Significance: We examine why dominant/authoritarian leaders attract support despite the presence of other admired/respected candidates. Although evolutionary psychology supports both dominance and prestige as viable routes for attaining influential leadership positions, extant research lacks theoretical clarity explaining when and why dominant leaders are preferred. Across three large-scale studies we provide robust evidence showing how economic uncertainty affects individuals' psychological feelings of lack of personal control, resulting in a greater preference for dominant leaders. This research offers important theoretical explanations for why, around the globe from the United States and Indian elections to the Brexit campaign, constituents continue to choose authoritarian leaders over other admired/respected leaders.

Ledford 2017

Heidi Ledford, *Water loss in plants mismeasured, Issue could throw off estimates of photosynthesis.* nature **546** (2017), 585–586.

Lenart 2017

Adam Lenart & James W. Vaupel, *Questionable evidence for a limit to human lifespan.* nature **546** (2017), e13–e14.

Furthermore, above the age of 90, caution is required in using the HMD data. For almost all countries, at least in some time periods, only aggregated data are available for open intervals such as > 90 years; in these cases a 'fictitious survival function' is assumed. Furthermore, data above 90 are generally not raw data but smoothed. For almost all countries, especially in the early time periods, the HMD warns users that the available data at the oldest ages are not reliable. Hence, findings pertaining to ages above 90 in figure 1 and extended data figures 2–5 of ref. 1 may be artefacts of problematic data.

An even more fundamental deficiency of both figures is that in most of the years studied by Dong et al., the MRAD was less than the age of a surviving person. A study of maximum lifespans should focus on the maximum lifespan over time. A graph of the oldest living man and woman in the world since 1955 provided by the GRG database indicates that maximum human lifespan has been rising, with no evidence of a looming limit.

McDermott 2017

Jason McDermott, *Drawing connections.* science **356** (2017), 1202.

At a recent scientific conference, someone I had never met looked at my nametag and said, "Oh, you're that comic guy." Now, I'm a researcher with more than 20 years of experience in my field, and part of me wishes that this was what I was recognized for. But after a chance doodle snowballed into a poster entirely in comic form, I am also "that comic guy." I am still getting used to this dual identity. After a bit of hesitation, though, I've decided to embrace the pleasures of my two pursuits—and their unexpected points of connection.

Reimann 2017

Martin Reimann, Oliver Schilke & Karen S. Cook, *Trust is heritable, whereas distrust is not.* PNAS **114** (2017), 7007–7012.

Why do people distrust others in social exchange? To what degree, if at all, is distrust subject to genetic influences, and thus possibly heritable, and to what degree is it nurtured by families and immediate peers who encourage young people to be vigilant and suspicious of others? Answering these questions could provide fundamental clues about the sources of individual differences in the disposition to distrust, including how they may differ from the sources of individual differences in the disposition to trust. In this article, we report the results of a study of monozygotic and dizygotic female twins who were asked to decide either how much of a counterpart player's monetary endowment they wanted to take from their counterpart (i.e., distrust) or how much of their own monetary endowment they wanted to send to their counterpart (i.e., trust). Our results demonstrate that although the disposition to trust is explained to some extent by heritability but not by shared socialization, the disposition to distrust is explained by shared socialization but not by heritability. The sources of distrust are therefore distinct from the sources of trust in many ways.

Keywords: trust | distrust | behavioral genetics | cooperation | experiments

Significance: Social scientists have devoted much attention to studying the sources and consequences of the disposition to trust but have only recently begun

to investigate the disposition to distrust. An increasing consensus is emerging that distrust is not merely the opposite of trust. This article provides initial empirical evidence indicating that the sources of the dispositions to trust and distrust indeed do differ in important ways. Notably, although both trust and distrust are strongly influenced by the individual's unique environment, interestingly, trust shows significant genetic influences, whereas distrust does not. Rather, distrust appears to be primarily socialized, including influences within the family. These findings provide new support for the bidimensionality of trust and distrust by demonstrating their distinct antecedents.

Rozing 2017

Maarten P. Rozing, Thomas B. L. Kirkwood & Rudi G. J. Westendorp, *Is there evidence for a limit to human lifespan?* nature **546** (2017), e11–e12.

First, Dong et al. committed a basic statistical error by using the same dataset both to propose the hypothesis that there has been a change in the trends of human longevity occurring around 1995 and also to test it. It is well known that such a procedure leads to a false assessment of statistical significance.

Veller 2017

Carl Veller, Laura K. Hayward, Christian Hilbe & Martin A. Nowak, *The Red Queen and King in finite populations.* PNAS **114** (2017), E5396–E5405.

In antagonistic symbioses, such as host–parasite interactions, one population's success is the other's loss. In mutualistic symbioses, such as division of labor, both parties can gain, but they might have different preferences over the possible mutualistic arrangements. The rates of evolution of the two populations in a symbiosis are important determinants of which population will be more successful: Faster evolution is thought to be favored in antagonistic symbioses (the "Red Queen effect"), but disfavored in certain mutualistic symbioses (the "Red King effect"). However, it remains unclear which biological parameters drive these effects. Here, we analyze the effects of the various determinants of evolutionary rate: generation time, mutation rate, population size, and the intensity of natural selection. Our main results hold for the case where mutation is infrequent. Slower evolution causes a long-term advantage in an important class of mutualistic interactions. Surprisingly, less intense selection is the strongest driver of this Red King effect, whereas relative mutation rates and generation times have little effect. In antagonistic interactions, faster evolution by any means is beneficial. Our results provide insight into the demographic evolution of symbionts.

Keywords: rate of evolution | symbiosis | mutualism | antagonism | Müllerian mimicry

Significance: When two populations interact, when does it pay to evolve rapidly, and can it ever be an advantage to evolve slowly? We address these questions using evolutionary game theory. In antagonistic interactions (e.g., host–parasite), we find that faster evolution by any means is beneficial—the "Red Queen" effect. In certain mutualisms, slower evolution is favored in the long run. This "Red King" effect is driven by differences in how efficiently natural selection acts in the two populations, rather than by differences in their generation times or mutation rates. Our results clarify the role of evolutionary rate in symbiont evolution.

Weissbrod 2017

Lior Weissbrod et al., *Preagricultural commensal niches for the house mouse and origins of human sedentism, Reply to Dekel et al.* PNAS **114** (2017), E5281–E5282.

Lior Weissbrod, Fiona B. Marshall, François R. Valla, Hamoudi Khalaily, Guy Bar-Oz, Jean-Christophe Auffray, Jean-Denis Vigne & Thomas Cucchi

We do not argue for mutualism and domestication. The question of whether house mice were commensal with humans or parasitic is an interesting issue.

Our study of mice binds these strands of theory together, establishing that early sedentism marked a significant turning point in human ecological interactions, ushering in an era of steadily increasing anthropogenic ecosystem transformation and changing human/animal relations.

Anthropologie

Ericsson 2017

Malin Ericsson et al., *Childhood social class and cognitive aging in the Swedish Adoption/Twin Study of Aging.* PNAS **114** (2017), 7001–7006.

Malin Ericsson, Cecilia Lundholm, Stefan Fors, Anna K. Dahl Aslan, Catalina Zavala, Chandra A. Reynolds & Nancy L. Pedersen

In this report we analyzed genetically informative data to investigate within-person change and between-person differences in late-life cognitive abilities as a function of childhood social class. We used data from nine testing occasions spanning 28 y in the Swedish Adoption/Twin Study of Aging and parental social class based on the Swedish socioeconomic index. Cognitive ability included a general factor and the four domains of verbal, fluid, memory, and perceptual speed. Latent growth curve models of the longitudinal data tested whether level and change in cognitive performance differed as a function of childhood social class. Between –within twin-pair analyses were performed on twins reared apart to assess familial confounding. Childhood social class was significantly associated with mean-level cognitive performance at age 65 y, but not with rate of cognitive change. The association decreased in magnitude but remained significant after adjustments for level of education and the degree to which the rearing family was supportive toward education. A between-pair effect of childhood social class was significant in all cognitive domains, whereas within-pair estimates were attenuated, indicating genetic confounding. Thus, childhood social class is important for cognitive performance in adulthood on a population level, but the association is largely attributable to genetic influences.

Keywords: childhood social class | cognitive aging | adoption | twins

Significance: There is a previously well-established relationship between socioeconomic status and cognitive ability. By having access to repeated measures of cognitive data across the second part of the life span, we were able not only to study the influence of childhood social class on mean-level cognitive performance, but also on change over time. Using reared-apart monozygotic and dizygotic twins and a control sample of twins reared together, we studied the effects of childhood socioeconomic environment on cognition in later life. We found an association between childhood social class and mean levels of cognitive performance, but not longitudinal trajectories of change. When controlling for genetic influences, there was no association of childhood social class and cognitive performance late in life.

Harari 2011

Yuval Noah Harari, *Sapiens, A brief history of mankind.* (London 2015).

One hundred thousand years ago, at least six different species of humans inhabited Earth. Yet today there is only one–homo sapiens. What happened to the others? And what may happen to us? Most books about the history of humanity pursue either a historical or a biological approach, but Dr. Yuval Noah Harari breaks the mold with this highly original book that begins about 70,000 years ago with the appearance of modern cognition. From examining the role evolving humans have played in the global ecosystem to charting the rise of empires, Sapiens integrates history and science to reconsider accepted narratives, connect past developments with contemporary concerns, and examine specific events within the context of larger ideas. Dr. Harari also compels us to look ahead, because over the last few decades humans have begun to bend laws of natural selection that have governed life for the past four billion years. We are acquiring the ability to design not only the world around us, but also ourselves. Where is this leading us, and what do we want to become?

Bibel

Ben-Ami 2013

Doron Ben-Ami & Nili Wazana, *Enemy at the Gates, The Phenomenon of Fortifications in Israel Reexamined.* Vetus Testamentum **63** (2013), 368–382.

This article addresses the phenomenon of fortifications in Iron Age Israel and tries to portray the specific historical background behind their construction by integrating the archaeological data, the extra-biblical sources and the analysis of the biblical text. Of the two clear stratigraphical phases of fortifications noticed in several Iron Age cities, the latter is more massive and elaborated compared with its predecessor. We propose that the developed phase of fortifications in Israel was created under the Omrides, in a time of economic and political strength, as a response to the expansion policy of Aram Damascus. This analysis offers an explanation to the intriguing absence of any biblical reference to the Assyrians prior to Tiglath-pileser III, and casts a fresh look upon the current debate on the chronology of the Iron Age II. If the elaborate fortification systems were initiated during the first half of the ninth century, the initial phase of the urbanization process, which preceded this developed stage, must have begun in the days prior to the Omride dynasty, namely in the tenth century.

Keywords: elaborated fortifications | casemate walls | water systems | Low and High Chronology | Arameans | Omrides | Shalmaneser III | Tiglath-pileser III | west-Semitic inscriptions

Energie

Clack 2017

Christopher T. M. Clack et al., *Evaluation of a proposal for reliable low-cost grid power with 100 % wind, water, and solar.* PNAS **114** (2017), 6722–6727.

pnas114-06722-Supplement1.xls, pnas114-06722-Supplement2.xlsx, pnas114-06722-Comment1.pdf

Christopher T. M. Clack, Staffan A. Qvist, Jay Apt, Morgan Bazilian, Adam R. Brandt, Ken Caldeira, Steven J. Davis, Victor Diakov, Mark A. Handschy, Paul D. H. Hines, Paulina Jaramillo, Daniel M. Kammen, Jane C. S. Long, M. Granger Morgan, Adam Reed, Varun Sivaram, James Sweeney, George R. Tynan, David G. Victor, John P. Weyant & Jay F. Whitacre

A number of analyses, meta-analyses, and assessments, including those performed by the Intergovernmental Panel on Climate Change, the National Oceanic and Atmospheric Administration, the National Renewable Energy Laboratory, and the International Energy Agency, have concluded that deployment of a diverse portfolio of clean energy technologies makes a transition to a low-carbon-emission energy system both more feasible and less costly than other pathways. In contrast, Jacobson et al. [Jacobson MZ, Delucchi MA, Cameron MA, Frew BA (2015) Proc Natl Acad Sci USA 112(49):15060–15065] argue that it is feasible to provide "low-cost solutions to the grid reliability problem with 100 % penetration of WWS [wind, water and solar power] across all energy sectors in the continental United States between 2050 and 2055", with only electricity and hydrogen as energy carriers. In this paper, we evaluate that study and find significant shortcomings in the analysis. In particular, we point out that this work used invalid modeling tools, contained modeling errors, and made implausible and inadequately supported assumptions. Policy makers should treat with caution any visions of a rapid, reliable, and low-cost transition to entire energy systems that relies almost exclusively on wind, solar, and hydroelectric power.

Keywords: energy systems modeling | climate change | renewable energy | energy costs | grid stability

Significance: Previous analyses have found that the most feasible route to a low-carbon energy future is one that adopts a diverse portfolio of technologies. In contrast, Jacobson et al. (2015) consider whether the future primary energy sources for the United States could be narrowed to almost exclusively wind, solar, and hydroelectric power and suggest that this can be done at "low-cost" in a way that supplies all power with a probability of loss of load "that exceeds electric-utilityindustry standards for reliability". We find that their analysis involves errors, inappropriate methods, and implausible assumptions. Their study does not provide credible evidence for rejecting the conclusions of previous analyses that point to the benefits of considering a broad portfolio of energy system options. A policy prescription that overpromises on the benefits of relying on a narrower portfolio of technologies options could be counterproductive, seriously impeding the move to a cost effective decarbonized energy system.

Judentum

Gordon 2007

Tim Gordon, *The Jewish "Council" of Jamnia and Its Impact on the Old Testament Canon and New Testament Studies*. unknown (2007), preprint, 1–11.

In spite of early popular views of both Jewish and Christian scholars, it was shown from the available research that the "Council" of Jamnia should not be considered a council in the same sense as the councils of the Christian Church. The evidence from the available rabbinic literature suggests that the proceedings that occurred at Jamnia should be evaluated as those of an academy or school.

Another misconception that was examined in the research was that the Old Testament canon was finalized by the "Council" of Jamnia. This is significant in light of the fact that the Old Testament is quoted or alluded to as authoritative

and historical by the New Testament writers numerous times. In this writer's view, several recent works in the last forty plus years by Christian scholars such as Jack Lewis and Jewish scholars like Jacob Neusner and others has revealed that the Jamnia proceedings were not the final word on the Old Testament canon. Though the Song of Songs and Ecclesiastes were discussed, there is no evidence that any official canonical position is taken on these or any other Old Testament texts. Some Old Testament books continued to be disputed in rabbinic literature as late as the 4th century AD. It seems fair to say that most Jews and Christians considered the Old Testament canon to be closed in the first century. Josephus spoke of a Hebrew canon of twenty-two books which equates to the Christian number of thirty-nine books today. Neil Lightfoot noted Jesus not only alluded to the threefold arrangement of the law, prophets, and writings in Luke 24:44 but on another occasion noted in Luke 11:51 and Matthew 23:55, Jesus spoke of the time from the blood of Abel to the blood of Zechariah as the first and last martyrs of the Old Testament. The martyrdom of Zechariah is noted in the book of 2 Chronicles 24:20-21 which is the last book of the Hebrew Bible. Thus, Jesus embraced the whole of the Hebrew canon from Genesis to Chronicles with his statements. Lightfoot concluded his remarks by noting that the canon was substantially fixed long before Jamnia.

Hezser 2010

Catherine Hezser (Hrsg.), *The Oxford Handbook of Jewish Daily Life in Roman Palestine*. (Oxford 2010).

This book is a reference compendium on the day-to-day lives of Jews in the land of Israel in Roman times. Ranging from subjects such as clothing and domestic architecture to food and meals, labour and trade, and leisure-time activities, it covers all the major themes. Individual articles introduce the reader to the current state of research on particular aspects of ancient Jewish everyday life — research that has been greatly enriched by critical methodological approaches to rabbinic texts, and by the growing interest of archaeologists in investigating the lives of ordinary people. Detailed bibliographies inspire further engagement by enabling readers to pursue their own lines of enquiry.

Keywords: Jews | Israel | ancient Jewish life | rabbinic texts | archaeologists | ancient Judaism | rabbinic literature | Roman provincial history | Roman provincial culture | ancient Christianity

Hezser 2010

Catherine Hezser, *Private and Public Education*. In: Catherine Hezser (Hrsg.), *The Oxford Handbook of Jewish Daily Life in Roman Palestine*. (Oxford 2010), 465–481.

The traditional assumption of an organized system of Jewish primary education in Hellenistic and Roman times which would have been supplemented by hierarchically organized and centrally controlled rabbinic academies of higher learning after 70 ce has been repudiated by more critical and methodologically sophisticated studies in recent years. In addition, scholars have stressed that Jewish education, just like many other aspects of ancient Jewish culture and society, needs to be examined within the context of Graeco-Roman society. Yet the history of Graeco-Roman education is itself 'in need of a comprehensive revision', as William Harris has pointed out (Harris 1989: 233). Ancient Jews seem to have participated in Graeco-Roman educational practices while at the same time developing specifically Jewish alternatives to Hellenistic learning. With the exception of a lintel inscription mentioning the 'study house of R. Eliezer ha-Qappar', found in the Golan (see Naveh/Shaked 1985: 25), no archaeological remains which could be associated with schools or rabbinic academies have been excavated yet. Therefore literary and

legal sources are the only type of evidence available for a study of ancient Jewish education. Many questions still remain open and will hopefully be investigated in the not so distant future.

Jungpaläolithikum

MAIER 2017

Andreas Maier & Andreas Zimmermann, *Populations headed south? The Gravettian from a palaeodemographic point of view*. Antiquity **91** (2017), 573–588.

Antiquity091-0573-Supplement.pdf

The Gravettian is known for its technological innovations and artisanal craftwork. At the same time, continued climatic deterioration led to the coldest and driest conditions since the arrival of Homo sapiens sapiens in Europe. This article examines the palaeodemographic development and provides regionally differentiated estimates for both the densities and the absolute numbers of people. A dramatic population decline characterises the later part of the Gravettian, while the following Last Glacial Maximum experienced consolidation and renewed growth. The results suggest that the abandonment of the northern areas was not a result of migration processes, but of local population extinctions, coinciding with a loss of typological and technological complexity. Extensive networks probably assured the maintenance of a viable population.

Keywords: Western Europe | Central Europe | Gravettian | palaeodemography | migration/local extinction | cultural complexity | minimum viable population

Mesolithikum

IBÁÑEZ 2016

Juan José Ibáñez, Patricia C. Anderson, Jesús González-Urquijo & Juan Gibaja, *Cereal cultivation and domestication as shown by microtexture analysis of sickle gloss through confocal microscopy*. Journal of Archaeological Science **73** (2016), 62–81.

JAS073-0062-Supplement.xls

When and where cereal cultivation and domestication took place in the Near East are still matters of debate. This quantitative analysis, using confocal microscopy to study "sickle gloss" texture on flint tools used for cereal harvesting, shows that wild cereals were most probably cultivated during the 13th millennium BP in the Middle Euphrates. At that moment, a local and continuous process of cereal domestication began to unfold in this region of the Northern Levant, lasting for over 3 millennia and culminating at the end of the 10th millennium BP. Thus, our research provides a new method for investigating the origins of agriculture, while the data gathered allow us to support the hypothesis of early cereal cultivation during the Younger Dryas and the protracted model of plant domestication, pointing to the Middle Euphrates as one region where this process occurred.

Keywords: Origins of agriculture | Cereal domestication | Cereal cultivation | Near east | Sickle gloss | Texture analysis

Methoden

Deczkowska 2017

Aleksandra Deczkowska, *Let's talk about language barriers.* science **356** (2017), 978.

As an undergraduate student in my home country of Poland, I quickly realized that I would have to pack my bags and go abroad if I wanted to advance my scientific career. Since then, I have worked in Israel, Belgium, and Switzerland, and in all three countries my knowledge of the local languages was close to zero. Like many researchers who choose to work abroad, I thought that my decent English skills would be enough for me to thrive. But it has turned out to be unexpectedly difficult. I don't regret my decision to travel, but those who want to follow this path should be warned: Language barriers exist, and they will probably affect you and your work.

English. Unofficial lab communication was typically conducted in the local language, so I was often the last one to hear about new ideas, results, or career development opportunities. My labmates also missed out on my contributions. In one case, a colleague struggled for weeks with a protocol that I had a lot of experience with. Ultimately, I was able to help with the experiments. But a few words that I recognized would have saved my labmate a lot of time and frustration, and the lab a fair amount of money.

The challenges also extended into the social realm. At happy hours, retreats, and other events, 99 % of the conversation was in languages I could not understand.

But it doesn't have to be this way. I know that it can be an inconvenience for locals to speak in another language to accommodate a foreigner, but in the end, everyone benefits.

Neolithikum

Le Roy 2016

Mélie Le Roy et al., *Distinct ancestries for similar funerary practices? A GIS analysis comparing funerary, osteological and aDNA data from the Middle Neolithic necropolis Gurgy "Les Noisats" (Yonne, France).* Journal of Archaeological Science **73** (2016), 45–54.

JAS073-0045-Supplement.pdf

Mélie Le Roy, Maïté Rivollat, Fanny Mendisco, Marie-Hélène Pemonge, Clément Coutelier, Christine Couture, Anne-Marie Tillier, Stéphane Rottier & Marie-France Deguilloux

The French Paris Basin is well known as a complex cultural area of the Early/Middle Neolithic, particularly with respect to funerary practices. Gurgy "Les Noisats", which is an important necropolis in the southern Paris basin, is a burial site (N = 128) associated with the first Neolithic groups established in that area. The understanding of the necropolis composition and organization is complicated given the substantial homogeneity of the site's spatial organization in relation to a great diversity of characterized funerary traits. The unprecedented quantity of genetic (mitochondrial DNA), osteological (sex, age), and archaeological (funerary) data obtained for the Gurgy necropolis facilitates the search for potential correlations between cultural and biological (i.e. genetic and osteological) diversity at the site level. Despite the application of the powerful geographic information system, no correlation could be detected (i) between individual maternal lineages and specific bioarchaeological profiles (ii) or between maternal lineages and spatially

identified bio-archaeological clusters. Therefore, analyses were performed to test for a correlation between the maternal ancestries of the individuals (i.e., hunter-gatherer/Central European farmer and Southern European farmer ancestries) and specific funerary traits. Again, the homogeneity of the funerary treatment of all of the individuals regardless of their potential maternal ancestries is striking. Taken together, our results regarding the way in which the Gurgy necropolis functioned provide strong evidence for the acculturation of all maternal ancestries groups, at least in terms of funerary practice. In addition, the demonstration of a recurrent association of adult men and immature individuals suggests a patrilocal system, which could be consistent with the detected acculturation of women who present a hunter-gatherer ancestry.

Keywords: GIS | aDNA | Funerary practices | France | Neolithic | Population admixture

Sprachlehre

Clines 2016

David J. A. Clines, *A Voyage round my Library*, *Conference paper: Futures of Biblical Studies, Canterbury, 1–2 June, 2016.* (unpublished 2016).

This is a paper for a conference on the Futures of Biblical Studies at the University of Kent in Canterbury, 1–2 June, 2016. The conference was planned as a celebration of the donation of (half) my personal library to the University Library this year. For my contribution to the event, I had the idea of choosing some interesting or unusual books from my collection (the other half, that is, which will eventually make their way to Kent; one day, Kent, these will all be yours) and talking about them.

Story or Book

Zhang 2017

Hal Y. Zhang, *Jurassic Jaws Jones*, *Artistic licence.* nature **546** (2017), 696.

Turns out people would rather have Picasso paint their dog than commission any new art. Who wouldn't? Why, I gave my ex a Titian portrait of her for Christmas. No, that's not why we broke up.