

References

Aktuell

GOLDFARB 2018

Brent Goldfarb, Andrew A. King & Timothy S. Simcoe, *Heritability of trust and distrust remains unknown*. [PNAS 115 \(2018\), E2149–E2150](#).

We applaud Reimann et al. for gathering and disclosing valuable twin data. We conclude, however, that not much can be inferred from their data about the origins of trust or distrust.

PRITCHARD 2018

Hamish D. Pritchard, *Retraction, Asia’s glaciers are a regionally important buffer against drought*. [nature 555 \(2018\), 274](#).

In this table, losses are described as “decadal averages (millimetres water equivalent)” but the units are actually intended to be decadal averaged annual values. Hence, the loss components of total meltwater that I used in my calculations are too small and the summed meltwater volumes reported here should be larger. Asia’s glaciers are thus regionally a more important buffer against drought than I first stated, strengthening some of the conclusions of this study but also altering others. I am therefore retracting this Article. I thank L. Zhao and J. Moore for bringing the error to my attention.

REIMANN 2018

Martin Reimann, Oliver Schilke, Ryne Estabrook & Karen S. Cook, *On the heritability and socialization of trust and distrust, Reply to Goldfarb et al.* [PNAS 115 \(2018\), E2151–E2152](#).

In closing, we would like to note that our work represents the third independent replication of significant heritability estimates of trust. For this reason, we believe the evidence provided by Goldfarb et al. does not justify the inference that the “heritability of trust [...] remains unknown.”

ROGGE 2018

Paul C. Rogge, *My climate change crisis*. [science 359 \(2018\), 706](#).

Reading former Vice President Al Gore’s *An Inconvenient Truth* in college awakened me to the widespread threat of climate change. Spurred to action, I joined a lab to develop alternative energy technologies. The result was an undergraduate project studying magnetic materials, which are important for electric vehicles and wind turbines. It got me hooked on research and left me wanting to make a bigger impact. I wanted my work to lead straight to solutions—but in the process, I veered off course.

ROLLSTON 2018

Christopher Rollston, *The Isaiah Bulla from Jerusalem: 2.0*. [unpublished 2018, preprint, 1–4](#).

The “take away” is this. I would like to be able to say that this bulla is that of the prophet Isaiah, but that’s not at all the sole possibility, and although some of the suggestions here (above) are more likely than others, it is certainly not the

case that one can weight them in such a fashion as to affirm or declare that this or that one is *the* most likely. Some are more probable than others, but that's about as far as good methodology allows us to go.

Anthropologie

MATHIESON 2018

Iain Mathieson & David Reich, *The genomic history of southeastern Europe*. [nature 555 \(2018\), 197–203](#).

n555-0197-Supplement1.pdf, n555-0197-Supplement2.pdf, n555-0197-Supplement3.xlsx

Farming was first introduced to Europe in the mid-seventh millennium BC, and was associated with migrants from Anatolia who settled in the southeast before spreading throughout Europe. Here, to understand the dynamics of this process, we analysed genome-wide ancient DNA data from 225 individuals who lived in southeastern Europe and surrounding regions between 12000 and 500 BC. We document a west–east cline of ancestry in indigenous huntergatherers and, in eastern Europe, the early stages in the formation of Bronze Age steppe ancestry. We show that the first farmers of northern and western Europe dispersed through southeastern Europe with limited hunter-gatherer admixture, but that some early groups in the southeast mixed extensively with hunter-gatherers without the sex-biased admixture that prevailed later in the north and west. We also show that southeastern Europe continued to be a nexus between east and west after the arrival of farmers, with intermittent genetic contact with steppe populations occurring up to 2,000 years earlier than the migrations from the steppe that ultimately replaced much of the population of northern Europe.

OLALDE 2018

Iñigo Olalde, Carles Lalueza-Fox & David Reich, *The Beaker phenomenon and the genomic transformation of northwest Europe*. [nature 555 \(2018\), 190–196](#).

n555-0190-Supplement1.pdf, n555-0190-Supplement2.pdf, n555-0190-Supplement3.xlsx

From around 2750 to 2500 BC, Bell Beaker pottery became widespread across western and central Europe, before it disappeared between 2200 and 1800 BC. The forces that propelled its expansion are a matter of long-standing debate, and there is support for both cultural diffusion and migration having a role in this process. Here we present genome-wide data from 400 Neolithic, Copper Age and Bronze Age Europeans, including 226 individuals associated with Beaker-complex artefacts. We detected limited genetic affinity between Beaker-complex-associated individuals from Iberia and central Europe, and thus exclude migration as an important mechanism of spread between these two regions. However, migration had a key role in the further dissemination of the Beaker complex. We document this phenomenon most clearly in Britain, where the spread of the Beaker complex introduced high levels of steppe-related ancestry and was associated with the replacement of approximately 90 % of Britain's gene pool within a few hundred years, continuing the east-to-west expansion that had brought steppe-related ancestry into central and northern Europe over the previous centuries.

Bibel

BARKEY 2004

Gabriel Barkay, Marilyn J. Lundberg, Andrew G. Vaughn & Bruce Zuckerman, *The Amulets from Ketef Hinnom, A New Edition and Evaluation*. [Bulletin of the American Schools of Oriental Research](#) **334** (2004), 41–71.

This article represents a substantial revision and rereading of the two silver plaques found at Ketef Hinnom in 1979. Our new analysis of detailed, high-resolution images made by West Semitic Research reveals traces of letters that were not previously identified as well as clarification of letters that were previously much harder to read identify. Based on our new analysis and reading of these texts, we can reaffirm with confidence that the late preexilic period is the proper chronological context for the tifacts. We can further reassert the conclusion reached by most scholars: that the scriptions found on these plaques preserve the earliest known citations of texts found in the Hebrew Bible and that they provide us with the earliest examples of fessional statements concerning Yahweh. The new readings of the text further confirm the assumption that these artifacts are best classified as amulets that were utilized in apotropaic manner.

CLINES 1991

David J. A. Clines, *In Quest of the Historical Mordecai*. [Vetus Testamentum](#) **41** (1991), 129–136.

The substantive question, whether or not there was a historical Mordecai, is much more difficult to answer than those who appealed to the Marduka tablet have allowed. For the curious thing about the book of Esther is that, although it has all the hallmarks of a romance, with its string of coincidences, its artfully told narrative, and its engaging characterizations, it can at no point be unequivocally faulted on historical grounds (which cannot, incidentally, be said in the least of the Greek book of Esther). Much historical detail can in fact be substantiated, and the supposed errors it contains can be satisfactorily explained.²³ On the other hand, its story-line is a string of improbable coincidences. Historians are compelled in such circumstances to trust their own judgement of the kind of literature that lies before them, in the absence of any specific data that settle the question one way or the other.

MAZAR 2018

Eilat Mazar, *Is This the Prophet Isaiah's Signature?* [Biblical Archaeology Review](#) **44** (2018), ii, 64–73, 92.

BAR44.2-064-Comment1.pdf

This seal impression of Isaiah, therefore, is unique, and questions still remain about what it actually says. However, the close relationship between Isaiah and King Hezekiah, as described in the Bible, and the fact the bulla was found next to one bearing the name of Hezekiah seem to leave open the possibility that, despite the difficulties presented by the bulla's damaged area, this may have been a seal impression of Isaiah the prophet, adviser to King Hezekiah.

OTTO 2006

Eckart Otto, *Old and New Covenant: A Post-exilic Discourse between the Pentateuch and the Book of Jeremiah, Also a Study of Quotations and Allusions in the Hebrew Bible*. [Old Testament Essays](#) **19** (2006), 939–949.

In the late layers of the book of Jeremiah and the Pentateuch, covenant was under discussion. Jeremiah 31:31-34 reacted directly to the post-exilic Pentateuch and its theory of covenant and revelation. For the authors of the Pentateuch God's revelation had come to an end with Moses' death. Entirely different was the theory of revelation in the post-exilic circles of the prophetic literature. They were of the opinion that God's revelation went on until their days (continued into their times). This hermeneutical difference had a deep impact on their understanding of covenant. This paper reconstructs the complex discussions between the authors of the Pentateuch and the book of Jeremiah about the essence of covenant.

YARDENI 1991

Ada Yardeni, *Remarks on the Priestly Blessing on Two Ancient Amulets from Jerusalem*. *Vetus Testamentum* **41** (1991), 176–185.

As the verses on the plaques appear outside a biblical context they cannot prove that the blessing was already incorporated into the Pentateuch in the early 6th century B.C.E. They also cannot prove the existence of a written Pentateuch in the pre-exilic period. Only a discovery of biblical scrolls or even a fragment of a biblical scroll could serve as such a proof. The plaques can prove only that the priestly blessing was already crystallized at that time and probably in current use.

Klima

SUN 2018

Fubao Sun, Michael L. Roderick & Graham D. Farquhar, *Rainfall statistics, stationarity, and climate change*. *PNAS* **115** (2018), 2305–2310.

[pnas115-02305-Supplement.pdf](#)

There is a growing research interest in the detection of changes in hydrologic and climatic time series. Stationarity can be assessed using the autocorrelation function, but this is not yet common practice in hydrology and climate. Here, we use a global land-based gridded annual precipitation (hereafter P) database (1940–2009) and find that the lag 1 autocorrelation coefficient is statistically significant at around 14 % of the global land surface, implying nonstationary behavior (90 % confidence). In contrast, around 76 % of the global land surface shows little or no change, implying stationary behavior. We use these results to assess change in the observed P over the most recent decade of the database. We find that the changes for most (84 %) grid boxes are within the plausible bounds of no significant change at the 90 % CI. The results emphasize the importance of adequately accounting for natural variability when assessing change.

Keywords: precipitation | stationarity | variance

Significance: Precipitation shows large year-to-year variations, and there is interest in whether there have been long-lasting changes. We use a global land-based database (1940–2009) of annual precipitation and find evidence for changes at around 14 % of the global land surface. In contrast, around 76 % of the global land shows little or no change. Our results emphasize the importance of fully accounting for natural variability when assessing long-term precipitation change.

Kupfer

MÖSLEIN 1997

S. Möslein & K. H. Rieder, *Zinnperlen aus einem frühbronzezeitlichen Grab von Buxheim*. *Das archäologische Jahr in Bayern* **1997**, 68–70.

Außer dem Nachweis der primären Schmuckfunktion der Zinnperlen gibt der Fund von Exloo, in dessen weiterer Umgebung es keine Zinnvorkommen gibt, möglicherweise auch einen Hinweis auf die Herkunft des Metalls: Gute Entsprechungen zu dessen Fayenceperlen finden sich nämlich auf den Britischen Inseln. Von dort stammt auch eine weitere frühbronzezeitliche Zinnperle, die heute verschollen ist, formal aber offensichtlich den segmentierten Fayenceperlen entsprochen hat. Im Gegensatz zu den kontinentalen Stücken sind die Fayenceperlen aus dem insularen Bereich durch hohe Zinnanteile gekennzeichnet. So kann man für die Herkunft des Zinns der Perlen von Exloo und wohl auch von Buxheim vor allem die reichen Zinnlager Cornwalls in Betracht ziehen, für die trotz des problematischen Nachweises im Einzelfall intensive Ausbeutung bereits in prähistorischer Zeit gesichert ist.

Mathematik

EFFERSON 2018

Charles Efferson & Ernst Fehr, *Simple moral code supports cooperation. nature* **555** (2018), 169–170.

The evolution of cooperation is a frequently debated topic. A study assessing scenarios in which people judge each other shows that a simple moral rule suffices to drive the evolution of cooperation.

However, in many social settings, there can be variation in the level of subtlety with which different people evaluate social situations. This kind of variation, which could result in bystanders using norms of different levels of complexity, may or may not result in disagreements between individuals about how to assign reputations. If disagreements occur, how much disagreement can indirect reciprocity tolerate before cooperation breaks down?

SANTOS 2018

Fernando P. Santos, Francisco C. Santos & Jorge M. Pacheco, *Social norm complexity and past reputations in the evolution of cooperation. nature* **555** (2018), 242–245.

n555-0242-Supplement1.pdf, n555-0242-Supplement2.pdf

Indirect reciprocity is the most elaborate and cognitively demanding¹ of all known cooperation mechanisms², and is the most specifically human^{1,3} because it involves reputation and status. By helping someone, individuals may increase their reputation, which may change the predisposition of others to help them in future. The revision of an individual's reputation depends on the social norms that establish what characterizes a good or bad action and thus provide a basis for morality³. Norms based on indirect reciprocity are often sufficiently complex that an individual's ability to follow subjective rules becomes important^{4–6}, even in models that disregard the past reputations of individuals, and reduce reputations to either 'good' or 'bad' and actions to binary decisions^{7,8}. Here we include past reputations in such a model and identify the key pattern in the associated norms that promotes cooperation. Of the norms that comply with this pattern, the one that leads to maximal cooperation (greater than 90 per cent) with minimum complexity does not discriminate on the basis of past reputation; the relative performance of this norm is particularly evident when we consider a 'complexity cost' in the decision process. This combination of high cooperation and low complexity suggests that simple moral principles can elicit cooperation even in complex environments.

Methoden

BUKREEVA 2016

I. Bukreeva et al., *Virtual unrolling and deciphering of Herculaneum papyri by X-ray phase-contrast tomography*. [Scientific Reports 6 \(2016\), 27227](#). DOI:10.1038/srep27227.

I. Bukreeva, A. Mittone, A. Bravin, G. Festa, M. Alessandrelli, P. Coan, V. Formoso, R. G. Agostino, M. Giocondo, F. Ciuchi, M. Fratini, L. Massimi, A. Lamarra, C. Andreani, R. Bartolino, G. Gigli, G. Ranocchia & A. Cedola

A collection of more than 1800 carbonized papyri, discovered in the Roman ‘Villa dei Papiri’ at Herculaneum is the unique classical library survived from antiquity. These papyri were charred during 79 A.D. Vesuvius eruption, a circumstance which providentially preserved them until now. This magnificent collection contains an impressive amount of treatises by Greek philosophers and, especially, Philodemus of Gadara, an Epicurean thinker of 1st century BC. We read many portions of text hidden inside carbonized Herculaneum papyri using enhanced X-ray phase-contrast tomography non-destructive technique and a new set of numerical algorithms for ‘virtual-unrolling’. Our success lies in revealing the largest portion of Greek text ever detected so far inside unopened scrolls, with unprecedented spatial resolution and contrast, all without damaging these precious historical manuscripts. Parts of text have been decoded and the ‘voice’ of the Epicurean philosopher Philodemus is brought back again after 2000 years from Herculaneum papyri.

DEPERSIN 2018

Jules Depersin & Marc Barthelemy, *From global scaling to the dynamics of individual cities*. [PNAS 115 \(2018\), 2317–2322](#).

[pnas115-02317-Supplement.pdf](#)

Scaling has been proposed as a powerful tool to analyze the properties of complex systems and in particular for cities where it describes how various properties change with population. The empirical study of scaling on a wide range of urban datasets displays apparent nonlinear behaviors whose statistical validity and meaning were recently the focus of many debates. We discuss here another aspect, which is the implication of such scaling forms on individual cities and how they can be used for predicting the behavior of a city when its population changes. We illustrate this discussion in the case of delay due to traffic congestion with a dataset of 101 US cities in the years 1982–2014. We show that the scaling form obtained by agglomerating all of the available data for different cities and for different years does display a nonlinear behavior, but which appears to be unrelated to the dynamics of individual cities when their population grows. In other words, the congestion-induced delay in a given city does not depend on its population only, but also on its previous history. This strong path dependency prohibits the existence of a simple scaling form valid for all cities and shows that we cannot always agglomerate the data for many different systems. More generally, these results also challenge the use of transversal data for understanding longitudinal series for cities.

Keywords: science of cities | scaling | dynamics of cities | urban modeling | traffic congestion

Significance: How properties of cities vary with their population is of great interest for elaborating theoretical models but also for making predictions about the future of cities. However, it is still unclear whether large cities are just scaled-up versions of smaller cities, which casts some doubt on measures mixing different urban systems of different sizes and histories. Here we show in the example of

congestion-induced traffic delays that the path dependency is so strong that these delays depend on both the population and the whole history of the system, prohibiting the existence of simple scaling forms.

MOCELLA 2014

Vito Mocella, Emmanuel Brun, Claudio Ferrero & Daniel Delattre, *Revealing letters in rolled Herculaneum papyri by X-ray phase-contrast imaging*. *Nature Communications* **6** (2014), 5895, 1–6. DOI:10.1038/ncomms6895.

Hundreds of papyrus rolls, buried by the eruption of Mount Vesuvius in 79 AD and belonging to the only library passed on from Antiquity, were discovered 260 years ago at Herculaneum. These carbonized papyri are extremely fragile and are inevitably damaged or destroyed in the process of trying to open them to read their contents. In recent years, new imaging techniques have been developed to read the texts without unwrapping the rolls. Until now, specialists have been unable to view the carbon-based ink of these papyri, even when they could penetrate the different layers of their spiral structure. Here for the first time, we show that X-ray phase-contrast tomography can reveal various letters hidden inside the precious papyri without unrolling them. This attempt opens up new opportunities to read many Herculaneum papyri, which are still rolled up, thus enhancing our knowledge of ancient Greek literature and philosophy.

Neolithikum

FINLAYSON 2010

Bill Finlayson, *Archaeology, evidence and anthropology, Circular arguments in the transition from foraging to farming*. In: MARION BENZ (Hrsg.), *The Principle of Sharing, Segregation and Construction of Social Identities at the Transition from Foraging to Farming, Proceedings of a Symposium held on 29th–31st January 2009 at the Albert-Ludwigs-University of Freiburg*. SENEPSE 14 (Berlin 2010), 19–33.

The archaeology of pre-farming societies has long depended on anthropology, especially for understanding hunter-gatherer societies. The models created go well beyond subsistence economics, and ethnographic analogy is used to construct many aspects of past lives. Models range in sophistication from the simplistic to elaborate and carefully considered approaches, but all run the risk of re-inventing a modern, or near modern, way of life into the distant past. This does not only effect past societies, but, especially in cognitive approaches, has an impact on our perceptions of present-day small-scale societies. I will consider the problems in the over-use of analogies, consider the use of ‘hunter-gatherer’ as a category in prehistory, and then consider the archaeological evidence from the period of transition to farming, concluding that from the Natuian to the PPNB we have societies that do not have easy analogues in the ethnographic present.

In reality, the hunter-gatherer societies that survive today are mostly highly specialised adaptations that have evolved to specific environmental niches that are too harsh or extreme for farming. Ecological and climate variation within the Levant is such that we should not assume a single, long-term hunter-gatherer culture as having existed. It is unlikely that we will find the antecedents of the Levantine Neolithic amongst them. Patterns of behaviour, including key ideas regarding ownership, sharing and reciprocity, have to be argued from the data, not the model.

The antiquity of modern hunter-gatherer behaviour has yet to be established, and this should be part of our research into late Pleistocene societies. The Natuian, PPNA and PPNB do not have analogues in the ethnographic present. There are however many forms of archaeological evidence that should allow us to investigate some of the forms of behaviour, including economy, sharing, sedentism, and hierarchy, without packing these up into a simplistic dichotomous model. Such a study will allow us to begin to understand the processes of transition and to make a real contribution to the wider field of hunter-gatherer studies.

MEIXNER 2009

Daniel Meixner, *Ausnahme oder Regel, Zum Phänomen der Münchshöfener Bestattungen*. In: KARL SCHMOTZ (Hrsg.), *Vorträge des 27. Niederbayerischen Archäologentages*. (Rahden 2009), 91–144.

Die Praxis der Niederlegung in Silogruben impliziert nicht zwangsläufig einen niedrigeren Bestattungsaufwand, wie er gerne mit gering geachteten oder sozial niedrigstehenden Mitgliedern einer Gemeinschaft, so Frauen und Kindern, in Verbindung gebracht wird. Die tiefen, aufwändig ausgeschachteten Getreidespeicher, die nach der Bestattung ja ihre ursprüngliche Funktion verloren, könnten auch in rituellem Zusammenhang mit der Niederlegung von Toten stehen. Ob dabei an Opferhandlungen zu denken ist, sei dahingestellt.

Keywords: Grubenbestattung

Story or Book

CLINE 2018

Eric H. Cline, *Fresh Takes, Linking the Exodus to Monotheism and a “Love Commandment”*. *Biblical Archaeology Review* 44 (2018), ii, 79–80.

The Exodus. By Richard Elliott Friedman (New York: HarperOne, 2017), 304 pp., \$27.99 (hardcover)

There are also a number of interesting asides and discussions found throughout the book, to the extent that the reader should be prepared to enjoy the journey rather than be in a hurry to get to the destination, as the Greek poet Constantine P. Cavafy once wrote. A number of these had also never occurred to me to wonder about, as I am an archaeologist rather than a Biblical scholar, but I found them to be intriguing.

Friedman has succeeded in writing one of the most enjoyable books that I have read in a long time. I won't be alone in this opinion, for this is a book that will be a pleasure to read for anyone who picks it up, from beginner to the undergraduate student to the most erudite scholar.