

References

Afrika

BISSON 1975

Michael S. Bisson, *Copper currency in central Africa*, *The archaeological evidence*. [World Archaeology 6 \(1975\), 276–292](#).

A pervasive character of central African material culture is the dichotomy between the use of iron as a utilitarian metal and copper as an ornamental metal. This separation of roles was taken for granted by most early visitors to the area and receives mention in only a few cases. Fortunately, this characteristic is also evident in the trait lists compiled on many African cultures during the past hundred years. In virtually all recorded cases, subsistence tools such as hoes, axes or knives were fabricated from iron, while decorative items like bracelets, anklets, rings and collars as well as ceremonial axes and hoes were made of iron or copper, often the latter. There are no known cases where copper has been used to make heavy duty cutting tools and, aside from razors and bullets, no incidences of copper serving on an equal basis with iron as a metal for non-ceremonial, utilitarian artefacts. Instead, copper was preferred as an ornamental metal over iron in most African tribes with the exception of some East African pastoralists.

An outgrowth of the ‘substantivist’ approach is the distinction drawn between ‘general purpose money’ and ‘special purpose money’. General purpose money or currency serves all of the functions of the currency used in developed market economies. It is defined as ‘a means of exchange, a mode of payment, a standard of value’ and a method of storing wealth. Special purpose money serves some, but not all, of the functions of general purpose money and is usually restricted to specific spheres of the economy.

The pattern of copper use described above is duplicated in archaeological sites throughout central and southern Africa. The following is a summary of the chronology, distribution, and variety of copper artefacts recovered from Iron Age habitation sites in these areas. It will conclude with a discussion of two sites, Ingombe Ilede and Sanga, in which general purpose currency may be present.

JONES 2016

Adam Jones, *Afrika bis 1850*. *Neue Fischer Weltgeschichte 19* ([Frankfurt 2016](#)).

LANFRANCHI 1991

RAYMOND LANFRANCHI (Hrsg.), *Aux origines de l’Afrique centrale*. ([Libreville 1991](#)).

SWAN 2007

Lorraine M. Swan, *Economic and ideological roles of copper ingots in prehistoric Zimbabwe*. [Antiquity 81 \(2007\), 999–1012](#).

As well as being modes of supplying metal, cross-shaped copper ingots in Zimbabwe are shown to be emblems of currency and status. The author dates them to the first half of the second millennium AD and connects the appearance of ingots to increased social stratification.

Keywords: Zimbabwe | middle ages | copper | ingots | social structure

Aktuell

ALTSCHUL 2017

Jeffrey H. Altschul et al., *Fostering synthesis in archaeology to advance science and benefit society*. [PNAS 114 \(2017\), 10999–11002](#).

Jeffrey H. Altschul, Keith W. Kintigh, Terry H. Klein, William H. Doelle, Kelley A. Hays-Gilpin, Sarah A. Herr, Timothy A. Kohler, Barbara J. Mills, Lindsay M. Montgomery, Margaret C. Nelson, Scott G. Ortman, John N. Parker, Matthew A. Peeples & Jeremy A. Sabloff

Collaborative synthetic research in archaeology will illuminate the long-term trajectories associated with alternative societal solutions to problems that humanity has repeatedly faced, such as healing the wounds of slavery and colonialism or adapting to a hotter and drier climate. In this way, contemporary society can benefit from a global set of completed, long-term social experiments.

COUZIN-FRANKEL 2017

Jennifer Couzin-Frankel, *Mission aims to salvage what's left of Nimrud*. [science 357 \(2017\), 1340–1341](#).

Archaeologists race to preserve rubble that may hold the keys to restoring ancient city.

The site's most impressive structure was the Northwest Palace, guarded by gracious statues called lamassus—winged lions or bulls with human heads. “There are reliefs from this palace on display in every major museum in the world,” Hanson says.

Many of the reliefs remained at Nimrud, largely intact, until 2015 and 2016, when IS attacked the site. The group released a series of videos showing, among other things, the detonation of the Northwest Palace and a man destroying a lamassu with a power drill. The roofing structures that protected the palace and surrounding area were also blown up, their steel beams reduced to ribbons and mixed with the ancient stone.

Because the stone that now litters the site, some of it piled more than 4 meters high, is water soluble and will degrade in the heavy rains of winter, archaeologists are eager to launch their rescue mission.

HARDING 2017

David J. Harding, Jeffrey D. Morenoff, Anh P. Nguyen & Shawn D. Bushway, *Short- and long-term effects of imprisonment on future felony convictions and prison admissions*. [PNAS 114 \(2017\), 11103–11108](#).

A substantial contributor to prison admissions is the return of individuals recently released from prison, which has come to be known as prison's “revolving door.” However, it is unclear whether being sentenced to prison itself has a causal effect on the probability of a subsequent return to prison or on criminal behavior. To examine the causal effect of being sentenced to prison on subsequent offending and reimprisonment, we leverage a natural experiment using the random assignment of judges with different propensities for sentencing offenders to prison. Drawing on data on all individuals sentenced for a felony in Michigan between 2003 and 2006, we compare individuals sentenced to prison to those sentenced to probation, taking into account sentence lengths and stratifying our analysis by race. Results show that being sentenced to prison rather than probation increases the probability of imprisonment in the first 3 years after release from prison by 18 percentage points among nonwhites and 19 percentage points among whites. Further results show that such effects are driven primarily by imprisonment for

technical violations of community supervision rather than new felony convictions. This suggests that more stringent postprison parole supervision (relative to probation supervision) increases imprisonment through the detection and punishment of low-level offending or violation behavior. Such behavior would not otherwise result in imprisonment for someone who had not already been to prison or who was not on parole. These results demonstrate that the revolving door of prison is in part an effect of the nature of postprison supervision.

Keywords: incarceration | recidivism | crime | parole | probation

Significance: Between the 1970s and the late 2000s, the United States experienced an enormous rise in incarceration, a substantial portion of which was caused by high rates of return to prison among those previously incarcerated. This study shows that such returns are primarily a product of postprison community supervision rather than criminogenic effects of imprisonment, as many individuals sentenced to prison become trapped in the escalating surveillance and punishment of the criminal justice system. In other words, the rise in incarceration in the United States in the late 20th and early 21st centuries was in part a self-perpetuating process resulting from the workings of the criminal justice system itself.

HAYDEN 2017

Erika Check Hayden, *The Rise, Fall and Rise Again of 23ANDME*. [nature](#) **550** (2017), 174–177.

How Anne Wojcicki took the start-up firm from the brink of failure to scientific pre-eminence.

MATHUR 2017

Ambika Mathur, *My second acts*. [science](#) **357** (2017), 1430.

“You’ve got to be f%*@ing stupid!!!” “This is academic career suicide!” “People will believe you didn’t get tenure!” “You want to be a housewife!” These are some of the more charitable comments I received from my colleagues and mentors some 20 years ago, when I decided to leave my job as a tenured professor to raise my twins. It was a difficult choice, and I’m not saying that balancing work and family is impossible. But it was the right call for me.

Amerika

BRAJE 2017

Todd J. Braje et al., *Were Hominins in California ~130,000 Years Ago?* [PaleoAmerica](#) **3** (2017), 200–202.

Todd J. Braje, Tom D. Dillehay, Jon M. Erlandson, Scott M. Fitzpatrick, Donald K. Grayson, Vance T. Holliday, Robert L. Kelly, Richard G. Klein, David J. Meltzer & Torben C. Rick

In a controversial study published in *Nature*, Holen et al. (2017) claim that hominins fractured mastodon bones and teeth with stone cobbles in California $\approx 130,000$ years ago. Their claim implies a human colonization of the New World more than 110,000 years earlier than the oldest widely accepted archaeological sites in the Americas. It is also at odds with genetic and fossil evidence for the dispersal of anatomically modern humans (*Homo sapiens*) out of Africa and around the world. Recognizing the incompatibility of their claim with extant knowledge, the authors suggest that the Cerutti Mastodon locality might have been created by an as-yet unidentified archaic hominin, for which no fossil, archaeological, or genomic evidence currently exists in northeast Asia or the Americas. We assess Holen et al.’s (2017) supporting evidence and argue that such extraordinary claims

require extraordinary evidence, which their paper and supporting materials fail to provide.

Keywords: Cerutti Mastodon | peopling of the New World | epistemology

Bibel

AḤITUV 2014

Shmuel Aḥituv & Amihai Mazar, *The Inscriptions from Tel Rehov and their Contribution to the Study of Script and Writing during Iron Age IIA*. In: ESTHER ESHEL & YIGAL LEVIN (Hrsg.), “See, I will bring a scroll recounting what befell me” (Ps 40:8), *Epigraphy and Daily Life from the Bible to the Talmud*. Journal of Ancient Judaism Supplements 12 (Göttingen 2014), 39–68, 189–203.

One of the arguments made against the notion of the United Monarchy was the lack of literacy in the tenth century BCE. The data presented above can serve to refute this contention, as the number of inscriptions dating to the ninth century BCE – a time when all agree that states run by royal dynasties existed in both Judah and Israel – is also small and in fact, is no larger than the number of inscriptions dating to the tenth century BCE. Thus, the quantitative aspect of literacy cannot serve as a reliable criterion for determining whether or not there was a state in Israel during the tenth century BCE.

The corpus presented above, as small as it may be, indicates that most writing tasks were completed for routine purposes on imperishable materials in order to mark goods. It can be surmised that there was a larger body of writing on perishable materials such as papyri that have not been preserved. It is thus untenable to claim that writing was limited only to the state’s elite, although we cannot claim that literacy was widespread. Learning to read and write, even with an alphabet of only 22 letters, requires investment of much effort and resources, as well as the ability to efficiently use and apply this knowledge. However, it does seem that literacy was more common than what is reflected by the relatively small number of inscriptions that have been preserved.

Energie

SANIAL 2017

Virginie Sanial, Ken O. Buesseler, Matthew A. Charette & Seiya Nagao, *Unexpected source of Fukushima-derived radiocesium to the coastal ocean of Japan*. PNAS 114 (2017), 11092–11096.

There are 440 operational nuclear reactors in the world, with approximately one-half situated along the coastline. This includes the Fukushima Dai-ichi Nuclear Power Plant (FDNPP), which experienced multiple reactor meltdowns in March 2011 followed by the release of radioactivity to the marine environment. While surface inputs to the ocean via atmospheric deposition and rivers are usually well monitored after a nuclear accident, no study has focused on subterranean pathways. During our study period, we found the highest cesium-137 (¹³⁷Cs) levels (up to 23,000 Bq • m⁻³) outside of the FDNPP site not in the ocean, rivers, or potable groundwater, but in groundwater beneath sand beaches over tens of kilometers away from the FDNPP. Here, we present evidence of a previously unknown, on-going source of Fukushima-derived ¹³⁷Cs to the coastal ocean. We postulate that

these beach sands were contaminated in 2011 through wave- and tide-driven exchange and sorption of highly radioactive Cs from seawater. Subsequent desorption of ^{137}Cs and fluid exchange from the beach sands was quantified using naturally occurring radium isotopes. This estimated ocean ^{137}Cs source ($0.6 \text{ TBq} \cdot \text{y}^{-1}$) is of similar magnitude as the ongoing releases of ^{137}Cs from the FDNPP site for 2013–2016, as well as the input of Fukushima-derived dissolved ^{137}Cs via rivers. Although this ongoing source is not at present a public health issue for Japan, the release of Cs of this type and scale needs to be considered in nuclear power plant monitoring and scenarios involving future accidents.

Keywords: Fukushima Dai-ichi Nuclear Power Plant accident | cesium | submarine groundwater discharge | radioactivity | radium

Significance: Five years after the Fukushima Dai-ichi Nuclear Power Plant accident, the highest radiocesium (^{137}Cs) activities outside of the power plant site were observed in brackish groundwater underneath sand beaches. We hypothesize that the radiocesium was deposited on mineral surfaces in the days and weeks after the accident through wave- and tide-driven exchange of seawater through the beach face. As seawater radiocesium concentrations decreased, this radiocesium reentered the ocean via submarine groundwater discharge, at a rate on par with direct discharge from the power plant and river runoff. This new unanticipated pathway for the storage and release of radionuclides to ocean should be taken into account in the management of coastal areas where nuclear power plants are situated.

Judentum

HAYES 2017

Christine Hayes, *Were the Noahide Commandments Formulated at Yavne? Tosefta Avoda Zara 8:4–9 in Cultural and Historical Context*. In: JOSHUA SCHWARTZ & PETER J. TOMSON (Hrsg.), *Jews and Christians in the First and Second Centuries, The Interbellum 70–132 CE*. *Compendia Rerum Iudaicarum ad Novum Testamentum* 15 (Leiden 2017), 225–264.

Thus, in light of: the broader culture developments in Graeco-Roman antiquity that engendered a cognitive dissonance for Jews in the land of Israel and in the diaspora; the well-attested reflection upon and debate over the character and nature of divine law as universal and rational or particular and irrational in a wide range of Jewish writings from the second century BCE to the second century CE; New Testament depictions (even if pejorative or unsympathetic) of Pharisees and other Jews who upheld particularistic, irrational laws dismissed by Jesus and his followers as human (i.e., as traditions of the elders) rather than divine; a constellation of Tannaic-era texts denigrating the Noahide laws and the very concept of universal, rational law; another constellation of Tannaic-era texts (including a central text ascribed to the Yavnean sage R. Elazar ben Azaria) valorizing irrational divine laws as the special preserve of Israel; in light of all of these considerations it is entirely plausible to suppose that from its inception in the first century CE, the Tannaic movement was engaged in an identity politics that sought, uniquely, to establish group boundaries by subverting the widespread characterization of divine law as a universal and rational ethical order embedded in nature and uniting all humanity on the one hand, and by valorizing the particular and irrational elements of the Tora as proof of its divine character on the other. The classic literary formulation of Noahide Commandments as positive laws that distinguish Israelites and Gentiles may date to the third century, but the central ideas that inform its

composition were in all likelihood implicated in the very formation of the rabbinic movement in the late first century CE.

Klima

MANNING 2017

Joseph G. Manning, Francis Ludlow, Alexander R. Stine, William R. Boos, Michael Sigl & Jennifer R. Marlon, *Volcanic suppression of Nile summer flooding triggers revolt and constrains interstate conflict in ancient Egypt*. *Nature Communications* **8** (2017), 900. DOI:10.1038/s41467-017-00957-y.

Volcanic eruptions provide tests of human and natural system sensitivity to abrupt shocks because their repeated occurrence allows the identification of systematic relationships in the presence of random variability. Here we show a suppression of Nile summer flooding via the radiative and dynamical impacts of explosive volcanism on the African monsoon, using climate model output, ice-core-based volcanic forcing data, Nilometer measurements, and ancient Egyptian writings. We then examine the response of Ptolemaic Egypt (305–30 BCE), one of the best-documented ancient superpowers, to volcanically induced Nile suppression. Eruptions are associated with revolt onset against elite rule, and the cessation of Ptolemaic state warfare with their great rival, the Seleukid Empire. Eruptions are also followed by socioeconomic stress with increased hereditary land sales, and the issuance of priestly decrees to reinforce elite authority. Ptolemaic vulnerability to volcanic eruptions offers a caution for all monsoon-dependent agricultural regions, presently including 70% of world population.

ZHANG 2017

Jiaxu Zhang et al., *Asynchronous warming and $\delta^{18}\text{O}$ evolution of deep Atlantic water masses during the last deglaciation*. *PNAS* **114** (2017), 11075–11080.

Jiaxu Zhang, Zhengyu Liu, Esther C. Brady, Delia W. Oppo, Peter U. Clark, Alexandra Jahn, Shaun A. Marcott & Keith Lindsay

The large-scale reorganization of deep ocean circulation in the Atlantic involving changes in North Atlantic Deep Water (NADW) and Antarctic Bottom Water (AABW) played a critical role in regulating hemispheric and global climate during the last deglaciation. However, changes in the relative contributions of NADW and AABW and their properties are poorly constrained by marine records, including $\text{d}18\text{O}$ of benthic foraminiferal calcite ($\text{d}18\text{Oc}$). Here, we use an isotope-enabled ocean general circulation model with realistic geometry and forcing conditions to simulate the deglacial water mass and $\text{d}18\text{O}$ evolution. Model results suggest that, in response to North Atlantic freshwater forcing during the early phase of the last deglaciation, NADW nearly collapses, while AABW mildly weakens. Rather than reflecting changes in NADW or AABW properties caused by freshwater input as suggested previously, the observed phasing difference of deep $\text{d}18\text{Oc}$ likely reflects early warming of the deep northern North Atlantic by $\approx 1.4^\circ\text{C}$, while deep Southern Ocean temperature remains largely unchanged. We propose a thermodynamic mechanism to explain the early warming in the North Atlantic, featuring a strong middepth warming and enhanced downward heat flux via vertical mixing. Our results emphasize that the way that ocean circulation affects heat, a dynamic tracer, is considerably different from how it affects passive tracers, like $\text{d}18\text{O}$, and call for caution when inferring water mass changes from $\text{d}18\text{Oc}$ records while assuming uniform changes in deep temperatures.

Keywords: Atlantic water masses | last deglaciation | oxygen isotopes | deep ocean warming

Significance: The reorganizations of deep Atlantic water masses are widely thought to regulate glacial–interglacial climate changes. However, the pattern of reorganizations and their impact on ocean tracer transport remain poorly constrained by marine proxies. Our modeling study, which simulates the coevolution of water masses and oxygen isotopes during the last deglaciation, suggests that deglacial meltwater input causes both northern and southern-sourced deep water transports to decrease. This reorganization pattern leads to asynchronous warming between the deep North and South Atlantic, which might have caused the observed deglacial phasing difference in deep water oxygen isotope records between these ocean basins. We further propose a mechanism to explain the early warming in the northern North Atlantic.

Kultur

GREENHILL 2017

Simon J. Greenhill, Chieh-Hsi Wu, Xia Hua, Michael Dunn, Stephen C. Levinson & Russell D. Gray, *Evolutionary dynamics of language systems*. [PNAS 114 \(2017\), E8822–E8829](#).

[pnas114-E8822-Supplement1.csv](#), [pnas114-E8822-Supplement2.csv](#), [pnas114-E8822-Supplement3.txt](#), [pnas114-E8822-Supplement4.txt](#), [pnas114-E8822-Supplement5.txt](#), [pnas114-E8822-Supplement6.txt](#), [pnas114-E8822-Supplement7.txt](#), [pnas114-E8822-Supplement8.txt](#)

Understanding how and why language subsystems differ in their evolutionary dynamics is a fundamental question for historical and comparative linguistics. One key dynamic is the rate of language change. While it is commonly thought that the rapid rate of change hampers the reconstruction of deep language relationships beyond 6,000–10,000 y, there are suggestions that grammatical structures might retain more signal over time than other subsystems, such as basic vocabulary. In this study, we use a Dirichlet process mixture model to infer the rates of change in lexical and grammatical data from 81 Austronesian languages. We show that, on average, most grammatical features actually change faster than items of basic vocabulary. The grammatical data show less schismogenesis, higher rates of homoplasy, and more bursts of contact-induced change than the basic vocabulary data. However, there is a core of grammatical and lexical features that are highly stable. These findings suggest that different subsystems of language have differing dynamics and that careful, nuanced models of language change will be needed to extract deeper signal from the noise of parallel evolution, areal readaptation, and contact.

Keywords: language evolution | language dynamics | language phylogenies | typology | linguistics

Significance: Do different aspects of language evolve in different ways? Here, we infer the rates of change in lexical and grammatical data from 81 languages of the Pacific. We show that, in general, grammatical features tend to change faster and have higher amounts of conflicting signal than basic vocabulary. We suggest that subsystems of language show differing patterns of dynamics and propose that modeling this rate variation may allow us to extract more signal, and thus trace language history deeper than has been previously possible.

Politik

FOSTER 2017

Zachary J. Foster, *The Invention of Palestine*. Dissertation, Princeton University ([Princeton 2017](#)).

I am a historian, not a futurist. But if the theory proposed is correct, it should have some predictive power. If sedentary life led us to identify with regions, then it should continue to do so in the future. Although sedentary life dominates today, a new trend is taking hold—increasing mobility. The global refugee count is quickly rising. Airfare and travel are becoming more affordable, making many populations more mobile. And while the future of borders, walls and barriers between states is hard to predict, within states it's easy to predict: we are more mobile today than ever before. What can be said is that if borders open up in the future, identities like “the Palestinians” will weaken.

Story or Book

ROBINSON 2017

Andrew Robinson, *The wonder of the pyramids*. [nature 550 \(2017\), 330–331](#).

Andrew Robinson enjoys a volume rounding up research on the complex at Giza, Egypt.

Giza and the Pyramids. Mark Lehner & Zahi Hawass. Thames & Hudson: 2017.

Lehner and Hawass reject the idea that armies of Egyptian slaves constructed the pyramids, as the classical Greek historian Herodotus suggested. They do, however, embrace the concept that the innovative administrative and social organization demanded by the enormous task of building the complex were key factors in creating Egyptian civilization.

The authors are also in accord over a theory regarding the purpose of the Giza monuments. Lehner noticed that if you stand near the Sphinx during the summer solstice, the Sun appears to set midway between the pyramids of Khufu and Khafre, visually echoing a hieroglyph that symbolizes the cycle of life and rebirth. Along with other astronomical evidence, this has led him and Hawass to speculate that the progenitors of the complex saw it as a “cosmic engine” — a way of harnessing the power of the sun god Ra to resurrect the soul of the entombed pharaoh.