

Literatur

Afrika

GARCEA 2010

Elena A. A. Garcea, *Bridging the Gap Between In and Out of Africa*. In: ELENA A. A. GARCEA (Hrsg.), *South-Eastern Mediterranean Peoples Between 130,000 and 10,000 Years Ago*. (Oxford 2010), 174–181.

This final chapter draws together the threads on the state-of-the-art of the latest discoveries, interpretations, and discussions on the south-eastern Mediterranean peoples between 130 and 10 ka BP, as provided by the authors of the previous chapters. Amongst the numerous interesting aspects considered, some appear particularly significant and helpful in bridging the gap between in and out of Africa. Those that appeared as the most crucial events have been chosen for these final considerations and are summarised and commented on in the following pages. They include the Out-of-Africa 2 movement, the Middle/Upper Palaeolithic transition, the cultural changes at the end of the Pleistocene, and the ultimate food production “revolution.”

Aktuell

BOOGERT 2013

Neeltje J. Boogert, Michal Arbilly, Felicity Muth & Amanda M. Seed, *Do crows reason about causes or agents? The devil is in the controls*. PNAS 110 (2013), E273.

When the crows subsequently exhibited high levels of inspection after only seeing poking in the UCA condition, were they looking for the cause of the poking, or just for a human presence? Similarly, do crows reason that only agents are capable of initiating movement? Would another cue to the beginning and end of the poking event have the same effect on inspection rates? Finally, an obvious difference between conditions is that, in the HCA condition, the sight of the experimenter appearing after the stick poking to leave the aviary might have distracted the test subject from the poking event, thus reducing the tendency to inspect the poke hole. To reject this “distraction” hypothesis, future studies should include a distractor between the poking action and start of the test trial in the UCA condition, such as having an experimenter come and tug the hide.

CARR 2013

Lincoln D. Carr, *Negative Temperatures?* science 339 (2013), 42–43.

A cloud of potassium atoms is tuned to negative temperatures via a quantum phase transition.

Thermodynamics is at the heart of chemistry, engineering, and many biological questions. In ultracold quantum gases, the basic concepts of thermodynamics, positive or negative temperature, or whether a temperature concept is even relevant, are under intense and profound exploration.

GIBBONS 2012

Ann Gibbons, *An Annus Horribilis for Anthropology?* [science](#) **338** (2012), 1520.

Back in fall 2011, Florida Governor Rick Scott proclaimed that his state didn't need any more anthropologists, and that public money would be better spent educating scientists (never mind that anthropology is the science of humanity). In August and October, two high profile business reports—from Kiplinger and Forbes—ranked anthropology as the worst major for both employment and starting pay.

HARTMANN 2012

Jens Hartmann & Nils Moosdorf, *The new global lithological map database GLiM: A representation of rock properties at the Earth surface.* [Geochemistry Geophysics Geosystems](#) **13** (2012), Q12004.

Lithology describes the geochemical, mineralogical, and physical properties of rocks. It plays a key role in many processes at the Earth surface, especially the fluxes of matter to soils, ecosystems, rivers, and oceans. Understanding these processes at the global scale requires a high resolution description of lithology. A new high resolution global lithological map (GLiM) was assembled from existing regional geological maps translated into lithological information with the help of regional literature. The GLiM represents the rock types of the Earth surface with 1,235,400 polygons. The lithological classification consists of three levels. The first level contains 16 lithological classes comparable to previously applied definitions in global lithological maps. The additional two levels contain 12 and 14 subclasses, respectively, which describe more specific rock attributes. According to the GLiM, the Earth is covered by 64% sediments (a third of which are carbonates), 13% metamorphics, 7% plutonics, and 6% volcanics, and 10% are covered by water or ice. The high resolution of the GLiM allows observation of regional lithological distributions which often vary from the global average. The GLiM enables regional analysis of Earth surface processes at global scales. A gridded version of the GLiM is available at the PANGAEA Database (<http://dx.doi.org/10.1594/PANGAEA.788537>).

Keywords: data set; global map; lithology.

KASTING 2013

James F. Kasting, *How Was Early Earth Kept Warm?* [science](#) **339** (2013), 44–45.

Greenhouse warming by molecular hydrogen may have contributed to warming the surface of the early Earth.

KOENIG 2013

Walter D. Koenig & Andrew M. Liebhold, *Avian Predation Pressure as a Potential Driver of Periodical Cicada Cycle Length.* [The American Naturalist](#) **181** (2013), 145–149.

The extraordinarily long life cycles, synchronous emergences at 13- or 17-year intervals, and complex geographic distribution of periodical cicadas (*Magicicada* spp.) in eastern North America are a long-standing evolutionary enigma. Although a variety of factors, including satiation of aboveground predators and avoidance of interbrood hybridization, have been hypothesized to shape the evolution of this system, no empirical support for these mechanisms has previously been reported, beyond the observation that bird predation can extirpate small, experimentally mistimed emergences. Here we show that periodical cicada emergences appear

to set populations of potential avian predators on numerical trajectories that result in significantly lower potential predation pressure during the subsequent emergence. This result provides new support for the importance of predators in shaping periodical cicada life history, offers an ecological rationale for why emergences are synchronized at the observed multiyear intervals, and may explain some of the developmental plasticity observed in these unique insects.

Keywords: Magicicada, periodical cicadas, periodicity, population cycles, predator satiation.

MALAKOFF 2012

David Malakoff, *Italian quake verdicts rattle researchers*. [science 338 \(2012\), 1526](#).

Researchers often struggle to translate nuanced statistical models into plainspoken, practical advice. Should a 40% probability that an event might occur make it “low-risk” in common parlance, for instance—or should that be a “medium” risk? And what difference would that make to a person trying to decide whether to flee an oncoming storm, or a government official trying to prepare for a possible bioterror attack?

QUOIDBACH 2013

Jordi Quoidbach, Daniel T. Gilbert & Timothy D. Wilson, *The End of History Illusion*. [science 339 \(2013\), 96–98](#).

[s339-0096-Supplement.pdf](#)

We measured the personalities, values, and preferences of more than 19,000 people who ranged in age from 18 to 68 and asked them to report how much they had changed in the past decade and/or to predict how much they would change in the next decade. Young people, middle-aged people, and older people all believed they had changed a lot in the past but would change relatively little in the future. People, it seems, regard the present as a watershed moment at which they have finally become the person they will be for the rest of their lives. This “end of history illusion” had practical consequences, leading people to overpay for future opportunities to indulge their current preferences.

TAYLOR 2013

Alex H. Taylor, Rachael Miller & Russell D. Gray, *The devil is unlikely to be in association or distraction*, *Reply to Boogert et al.* [PNAS 110 \(2013\), E274](#).

WEAVER 2013

Jason F. Weaver, *Entropies of Adsorbed Molecules Exceed Expectations*. [science 339 \(2013\), 39–40](#).

Unexpectedly large entropies of adsorbed molecules, predicted from their gas-phase values, lead to better models of the rates of surface reactions.

The large slope of the Campbell-Sellers relation reveals that the entropies of adsorbed molecules are quite high and approach those of two-dimensional gas molecules. The implication is that the adsorbed molecules move nearly freely within the surface plane at temperatures where desorption first becomes important.

Anthropologie

VENKATARAMAN 2013

Vivek V. Venkataraman, Thomas S. Kraft & Nathaniel J. Dominy, *Tree climbing and human evolution*. [PNAS 110 \(2013\), 1237–1242](#).

[pnas110-01237-Supplement.mp4](#)

Paleoanthropologists have long argued—often contentiously—about the climbing abilities of early hominins and whether a foot adapted to terrestrial bipedalism constrained regular access to trees. However, some modern humans climb tall trees routinely in pursuit of honey, fruit, and game, often without the aid of tools or support systems. Mortality and morbidity associated with facultative arboreality is expected to favor behaviors and anatomies that facilitate safe and efficient climbing. Here we show that Twa hunter-gatherers use extraordinary ankle dorsiflexion ($> 45^\circ$) during climbing, similar to the degree observed in wild chimpanzees. Although we did not detect a skeletal signature of dorsiflexion in museum specimens of climbing hunter-gatherers from the Ituri forest, we did find that climbing by the Twa is associated with longer fibers in the gastrocnemius muscle relative to those of neighboring, nonclimbing agriculturalists. This result suggests that a more excursive calf muscle facilitates climbing with a bipedally adapted ankle and foot by positioning the climber closer to the tree, and it might be among the mechanisms that allow hunter-gatherers to access the canopy safely. Given that we did not find a skeletal correlate for this observed behavior, our results imply that derived aspects of the hominin ankle associated with bipedalism remain compatible with vertical climbing and arboreal resource acquisition. Our findings challenge the persistent arboreal-terrestrial dichotomy that has informed behavioral reconstructions of fossil hominins and highlight the value of using modern humans as models for inferring the limits of hominin arboreality.

Australopithecus | human pygmy phenotype | phenotypic plasticity

Grundlagen

FURHOLT 2008

Martin Furholt, *Pottery, cultures, people? The European Baden material re-examined*. [Antiquity 82 \(2008\), 617–628](#).

The Baden culture, like others in central Europe, has long been assumed to be the material indication of a people. In a searing analytical deconstruction, the author shows that ‘Baden’ pottery has no equivalence with other cultural practices, and is itself an amalgam of a number of different pottery fabrics and styles, many of them regionally diverse. Singled out among them is the early Boreláz fine ware which is actively spread in central Europe, perhaps accompanied by a knowledge of the first wheeled vehicles.

Keywords: Central Europe, Neolithic, culture concept, Baden culture, pottery, Boreláz ware, wheeled vehicles

LÜNING 1972

Jens Lüning, *Zum Kulturbegriff im Neolithikum*. [Prähistorische Zeitschrift 47 \(1972\), 145–173](#).

Was die Terminologie betrifft, so wäre es zweifellos konsequent und nüchtern, die chronologisch verwendeten keramischen Einheiten auch als Perioden, Stufen, Phasen und Horizonte zu bezeichnen. Wie man in der Bronzezeit von einer Straubinger- oder Lochhamstufe spricht, so wäre im Neolithikum z. B. von einer bandkeramischen oder Michelsberger Periode und von einer Hinkelstein-, Großgartacher-,

Rössener-, Schussenrieder- oder Pfyner Stufe zu reden. Um die regionale Beschränkung dieser Begriffe zu überwinden, müßten sie in ein umfassenderes alphanumerisches System eingefügt werden, das für größere geographische Räume gilt. Für den süd- und westdeutschen Raum würde es sich dabei um eine Unterteilung der bereits vorliegenden groben Gliederung in Früh-, Mittel- und Spätneolithikum (letzteres in Jung- und Endneolithikum geteilt) handeln.

Will man dabei den räumlichen Aspekt der stufendefinierenden Keramik hervorheben, so sollte man neutral nur von keramischen Gruppen, Kreisen, Stilen, Stilprovinzen oder Bereichen sprechen. Terminologisch sind also keramische Einheiten nicht anders zu behandeln als sonstige Klassen von Befunden oder nichtkeramischen Sachgütern, d. h. es besteht kein Anlaß, von "Kulturen" zu sprechen, wenn nur Keramik gemeint ist. Es wäre außerdem auch sicher wünschenswert, wenn das, was man heute im Neolithikum mit dem vieldeutigen Wort Kultur bezeichnet, also der durch eine keramische Gruppierung definierte Ausschnitt aus der Gesamtkultur, weniger verfänglich und zutreffender benannt würde. Die Gesichtspunkte dafür können jedoch nur aus einer umfassenderen Behandlung der Materie erfließen. Durch ein erneutes, von den hier kritisierten Denkschemata unbefangenes Studium der Quellen und ihrer Struktur sollte die Vorstellung von den neolithischen Einzelkulturen zugunsten der Kultur des Neolithikums überwunden und eine entsprechende begriffliche Bereinigung herbeigeführt werden.

WOTZKA 1993

Hans-Peter Wotzka, *Zum traditionellen Kulturbegriff in der prähistorischen Archäologie*. *Paideuma* **39** (1993), 25–44.

Es war das Anliegen dieser Zeilen, insbesondere dem nicht einschlägig ausgebildeten Kulturwissenschaftler einen Eindruck von der Entstehung, inhaltlichen Bestimmung und Verwendung des traditionellen archäologischen Kulturkonzeptes zu vermitteln. Dabei sollte exemplarisch gezeigt werden, worin das Spezifische dieser Lesart des so häufig verwendeten Wortes liegt. Wenn hierzu stellenweise tiefer ins Detail gegangen worden sein sollte, als es dem Nichtarchäologen vielleicht auf Anhieb interessant erscheinen mag, so geschah dies in dem Bestreben, einerseits die Kluft zwischen diesem archäologischen Kulturbegriff und seinem Pendant vor allem in der Ethnologie auszumessen – und für zu weit zu befinden –, und andererseits die geringe Belastbarkeit der wenigen verbliebenen Brücken zwischen archäologischer und anthropologischer Theorie in diesem Bereich hervorzuheben. Letzteres wäre kaum tragisch, versuchte die prähistorische Archäologie nicht gerade mittels ihrer Kulturkonzeption, Relevantes zur allgemeinen Anthropologie beizusteuern. Vor dem Hintergrund des Gesagten erscheint es angemessen, noch einmal den bereits ganz zu Anfang zitierten Ethnologen zu Wort kommen zu lassen. Roland Mischung beschließt seine mehrfach genannte Rezension der Studien zur Ethnogenese mit einer Empfehlung auch an den Prähistoriker, dem „nicht ganz gleichgültig ist, welche Art von menschlicher Organisation hinter dem offensichtlichen inneren Beziehungsgefüge vorgefundener ‚archäologischer Kulturen‘ stehen könnte“ (Mischung 1986: 68). Wenn im vorstehenden deutlich geworden sein sollte, daß archäologische Kulturen nicht „vorgefunden“, sondern geschaffen werden und oft mehr über „innere geistig-kulturelle Zusammenhänge“ ihrer Bearbeiter als über eine wie auch immer geartete einstige Realität aussagen, so wäre der Zweck dieses Beitrags erfüllt.

Judentum

ELHAIK 2013

Eran Elhaik, *The Missing Link of Jewish European Ancestry: Con-*

trasting the Rhineland and the Khazarian Hypotheses. [Genome Biology and Evolution](#) **5** (2013), 61–74.

GenBioEvo05-061-Supplement01.xlsx, GenBioEvo05-061-Supplement02.xlsx, GenBioEvo05-061-Supplement03.xlsx, GenBioEvo05-061-Supplement04.xlsx, GenBioEvo05-061-Supplement05.xlsx, GenBioEvo05-061-Supplement06.xlsx, GenBioEvo05-061-Supplement07.xlsx, GenBioEvo05-061-Supplement08.doc, GenBioEvo05-061-Supplement09.doc, GenBioEvo05-061-Supplement10.doc

The question of Jewish ancestry has been the subject of controversy for over two centuries and has yet to be resolved. The “Rhineland hypothesis” depicts Eastern European Jews as a “population isolate” that emerged from a small group of German Jews who migrated eastward and expanded rapidly. Alternatively, the “Khazarian hypothesis” suggests that Eastern European Jews descended from the Khazars, an amalgam of Turkic clans that settled the Caucasus in the early centuries CE and converted to Judaism in the 8th century. Mesopotamian and Greco-Roman Jews continuously reinforced the Judaized empire until the 13th century. Following the collapse of their empire, the Judeo-Khazars fled to Eastern Europe. The rise of European Jewry is therefore explained by the contribution of the Judeo-Khazars. Thus far, however, the Khazars’ contribution has been estimated only empirically, as the absence of genome-wide data from Caucasus populations precluded testing the Khazarian hypothesis. Recent sequencing of modern Caucasus populations prompted us to revisit the Khazarian hypothesis and compare it with the Rhineland hypothesis. We applied a wide range of population genetic analyses to compare these two hypotheses. Our findings support the Khazarian hypothesis and portray the European Jewish genome as a mosaic of Near Eastern–Caucasus, European, and Semitic ancestries, thereby consolidating previous contradictory reports of Jewish ancestry. We further describe a major difference among Caucasus populations explained by the early presence of Judeans in the Southern and Central Caucasus. Our results have important implications for the demographic forces that shaped the genetic diversity in the Caucasus and for medical studies.

Key words: Jewish genome, Khazars, Rhineland, Ashkenazi Jews, population isolate, Eastern European Jews, Central European Jews, population structure.

Klima

FOSTER 2013

Gavin L. Foster & Eelco J. Rohling, *Relationship between sea level and climate forcing by CO₂ on geological timescales*. [PNAS](#) **110** (2013), 1209–1214.

KITABA 2013

Ikuko Kitaba, Masayuki Hyodo, Shigehiro Katoh, David L. Dettman & Hiroshi Sato, *Midlatitude cooling caused by geomagnetic field minimum during polarity reversal*. [PNAS](#) **110** (2013), 1215–1220.

The climatic effects of cloud formation induced by galactic cosmic rays (CRs) has recently become a topic of much discussion. The CR–cloud connection suggests that variations in geomagnetic field intensity could change climate through modulation of CR flux. This hypothesis, however, is not well-tested using robust geological evidence. Here we present paleoclimate and paleoenvironment records of five interglacial periods that include two geomagnetic polarity reversals. Marine oxygen isotope stages 19 and 31 contain both anomalous cooling intervals during

the sea-level highstands and the Matuyama–Brunhes and Lower Jaramillo reversals, respectively. This contrasts strongly with the typical interglacial climate that has the temperature maximum at the sea-level peak. The cooling occurred when the field intensity dropped to <40% of its present value, for which we estimate >40% increase in CR flux. The climate warmed rapidly when field intensity recovered. We suggest that geomagnetic field intensity can influence global climate through the modulation of CR flux.

climatic cooling | paleoclimatology | paleomagnetism | palynology | Osaka Bay

MAGILL 2013

Clayton R. Magill, Gail M. Ashley & Katherine H. Freeman, *Water, plants, and early human habitats in eastern Africa*. [PNAS 110 \(2013\), 1175–1180](#).

Water and its influence on plants likely exerted strong adaptive pressures in human evolution. Understanding relationships among water, plants, and early humans is limited both by incomplete terrestrial records of environmental change and by indirect proxy data for water availability. Here we present a continuous record of stable hydrogen-isotope compositions (expressed as dD values) for lipid biomarkers preserved in lake sediments from an early Pleistocene archaeological site in eastern Africa—Olduvai Gorge. We convert sedimentary leaf- and algal-lipid dD values into estimates for ancient source-water dD values by accounting for biochemical, physiological, and environmental influences on isotopic fractionation via published water–lipid enrichment factors for living plants, algae, and recent sediments. Reconstructed precipitation and lakewater dD values, respectively, are consistent with modern isotopic hydrology and reveal that dramatic fluctuations in water availability accompanied ecosystem changes. Drier conditions, indicated by less negative dD values, occur in association with stable carbon-isotopic evidence for open, C₄-dominated grassland ecosystems. Wetter conditions, indicated by lower dD values, are associated with expanded woody cover across the ancient landscape. Estimates for ancient precipitation amounts, based on reconstructed precipitation dD values, range between approximately 250 and 700 mm • y⁻¹ and are consistent with modern precipitation data for eastern Africa. We conclude that freshwater availability exerted a substantial influence on eastern African ecosystems and, by extension, was central to early human proliferation during periods of rapid climate change.

paleohydrology | plant waxes | carbon isotopes

MAGILL 2013

Clayton R. Magill, Gail M. Ashley & Katherine H. Freeman, *Ecosystem variability and early human habitats in eastern Africa*. [PNAS 110 \(2013\), 1167–1174](#).

The role of savannas during the course of early human evolution has been debated for nearly a century, in part because of difficulties in characterizing local ecosystems from fossil and sediment records. Here, we present high-resolution lipid biomarker and isotopic signatures for organic matter preserved in lake sediments at Olduvai Gorge during a key juncture in human evolution about 2.0 Ma—the emergence and dispersal of *Homo erectus* (sensu lato). Using published data for modern plants and soils, we construct a framework for ecological interpretations of stable carbon-isotope compositions (expressed as d₁₃C values) of lipid biomarkers from ancient plants. Within this framework, d₁₃C values for sedimentary leaf lipids and total organic carbon from Olduvai Gorge indicate recurrent ecosystem variations, where open C₄ grasslands abruptly transitioned to closed C₃ forests within several hundreds to thousands of years. Carbon-isotopic signatures correlate most strongly

with Earth's orbital geometry (precession), and tropical sea-surface temperatures are significant secondary predictors in partial regression analyses. The scale and pace of repeated ecosystem variations at Olduvai Gorge contrast with long-held views of directional or stepwise aridification and grassland expansion in eastern Africa during the early Pleistocene and provide a local perspective on environmental hypotheses of human evolution.

climate | plant waxes | hominins | paleovegetation | paleoclimate

RAHMSTORF 2012

Stefan Rahmstorf, Grant Foster & Anny Cazenave, *Comparing climate projections to observations up to 2011*. [Environmental Research Letters](#) **7** (2012), 44035. DOI:10.1088/1748-9326/7/4/044035.

We analyse global temperature and sea-level data for the past few decades and compare them to projections published in the third and fourth assessment reports of the Intergovernmental Panel on Climate Change (IPCC). The results show that global temperature continues to increase in good agreement with the best estimates of the IPCC, especially if we account for the effects of short-term variability due to the El Niño/Southern Oscillation, volcanic activity and solar variability.

The rate of sea-level rise of the past few decades, on the other hand, is greater than projected by the IPCC models. This suggests that IPCC sea-level projections for the future may also be biased low.

Keywords: global temperature, sea level, ocean, projections, ENSO, El Niño, volcanic eruptions, solar variability

TIERNEY 2013

Jessica E. Tierney, Jason E. Smerdon, Kevin J. Anchukaitis & Richard Seager, *Multidecadal variability in East African hydroclimate controlled by the Indian Ocean*. [nature](#) **493** (2013), 389–392.

n493-0389-Supplement1.pdf, n493-0389-Supplement2.xls

The recent decades-long decline in East African rainfall suggests that multidecadal variability is an important component of the climate of this vulnerable region. Prior work based on analysing the instrumental record implicates both Indian and Pacific ocean sea surface temperatures (SSTs) as possible drivers of East African multidecadal climate variability, but the short length of the instrumental record precludes a full elucidation of the underlying physical mechanisms. Here we show that on timescales beyond the decadal, the Indian Ocean drives East African rainfall variability by altering the local Walker circulation, whereas the influence of the Pacific Ocean is minimal. Our results, based on proxy indicators of relative moisture balance for the past millennium paired with long control simulations from coupled climate models, reveal that moist conditions in coastal East Africa are associated with cool SSTs (and related descending circulation) in the eastern Indian Ocean and ascending circulation over East Africa. The most prominent event identified in the proxy record—a coastal pluvial from 1680 to 1765—occurred when Indo-Pacific warm pool SSTs reached their minimum values of the past millennium. Taken together, the proxy and model evidence suggests that Indian Ocean SSTs are the primary influence on East African rainfall over multidecadal and perhaps longer timescales.

TIPPLE 2013

Brett J. Tipple, *Capturing climate variability during our ancestors' earliest days*. [PNAS](#) **110** (2013), 1144–1145.

The coincidence of climate variability with hominin evolution and cognitive development has fueled suggestions and hypotheses about how the emergence and

dispersion of the genus *Homo* is linked to climate-driven ecosystem change. Detailed stratigraphic control is required to understand the temporal and causal relationships between climatic variations and changes in *Homo* diversity, evolutionary events, and adaptation in East Africa. Throughout the Olduvai region, the terrestrial sediments in which most hominin and faunal materials are recovered come from distinct stratigraphic intervals and locations. The main advantage of these sedimentary archives is that they directly relate to the terrestrial environment in which the organisms lived. Although the region has many volcanic beds that can be quantitatively dated, constraining time in terrestrial sediments is notoriously tricky

As a result of the stratigraphic limitations of terrestrial sediments, much of the environmental and climatic framework of hominin evolution has been recovered from marine sediments off the Horn of Africa. Constraining time is much easier in marine sediments given their continuous sedimentation; however, deep marine cores are far removed from the Olduvai ecosystem and cannot be directly tied to the Olduvai sediments.

Kultur

CHEN 2011

M. Keith Chen, *The Effect of Language on Economic Behavior: Evidence from Savings Rates, Health Behaviors, and Retirement Assets*. Cowles Foundation Discussion Paper 1820 (New Haven 2011), 1–46. <<http://cowles.econ.yale.edu/P/cd/d18a/d1820.pdf>> (2013-01-27).

Languages differ widely in the ways they encode time. I test the hypothesis that languages that grammatically associate the future and the present, foster future-oriented behavior. This prediction arises naturally when well-documented effects of language structure are merged with models of intertemporal choice. Empirically, I find that speakers of such languages: save more, retire with more wealth, smoke less, practice safer sex, and are less obese. This holds both across countries and within countries when comparing demographically similar native households. The evidence does not support the most obvious forms of common causation. I discuss implications for theories of intertemporal choice.

KIENLIN 2009

Tobias L. Kienlin, *Beyond Elites: An Introduction*. In: TOBIAS L. KIENLIN & ANDREAS ZIMMERMANN (Hrsg.), *Beyond Elites – Alternatives to Hierarchical Systems in Modelling Social Formations, International Conference at the Ruhr-Universität Bochum, Germany October 22–24, 2009; Teil 1*. Universitätsforschungen zur prähistorischen Archäologie 215 (Bonn 2012), 15–31.

Attention was drawn, therefore, to the complexity of human motivations other than just prestige and influence, to the contested nature of leadership and to incentive structures favouring cooperation on different group levels instead of individual aggrandisement. The different sources of influence such as ritual and knowledge, coercion or economy and wealth were emphasised, and the different facets of leadership based on prestige, renown and esteem or power – in the sense of the ability to tell people what to do (e. g. Roscoe 2000: 93, 97–98, 105–109). Much of this is not identical with the political hierarchies and power relations we are looking for. But at the same time the complexity noted beyond the political domain can

only meaningfully be discussed if we do not drop the interest in the more formal structures be they kinship, the village, the tribe or the chiefdom in which all this is played out. However, none of the organisational options or structural possibilities we touched upon must be arranged in an evolutionary sequence, nor must any human motivations be presupposed with an inherent dynamic towards social or political inequality.

Since this introduction was written by a prehistoric archaeologist the point of reference were examples from my own period of interest, that is the European Eneolithic/Copper Age and Bronze Age. But I am confident of their wider implications, and the papers of this volume – from colleagues working on the Early Neolithic through to the Middle Ages, classical antiquity as well as modern indigenous people – indicate that some of the points raised in the original call for papers and discussed on the Bochum ‘Beyond elites’ conference in October 2009 are of much wider interest than just to the prehistorian.

SCHALDACH 2012

Karlheinz Schaldach, *Eine Sonnenuhr und ihr Postament: Zwei Funde vom Römischen Heiligtum auf dem Martberg (Lkr. Cochem-Zell)*. [Archäologisches Korrespondenzblatt 42 \(2012\), iv, 543–553](#).

A sundial in the shape of a hollow sphere was discovered in fragments on the Martberg mountain in 2002 and proves to be the votive offering of a certain Tychikos who donated this sundial to the Gallo-Roman god Lenus Mars after recovering from serious illness. The inscription is placed on the abacus of the fragment of a pillar, a chance find from 1883. The original basis of a sundial is only rarely known. For this reason this article presents exemplarily which are of relevance when associating a sundial with its appropriate pedestal. The sundials and abacus turn out to be an ensemble with an extraordinary subtle constructual composition.

Keywords: Rhineland-Palatinate / Roman Principate / sanctuary / oppidum / sundial

Eine hohlkugelförmige Sonnenuhr, die 2002 bruchstückhaft auf dem Martberg zutage kam, erweist sich als das Weihe-geschenk eines gewissen Tychikos, das dieser dem keltisch-römischen Gott Lenus Mars nach schwerer Krankheit stiftete. Die Inschrift befindet sich auf dem Abakus eines Pfeilerfragments, einem Zufallsfund von 1883. Nur in seltenen Fällen kennt man die originale Basis zu einer Sonnenuhr. Deshalb wird hier beispielhaft dargelegt, welche Überlegungen von Bedeutung sind, um eine Sonnenuhr und ein geeignetes Postament zusammenzuführen. Sonnenuhr und Abakus bilden dabei ein Ensemble, dessen gemeinsamer konstruktiver Aufbau von außergewöhnlicher Feinsinnigkeit ist.

Schlüsselwörter: Rheinland-Pfalz / römische Kaiserzeit / Heiligtum / Oppidum / Sonnenuhr

Methoden

JUGGINS 2013

Steve Juggins, *Quantitative reconstructions in palaeolimnology: new paradigm or sick science?* [Quaternary Science Reviews 64 \(2013\), 20–32](#).

Quantitative reconstructions from biological proxies have revolutionised palaeolimnology but the methodology is not without problems. The most important of these result from attempts to reconstruct non-causal environmental variables and from the effects of secondary variables. Non-causal variables act as surrogates for often unknown or unquantified ecological factors and the method assumes that these

relationships are invariant in space and time. This assumption is almost never met and examples of diatom models for water depth and summer temperature demonstrate how violation leads to spurious and misleading reconstructions. In addition, comparison of published species optima indicate that a number of models have little or no predictive power outside their current spatial setting. Finally, experiments using simulated training sets of known properties demonstrate how changes in secondary “nuisance” variables can lead to large, consistent, and interpretable trends in a reconstruction that are completely spurious and independent of any real change in the reconstructed variable. These problems pervade many quantitative reconstructions in palaeolimnology and other disciplines. Palaeoecologists must give greater attention to what can and cannot be reconstructed and explicitly address the dangers of reconstructing surrogate and confounded variables if our reconstructions are to remain credible.

Keywords: Quantitative reconstructions | Transfer functions | Training sets | Secondary variables | Uncertainty

NEUSTUPNÝ 1983

Evžen Neustupný, *The demography of prehistoric cemeteries*. [Památky Archeologické 74 \(1983\), 7–34](#).

The first part of this paper discusses demographic theory. The most serious obstacle to reconstructions based on skeletal series appears to be their incompleteness (burials outside regular cemeteries) while the question of non-stationarity may be of secondary importance. The conditions for applying Halley’s method to the construction of life tables are therefore of prime interest. Attention is paid to the theory of “apparent” life tables deformed by non-zero growth rate. The demographic theory and supposed (or inferred) initial conditions enable the formulation of models that can be tested against archaeological and anthropological data (type of populations, their sex and age structure, population size, number of graves to be expected, mobility in time and space, etc.). The main reason for population growth in prehistory was the formation of a non-equilibrium state in social relations. In consequence of this, population growth cannot be viewed as an autonomous factor causing economic and social change or historical events. The second part of the paper applies this theory to several examples from Central Europe (Linear Pottery in East Germany, Corded Ware at Vlketice, La-Tène cemeteries in Bohemia, and Early Medieval series from Moravia). Full text of the paper has been published by the Archaeological Institute in Prague in the Czech language (*Demografie pravěkých pohřebišť*, Praha 1983).

Neolithikum

FULLER 2008

Dorian Q. Fuller, *Recent lessons from Near Eastern archaeobotany: Wild cereal use, pre-domestication cultivation and tracing multiple origins and dispersals*. [Prāgdhārā 18 \(2008\), 105–133](#).

Although the Near East has long been a textbook example of pristine agricultural origins, archaeobotanical research in the last decade has transformed our understanding of the processes involved and provides some important guidance and warning for agricultural origins research generally. While older theories tended to assume that the beginnings of cereal exploitation developed as part of a broad spectrum revolution shortly (and inevitably) before the transition to farming, it is now clear that there was a very long prehistory of wild cereal use by seed and nut gathering foragers. The evidence from Ohalo II puts wild wheat and barley

use at least 10,000 years before cultivation. Also of particular importance are new archaeobotanical approaches to identifying the initial cultivation through analyses of associated weeds, which indicates that cultivation began significantly, perhaps a millennium or even three, before recognizable morphologically domesticated cereals. What is also now becoming clear is that changes in cereal grain size may not be good indicators of domestication in terms of seed dispersal criteria (tough rachis) for all species. Seed size increase in pulses can also now be shown to not be closely linked to initial domestication. In general then, the quantitative increase in archaeobotanical data is showing the origins of crop cultivation to have been a dynamic and multi-stage evolutionary process and not a single simple “revolution” or “discovery.”

FULLER 2009

Dorian Q. Fuller, *Advances in archaeobotanical method and theory: Charting trajectories to domestication, lost crops, and the organization of agricultural labour*. In: SUNG-MO AHN & JUNE-JEONG LEE (Hrsg.), *New Approaches to Prehistoric Agriculture*. (Seoul 2009), 15–49.

Author’s note: This paper (written summer 2006) is a mainly a first draft of the Praghdara journal article, Recent lessons from Near Eastern archaeobotany: wild cereal use, pre-domestication cultivation and tracing multiple origins and dispersals. Praghdara 18: 105-134. However, the section on crop-processing & social organization is unique here.

Ostasien

CIOFFI-REVILLA 2008

Claudio Cioffi-Revilla, J. Daniel Rogers, Steven P. Wilcox & Jai Alterman, *Computing the Steppes: Data Analysis for Agent-Based Modeling of Polities in Inner Asia*. In: *Proceedings of the 104th Annual Meeting of the Amer. Pol. Sci. Assoc., Boston, MA, August 28–31, 2008*. (2008), 1–17. <<http://cs.gmu.edu/~eclab/projects/mason/publications/steppes08.pdf>> (2013-01-22).

Inner Asia has a long history of influential polities in world history. This study reports new data and findings from an ongoing collaborative project between Mason and the Smithsonian to develop empirical and computational (agent-based) models of the rise and fall of polities in Inner Asia, between the 4th century BCE and the aftermath of the Mongol empire. A statistical survival analysis of original data based on archaeological and historical dates shows a nearly exponential birth-death process of polity formation-termination and, interestingly, a linear increasing hazard force for termination (Rayleigh distribution of polity durations). Beyond their intrinsic value, these theoretically informed statistics provide new standards for testing and calibrating agent-based models within the broader project.

Physik

BAGDONAITÉ 2013

Julija Bagdonaite, Paul Jansen, Christian Henkel, Hendrick L. Bethlem, Karl M. Menten & Wim Ubachs, *A Stringent Limit on a Drifting*

Proton-to-Electron Mass Ratio from Alcohol in the Early Universe.
[science 339 \(2013\), 46–48.](#)

s339-0046-Supplement.pdf

The standard model of physics is built on the fundamental constants of nature, but it does not provide an explanation for their values, nor require their constancy over space and time. Here we set a limit on a possible cosmological variation of the proton-to-electron mass ratio m by comparing transitions in methanol observed in the early universe with those measured in the laboratory. From radio-astronomical observations of PKS1830-211, we deduced a constraint of $dm/m = (0.0 \pm 1.0) E-7$ at redshift $z = 0.89$, corresponding to a look-back time of 7 billion years. This is consistent with a null result.

Story or Book

VAUX 2013

David Vaux, *Number-crunching in the raw.* [nature 493 \(2013\), 301.](#)

David Vaux welcomes a primer on how statistics mesh with life, from salesmen's spin to political polls.

Naked Statistics: Stripping the Dread from the Data. Charles Wheelan. W. W. Norton: 2013. 302 pp. \$26.95

Naked Statistics targets the layperson, especially North American sports fanatics who want a deeper understanding of baseball, football, basketball, bowling, running and shooting statistics. But there is still plenty of thought-provoking material for the rest of us — even an amateur statistician like me — on stat-rich areas from politics, commerce and polling to the stock market.

There is sound advice on what Wheelan reveals as different types of modern gambling. He explains how in the stock market you cannot expect to do better than the market index; that the only insurance you should buy is when you can't afford to easily cover the loss yourself; and that lottery tickets are for chumps.