Liste erstellt am 2012-12-22

Literatur

Afrika

Willoughby 2012

Pamela R. Willoughby, *The Middle and Later Stone Age in the Iringa Region of southern Tanzania*. Quaternary International **270** (2012), 103–118.

Fossil, genetic and archaeological data all confirm an African origin for our own species, Homo sapiens, during the Middle Stone Age (MSA) around 200,000 years ago. Somewhere around 40,000 to 50,000 years ago, descendants of these first modern people dispersed out of Africa and ultimately colonized the entire world. This parallels the beginning of the Later Stone Age (LSA) where microlithic stone tool assemblages replace the flake tools and points of the MSA. New research in the Iringa Region in the Southern Highlands of Tanzania may offer a way to study the MSA and how it changed to the LSA. Three seasons of survey and excavation (in 2006, 2008 and 2010) have demonstrated that Iringa might contain a more or less continuous archaeological record from the late Acheulean around 500,000 years ago to the present. It thus offers a new opportunity to trace the evolution of the technology and behaviour of modern humans both prior to, and after, the Out of Africa 2 dispersal. Excavations have uncovered MSA occupation layers in three areas at one rockshelter, Magubike. LSA occupations are stratified above them in two of these areas. At a second rockshelter, Mlambalasi, there is a modern human skeleton, in a Pleistocene LSA context. This paper reviews this new evidence and what it might state about questions of modern human origins and dispersals.

Aktuell

Fyfe 2012

J. C. Fyfe, N. P. Gillett & G. J. Marshall, *Human influence on extratropical Southern Hemisphere summer precipitation*. Geophysical Research Letters **39** (2012), L23711. DOI:10.1029/2012GL054199.

Observations of extratropical Southern Hemisphere austral summer precipitation over recent decades show mid-latitude drying and high-latitude moistening. Here we show that the observed precipitation trends in two datasets are inconsistent with simulated internal variability, but are closely consistent with trends simulated in response to historical changes in anthropogenic and natural forcings. Simulations with individual anthropogenic and natural forcings suggest that the observed pattern of precipitation change is substantially forced by anthropogenic greenhouse gas and ozone changes, with an opposing influence from aerosols. Our results demonstrate that human influence had a significant impact on precipitation across the mid and high latitudes of the Southern Hemisphere, changes which are expected to have a profound impact on Southern Ocean stratification and hence on ocean-atmosphere heat and carbon fluxes.

Mendizabal 2012

Isabel Mendizabal et al., *Reconstructing the Population History of European Romani from Genome-wide Data*. Current Biology **22** (2012), 2342–2349.

Isabel Mendizabal, Oscar Lao, Urko M. Marigorta, Andreas Wollstein, Leonor Gusmão, Vladimir Ferak, Mihai Ioana, Albena Jordanova, Radka Kaneva, Anastasia Kouvatsi, Vaidutis Kučinskas, Halyna Makukh, Andres Metspalu, Mihai G. Netea, Rosario de Pablo, Horolma Pamjav, Dragica Radojkovic, Sarah J. H. Rolleston, Jadranka Sertic, Milan Macek, Jr., David Comas and Manfred Kayser

The Romani, the largest European minority group with approximately 11 million people [1], constitute a mosaic of languages, religions, and lifestyles while sharing a distinct social heritage. Linguistic [2] and genetic [3–8] studies have located the Romani origins in the Indian subcontinent. However, a genome-wide perspective on Romani origins and population substructure, as well as a detailed reconstruction of their demographic history, has yet to be provided. Our analyses based on genome-wide data from 13 Romani groups collected across Europe suggest that the Romani diaspora constitutes a single initial founder population that originated in north/northwestern India ≈1.5 thousand years ago (kya). Our results further indicate that after a rapid migration with moderate gene flow from the Near or Middle East, the European spread of the Romani people was via the Balkans starting ≈0.9 kya. The strong population substructure and high levels of homozygosity we found in the European Romani are in line with genetic isolation as well as differential gene flow in time and space with nonRomani Europeans. Overall, our genome-wide study sheds new light on the origins and demographic history of European Romani.

Scheele 2012

Dirk Scheele, Nadine Striepens, Onur Güntürkün, Sandra Deutschländer, Wolfgang Maier, Keith M. Kendrick & René Hurlemann, *Oxytocin Modulates Social Distance between Males and Females*. Journal of Neuroscience **32** (2012), 16047–16079.

In humans, interpersonal romantic attraction and the subsequent development of monogamous pair-bonds is substantially predicted by influential impressions formed during first encounters. The prosocial neuropeptide oxytocin (OXT) has been identified as a key facilitator of both interpersonal attraction and the formation of parental attachment. However, whether OXT contributes to the maintenance of monogamous bonds after they have been formed is unclear. In this randomized placebo-controlled trial, we provide the first behavioral evidence that the intranasal administration of OXT stimulates men in a monogamous relationship, but not single ones, to keep a much greater distance (≈10–15 cm) between themselves and an attractive woman during a first encounter. This avoidance of close personal proximity occurred in the physical presence of female but not male experimenters and was independent of gaze direction and whether the female experimenter or the subject was moving. We further confirmed this unexpected finding using a photograph-based approach/ avoidance task that showed again thatOXTonly stimulated men in a monogamous relationship to approach pictures of attractive women more slowly. Importantly, these changes cannot be attributed to OXT altering the attitude of monogamous men toward attractive women or their judgments of and arousal by pictures of them. Together, our results suggest that where OXT release is stimulated during a monogamous relationship, it may additionally promote its maintenance by making men avoid signaling romantic interest to other women through close-approach behavior during social encounters. In this way, OXT may help to promote fidelity within monogamous human relationships.

Suárez-Rodríguez 2012

Monserrat Suárez-Rodríguez, Isabel López-Rull & Constantino Macías Garcia, *Incorporation of cigarette butts into nests reduces nest ectoparasite load in urban birds: new ingredients for an old recipe?* Biology Letters (2012), preprint, 1–3. DOI:10.1098/rsbl.2012.0931.

BiolLett2013-preprint-Supplement.xlsx

Birds are known to respond to nest-dwelling parasites by altering behaviours. Some bird species, for example, bring fresh plants to the nest, which contain volatile compounds that repel parasites. There is evidence that some birds living in cities incorporate cigarette butts into their nests, but the effect (if any) of this behaviour remains unclear. Butts from smoked cigarettes retain substantial amounts of nicotine and other compounds that may also act as arthropod repellents. We provide the first evidence that smoked cigarette butts may function as a parasite repellent in urban bird nests. The amount of cellulose acetate from butts in nests of two widely distributed urban birds was negatively associated with the number of nest-dwelling parasites. Moreover, when parasites were attracted to heat traps containing smoked or non-smoked cigarette butts, fewer parasites reached the former, presumably due to the presence of nicotine. Because urbanization changes the abundance and type of resources upon which birds depend, including nesting materials and plants involved in self-medication, our results are consistent with the view that urbanization imposes new challenges on birds that are dealt with using adaptations evolved elsewhere.

Anthropologie

Gruber 2012

Thibaud Gruber, Ian Singleton & Carel van Schaik, *Sumatran Orangutans Differ in Their Cultural Knowledge but Not in Their Cognitive Abilities*. Current Biology **22** (2012), 2331–2335.

Animal cultures are controversial [1, 2] because the method used to isolate culture in animals aims at excluding genetic and environmental influences rather than demonstrating social learning [3, 4]. Here, we analyzed these factors in parallel in captivity to determine their influences on tool use. We exposed Sumatran orangutan (Pongo abelii) orphans from tool-using and non-tool-using regions (western swamps and eastern Langkat, respectively) that differed in both genetic [5] and cultural [6] backgrounds to a raking task and a honey-dipping task [7, 8] to assess their understanding of stick use. Orangutans from both regions were equally successful in raking; however, swamp orangutans were more successful than Langkat orangutans in honey dipping, where previously acquired knowledge was required. A larger analysis suggested that the Alas River could constitute a geographical barrier to the spread of this cultural trait [9]. Finally, honey-dipping individuals were on average less than 4 years old, but this behavior is not observed in the wild before 6 years of age. Our results suggest first that genetic differences between wild Sumatran populations cannot explain their differences in stick use; however, their performances in honey dipping support a cultural differentiation in stick knowledge. Second, the results suggest that the honey-dippers were too young when arriving at the quarantine center to have possibly mastered the behavior in the wild individually [10], suggesting that they arrived with preestablished mental representations of stick use or, simply put, “cultural ideas.”

McPherron 2000
Shannon Patrick McPherron, *Handaxes as a Measure of the Mental Capabilities of Early Hominids*. Journal of Archaeological Science **27** (2000), 655–663.
Handaxes are often used to discuss the evolution of mental capabilities in early hominids. There are several reasons handaxes are used for this purpose, but principal among these is the notion that handaxe shape is an arbitrary imposition of form, on varied raw material, that reflects shared mental templates. If this is so, then changes in handaxe shape through time and space may speak directly to evolving mental capabilities. It is argued here, however, that far too little attention has been paid to much simpler levels of explanation that may say much less about mental capabilities. This point is illustrated by re-examining some data sets that have been used by others to show patterns in handaxe shape interpreted as reflecting differences in mental constructs or for elevated mental abilities. It will be argued here that some very basic factors, such as raw materials and reduction intensity, are better able to explain the observed patterns. As a result, the existence of mental templates for preferred handaxe shapes seems unlikely.
Keywords: Acheulian, handaxes, mental capabilities, intelligence, symbolism, style, technology

Morgan 2013
Michael H. Morgan & David R. Carrier, *Protective buttressing of the human fist and the evolution of hominin hands*. Journal of Experimental Biology **216** (2013), 236–244.
The derived proportions of the human hand may provide supportive buttressing that protects the hand from injury when striking with a fist. Flexion of digits 2–5 results in buttressing of the pads of the distal phalanges against the central palm and the palmar pads of the proximal phalanges. Additionally, adduction of the thenar eminence to abut the dorsal surface of the distal phalanges of digits 2 and 3 locks these digits into a solid configuration that may allow a transfer of energy through the thenar eminence to the wrist. To test the hypothesis of a performance advantage, we measured: (1) the forces and rate of change of acceleration (jerk) from maximum effort strikes of subjects striking with a fist and an open hand; (2) the static stiffness of the second metacarpophalangeal (MCP) joint in buttressed and unbuttressed fist postures; and (3) static force transfer from digits 2 and 3 to digit 1 also in buttressed and unbuttressed fist postures. We found that peak forces, force impulses and peak jerk did not differ between the closed fist and open palm strikes. However, the structure of the human fist provides buttressing that increases the stiffness of the second MCP joint by fourfold and, as a result of force transfer through the thenar eminence, more than doubles the ability of the proximal phalanges to transmit 'punching' force. Thus, the proportions of the human hand provide a performance advantage when striking with a fist. We propose that the derived proportions of hominin hands reflect, in part, sexual selection to improve fighting performance.
Key words: male–male competition, fighting, great ape, Hominidae.

Bibel

Murphy 2009
Sara Murphy (Hrsg.), *The First Christmas, The Story of Jesus' Birth in History and Tradition*. (Washington 2009).

1 Witnessing the Divine, The Magi in Art and Literature, by Robin M. Jensen
13 The Magi and the Star, Babylonian Astronomy Dates Jesus' Birth, by Simo Parpola
25 What Was the Star that Guided the Magi? by Dale C. Allison Jr.
32 Where Was Jesus Born? Introduction
33 Where Was Jesus Born? O Little Town of ... Nazareth? by Steve Mason
49 Where Was Jesus Born? Bethlehem ... Of Course, by Jerome Murphy O'Connor

Warker 2012

Margaret Warker (Hrsg.), *Paul: Jewish Law and Early Christianity*. (Washington 2012).

Datierung

Richter 2012

Daniel Richter, *Advantages and Limitations of Thermoluminescence Dating of Heated Flint from Paleolithic Sites*. Geoarchaeology **22** (2012), 671–683.

Thermoluminescence (TL) dating is now widely used in the age determination of Paleolithic sites. Although the basic principle of TL-dating is simple, the underlying assumptions are not trivial. One major source of error is the external dose rate, which contributes to a varying degree to the denominator of the age formula and thus has a varying influence on the dating result. The intention of this paper is to enable the user to evaluate TL age determinations of heated flint. The parameters used for age determination and some of their relationships are discussed. It is shown that the reliability of TL results of heated flint depends on the proportion of the various dose-rate parameters and that these are important for the evaluation of ages. The limitations of the method as well as the advantages are discussed. TL-dating results for two Near Eastern Paleolithic sites (Rosh Ein Mor and Jerf al-Ajla) are discussed as examples.

Richter 2013

Daniel Richter, Jean-Jacques Hublin, Jacques Jaubert, Shannon P. McPherron, Marie Soressi & Jean-Pierre Texier, *Thermoluminescence dates for the Middle Palaeolithic site of Chez-Pinaud Jonzac (France)*. Journal of Archaeological Science **40** (2013), 1176–1185.

JArchSci40-1176-Supplement1.pdf

Thermoluminescence dating of heated flint artefacts from the Middle Palaeolithic sequence of Chez-Pinaud Jonzac (France) places an assemblage of Quina type Mousterian into MIS 4, while the overlying assemblage of Denticulate Mousterian which is followed by two layers with Mousterian of Acheulean Tradition are all assigned to MIS 3. TL dating is used to verify the mixed nature of deposits from which diagnostic Middle as well as Upper Palaeolithic tools were recovered. The TL ages are significantly different for samples from this layer and broadly agree with the archaeological attributions. While the study is generally limited by the low number of heated samples available, a correlation with a generalized chronostratigraphic sequence is possible by including proxy data from the faunal remains associated with the lithic assemblages in question. The Quina Mousterian in southwestern France, therefore, can be placed by chronometric dating methods in MIS 4 to MIS 3.

Keywords: Thermoluminescence dating | Middle Palaeolithic | Quina Mousterian | Mousterian of Acheulean Tradition | MTA | Chez-Pinaud Jonzac

Energie

Diaz-Maurin 2013

François Diaz-Maurin & Mario Giampietro, *A "Grammar" for Assessing the Performance of Power-Supply Systems, Comparing nuclear energy to fossil energy.* Energy (2013), preprint, 1–47. DOI:10.1016/j.energy.2012.11.014.

This article illustrates an innovative approach for the characterization and comparison of the performance of power-supply systems. The concept of 'grammar' forces to declare the preanalytical decisions about: (i) semantic and formal categories used for the accounting – primary energy sources (PES), energy carriers (EC), and production factors; (ii) the set of functional and structural elements of the power-supply system included in the analysis. After having tamed the systemic ambiguity associated with energy accounting, it becomes possible to generate a double assessment referring to: (i) external constraints – the consumption of PES and the generation of waste and pollution; and (ii) internal constraints – the requirements of production factors such as human labor, power capacity, internal consumption of EC for making EC. The case study provided compares the production of EC (electricity) with "nuclear energy" and "fossil energy". When considering internal constraints, nuclear energy requires about twice as much power capacity (5.9–9.5 kW/GWh vs. 2.6–2.9 kW/GWh) and 5-8 times more labor (570–640 h/GWh vs. 80–115 h/GWh). Things do not improve for nuclear energy when looking at external constraints – e.g. the relative scarcity of PES. This may explain the difficulties faced by nuclear energy to gain interest from investors.
Keywords: Power generation; Power-supply systems; Biophysical economics; Integrated analysis; Nuclear energy; Fossil Energy

Leblanc 2012

D. Leblanc & C. Popoff, *Using Molten Salt Nuclear Reactors in the Oil Sands.* (preprint), 1–20.

A significant challenge facing the thermal heavy oil industry in Canada is supplying energy for the purpose of steam generation for use in a variety of in-situ heavy oil production schemes. Typically natural gas is combusted on site to fuel steam generation units which creates two problems. First, it exposes the project to economic risk through the highly variable nature of natural gas cost, which is significant given the large volume of fuel that will be consumed over the life of the project. Second, natural gas combustion is the primary source of greenhouse gas emissions for an in-situ project which puts growth in this industry sector at odds with carbon emission mandates set by the Canadian Government, and also creates negative sentiment towards ongoing development of the resource. Many attempts have been made in the past to show how nuclear power (both with established and pre-commercial technologies) may be used to supply the energy demand created by the growth of development in the oil sands regions, with assessments being carried out for mining, steam assisted gravity drainage (SAGD), upgrading, and integrated operations. The proposed configurations fail in one or more critical areas such as improper steam conditions at the plant outlet, excessively high capital requirements, or a mismatch in the scale of operations. The Molten Salt Reactor (MSR) is a Generation IV fission nuclear reactor that was first built and operated in the 1960s and was demonstrated to be a practical, safe and economically viable tool for electricity generation. It is the purpose of this paper to introduce the basic concepts of the MSR to the thermal heavy oil industry, and to demonstrate the viability of integrating MSR with thermal heavy oil production through the analysis of a conceptual SAGD commercial phase. It is shown that the heat requirements of

a typical SAGD commercial phase may be met with a total thermal power output of 375 MWth, and that by offsetting the costs of combusting natural gas (fuel and carbon compliance costs) a Molten Salt Reactor appears to be economically viable when natural gas is available at a price of 1.09–2.32 C$/mcf. Therefore the MSR represents a potential path forward for permanently inexpensive steam and SAGD operations that do not emit greenhouse gases.

Grabung

Corbett 2011

Joey Corbett (Hrsg.), *Ten Top Biblical Archaeology Discoveries*. (Washington 2011).

1 The Nag Hammadi Library, Nag Hammadi Codices Shed New Light on Early Christian History, by James Brashler
12 The 'Ain Dara Temple, The New 'Ain Dara Temple: Closest Solomonic Parallel, by John Monson
31 The Tel Dan ("David") Stela, "David" Found at Dan
47 Mona Lisa of the Galilee, Mosaic Masterpiece Dazzles Sepphoris Volunteers
52 "Yahweh and His Asherah": The Kuntillet 'Ajrud Ostraca, Did Yahweh Have a Consort? by Ze'ev Meshel
68 St. Peter's House, Has the House Where Jesus Stayed in Capernaum Been Found?, by James F. Strange and Hershel Shanks
86 The Siloam Pool, The Siloam Pool: Where Jesus Cured the Blind Man, by Hershel Shanks
94 Ashkelon's Arched Gate, When Canaanites and Philistines Ruled Ashkelon, by Lawrence E. Stager
118 Jerusalem's Stepped-Stone Structure, Jerusalem in David and Solomon's Time, by Jane Cahill West
137 Jerusalem's Babylonian Siege Tower, Found in Jerusalem: Remains of the Babylonian Siege, by Suzanne F. Singer

Isotope

Brauns 2013

Michael Brauns, Roland Schwab, Guntram Gassmann, Günther Wieland & Ernst Pernicka, *Provenance of Iron Age iron in southern Germany: a new approach*. Journal of Archaeological Science **40** (2013), 841–849.

Ores, slag, and blooms from an Early Iron Age smelting site in the Black Forest, southern Germany, were analysed in view of their possible provenance in combination with products from a modern smelting experiment. Rather than employing lead isotope ratios, like in a previous study, osmium and strontium isotope ratios are used for the discussion of provenance. The results of the smelting experiment with iron ores from the archaeological site and their comparison with original finds show the high potential of osmium as a tracer to determine provenance. Strontium may be an additional indicator but possible contaminations need to be assessed. A Celtic iron ingot has also been analysed to check the potential of osmium for further provenance studies.

Keywords: Iron ingots | Iron Age | Provenance | Osmium isotope ratios | Strontium isotope ratios | Mass spectrometry

Budd 2013

Chelsea Budd, Malcolm Lillie, Songül Alpaslan-Roodenberg, Necmi Karul & Ron Pinhasi, *Stable isotope analysis of Neolithic and Chalcolithic populations from Aktopraklık, northern Anatolia.* Journal of Archaeological Science **40** (2013), 860–867.

JArchSci40-0860-Supplement1.xlsx

This paper presents the results of stable isotope (carbon and nitrogen) analysis of human and faunal remains from the site of Aktopraklık, one of the earliest farming sites in the Eastern Marmara region of Northwest Anatolia. Excavations at this site have shown that occupation occurs from the middle of the 7th millennium BC through to the middle of the 6th millennium BC. The earliest Neolithic activity at this location occurs at the settlement site of Aktopraklık C. Since 2004 a number of Neolithic and Early Chalcolithic burials have been recovered from the settlement areas and an Early Chalcolithic cemetery (Aktopraklık B and A respectively). To date a total of 60 individuals have been recovered from Aktopraklık, 23 of which (20 adults [10 males, 8 females and 2 indet adults] and 3 children below ca. 12 years of age) form the basis of the current isotope study. In addition, 14 faunal samples from cattle, pig, sheep/goat and fallow deer are included in the analysis in order to facilitate a consideration of trophic level shifts and to interpret the 13C data. The data represents the first isotopic study of a farming community from this region of Anatolia. This region is important to our understanding of the northwestwards transmission of farming into Europe from the Near East, and as such Aktopraklık represents a key site for studying the diet of farmers at the transition to agriculture. The close clustering of isotope values overall indicates homogeneity in subsistence practices for this farming population. Interestingly, the isotope values indicate a general focus on C3 terrestrial resources at Aktopraklık, despite the close proximity of both freshwater and marine environments where alternative resources could have been procured.

Keywords: Neolithic farming | Stable isotope analysis | d13C and d15N | Prehistoric cemeteries and sites | Human bone | Faunal remains | Collagen | Anatolia

Gregoricka 2012

Lesley A. Gregoricka & Susan Guise Sheridan, *Ascetic or affluent? Byzantine diet at the monastic community of St. Stephen's, Jerusalem from stable carbon and nitrogen isot.* Journal of Anthropological Archaeology (2012), preprint, 1–11. DOI:10.1016/j.jaa.2012.10.002.

Stable carbon and nitrogen isotope ratios from bone collagen in skeletons from the Byzantine (5th–7th century AD) monastery of St. Stephen's in Jerusalem were examined in conjunction with a review of historical sources detailing dietary practices during this period in the Levant. Relatively low d13C ratios (-19.0 ± 0.5‰, 1σ) indicate a diet consisting primarily of C3 sources and display continuity with textual records describing monastic daily life. Conversely, human d15N values (9.6 ± 1.2‰, 1σ) are enriched in 15N relative to local fauna (7.3 ± 1.1‰, 1σ) and point to the contribution of animal protein to the diet, an unexpected result based on both the rarity and expense of these luxury food items as well as dietary prohibitions associated with an ascetic monastic lifestyle. No sex-based differences in diet were detected for either d13C or d15N values, suggesting that men and women consumed isotopically similar foods. As the vast majority of monastic communities in the ancient Near East were located in the desert, the urban setting of St. Stephen's monastery allows for a unique glimpse into a rarely-explored facet of Byzantine life.

Keywords: Stable isotope analysis | Diet | Bone collagen | Carbon | Nitrogen | Byzantine | Near East

Klima

Bogaert 2012

J. Bogaert, L. Zhou, C. J. Tucker, R. B. Myneni & R. Ceulemans, *Evidence for a persistent and extensive greening trend in Eurasia inferred from satellite vegetation index data*. Journal of Geophysical Research **107** (2012), D00011. DOI:10.1029/2001JD001075.

The northern latitudes have warmed by ≈0.8°C since the early 1970s, but not all areas have warmed equally. Eurasia shows an overall warming trend, while North America exhibits warming at a lower rate and even a slight cooling trend during the last 50 years in the eastern United States. We analyzed a recently developed satellite normalized difference vegetation index (NDVI) data set (July 1981 to December 1999) to assess vegetation response to these temperature changes. An index of persistence of the NDVI trend was used to generate patches of different levels of persistence. The persistence data were analyzed for patch area, patch perimeter, patch number, patch coherence, largest patch size, patch fragmentation, pixel contiguity, pixel clustering, and conditional probability of pixel adjacency. We address two questions: (1) Is there a difference in the spatial pattern of long-term NDVI increase in comparison to short-term increase? and (2) Are there differences in the spatial patterns of patches between Eurasia and North America? The results indicate a persistent and spatially extensive and connected greening trend in Eurasia, relative to North America. The regions showing short-term greening in Eurasia show a scattered pattern of spatially remote small patches. In North America the long-term greening pattern is spatially fragmented, and a mixture of short- and long-term NDVI increase is found, unlike in Eurasia. Therefore we conclude that the greening trend in Eurasia is more persistent and spatially extensive than in North America, which is qualitatively consistent with near-surface air temperature observations.

KEYWORDS: NDVI, global warming, greening, spatial pattern, AVHRR

Condron 2012

Alan Condron & Peter Winsor, *Meltwater routing and the Younger Dryas*. PNAS **109** (2012), 19928–19933.

The Younger Dryas—the last major cold episode on Earth—is generally considered to have been triggered by a meltwater flood into the North Atlantic. The prevailing hypothesis, proposed by Broecker et al. [1989 Nature 341:318–321] more than two decades ago, suggests that an abrupt rerouting of Lake Agassiz overflow through the Great Lakes and St. Lawrence Valley inhibited deep water formation in the subpolar North Atlantic and weakened the strength of the Atlantic Meridional Overturning Circulation (AMOC).More recently, Tarasov and Peltier [2005 Nature 435:662–665] showed that meltwater could have discharged into the Arctic Ocean via the Mackenzie Valley ≈4,000 km northwest of the St. Lawrence outlet. Here we use a sophisticated, high-resolution, ocean sea-ice model to study the delivery of meltwater from the two drainage outlets to the deep water formation regions in the North Atlantic. Unlike the hypothesis of Broecker et al., freshwater from the St. Lawrence Valley advects into the subtropical gyre ≈3,000 km south of the North Atlantic deep water formation regions and weakens the AMOC by <15 %. In contrast, narrow coastal boundary currents efficiently deliver meltwater from the Mackenzie Valley to the deep water formation regions of the subpolar

North Atlantic and weaken the AMOC by >30 %. We conclude that meltwater discharge from the Arctic, rather than the St. Lawrence Valley, was more likely to have triggered the Younger Dryas cooling.
abrupt climate change | climate modeling | paleoclimate

Teller 2012
James T. Teller, *Importance of freshwater injections into the Arctic Ocean in triggering the Younger Dryas cooling*. PNAS **109** (2012), 19880–19881.

Kultur

Herrnstein 1987
Richard J. Herrnstein & James E. Mazur, *Making up our minds, A new model of economic behavior*. The Sciences **1987**, xi, 40–47.
Why would evolution favor such nonrational rules as hyperbolic time discounting and the pursuit of average utility? Perhaps because these functions are, respectively, more realistic and easier to approximate than the laws postulated by maximization theory. Hyperbolic discounting simplifies mental bookkeeping by shortening a creature's time horizon and thus reducing the volume of connections between behavior and consequences. It also reflects the reality of death, A creature who discounts time at a constant rate is implicitly assuming immortality, by failing to consider the ever rising risk that he will not be around to collect a future reward. As for average utility, it is a less abstract variable than marginal utility, and thus a more practical one. Marginals are mathematical derivatives, and their values may fluctuate wildly with minuscule errors of estimation. Unlike average utilities, which simply reflect the aggregate of past experience at a given moment (bananas seem to give me more pleasure than ginger ale, so I will now buy a banana), marginals involve instantaneous calculations of the relationship between consumption and utility. If, in computing a marginal, I slightly misjudge the satisfaction to be had from the next banana, I may eat not just one unsatisfactory banana but bushels of them. In short, marginals are delicate instruments. They are a prerequisite of rationality, but most real creatures lack the information and analytical power to compute them reliably. That being the case, natural selection may have sacrificed the ideal of utility maximization to accommodate a variable and chaotic world. That individuals systematically favor simpler forms of mental bookkeeping, even at the expense of some utility, has been brilliantly elucidated in a series of experiments by the psychologists Amos Tversky, of Stanford University, and Daniel Kahneman, of the University of California at Berkeley.

Methoden

Cooper 2006
Judith R. Cooper & Fang Qiu, *Expediting and standardizing stone artifact refitting using a computerized suitability model*. Journal of Archaeological Science **33** (2006), 987–998.
Stone artifact refitting is a valuable aspect of archaeological research and can inform on a variety of issues, such as prehistoric technology, site taphonomy, and assemblage patterning and function. It offers a means of teasing apart sites with complicated occupational histories and is particularly useful in interpreting surface

lithic scatters, the dominant site type across much of the globe. Unfortunately, refitting is also labor intensive and time-consuming, especially for the inexperienced refitting analyst, making it logistically challenging in the case of many research projects. A possible solution is proposed by which the process of refitting might be partially automated. A multivariate suitability model was created in a Geographic Information Systems (GIS) environment. The refitting suitability model first eliminates low probability refits, and then ranks the remaining artifacts according to a score that reflects their likelihood of refitting to a target artifact. Scores are assigned to assemblage items based on a series of criteria, including raw material, cortex, size, and spatial proximity. In this pilot study, known refits from 5GN149, a surface lithic scatter in Colorado, USA, were used to test the accuracy of the model. The refitting suitability model correctly placed the known refit at the top of the list of potential refits (i.e., assigned a rank to the known refit ranging from 1 to 10) approximately 32 % of the time. This is more refit identifications than would be expected through a process of pair-wise comparisons. Preliminary results suggest that the model has the potential to standardize and expedite the process of refitting.
Keywords: Refitting; Geographic Information Systems; Lithic scatters; Suitability models; Analytic hierarchy process

Hiscock 2002

Peter Hiscock, *Quantifying the Size of Artefact Assemblages*. Journal of Archaeological Science **29** (2002), 251–258.
Stone artefacts are broken, burnt and weathered. Processes such as these may act differentially across categories, and will therefore affect interpretations of assemblage size and composition. This paper advocates a more detailed consideration of abundance estimates in artefact analyses, being guided by the understandings built up in archaeological studies of fauna, and begins the process by developing some basic units of measurement for counting flaked stone.
Keywords: breakage, abundance estimation, minimum numbers, taphonomy, lithics, artefacts.

Vaux 2012

David L. Vaux, Fiona Fidler & Geoff Cumming, *Replicates and repeats—what is the difference and is it significant? A brief discussion of statistics and experimental design*. EMBO reports **13** (2012), 291–296.
Sidebar B | Error checklist when reading papers
(i) If error bars are shown, are they described in the legend?
(ii) If statistics or error bars are shown, is n stated?
(iii) If the standard deviations (SDs) are less than 10 %, do the results come from replicates?
(iv) If the SDs of a binomial distribution are consistently less than SQR(np(1–p))—where n is sample size and P is the probability—are the data too good to be true?
(v) If the SDs of a Poisson distribution are consistently less than SQR(mean), are the data too good to be true?
(vi) If the statistics come from replicates, or from a single 'representative' experiment, consider whether the experiments offer strong support for the conclusions.
(vii) If P-values are shown for replicates or a single 'representative' experiment, consider whether the experiments offer strong support for the conclusions.

Vaux 2012

David L. Vaux, *Know when your numbers are significant*. nature **492** (2012), 180–181.

Experimental biologists, their reviewers and their publishers must grasp basic statistics, urges David L. Vaux, or sloppy science will continue to grow.

All journals should follow the lead of the Journal of Cell Biology and make a final check of all figures in accepted papers before publication. They should refuse to publish papers that contain fundamental errors, and readily publish corrections for published papers that fall short. This requires engaging reviewers who are statistically literate and editors who can verify the process. Numerical data should be made available either as part of the paper or as linked, computer-interpretable files so that readers can perform or confirm statistical analyses themselves.

Mittelalter

Curry 2012

Andrew Curry, *Crusader Crisis: How Conquest Transformed Northern Europe*. science **338** (2012), 1144–1145.

A novel interdisciplinary project shows how medieval crusaders, with their new way of life, suddenly changed the ecology of northern Europe.

Colleagues say this is the first time that anyone has taken such a broad look at the environmental impact of a Crusade. Similar work is just beginning in the Holy Land, where Crusader archaeology has traditionally taken a back seat to biblical archaeology, says archaeologist Adrian Boas of the University of Haifa in Israel: "The Crusades in Israel haven't been studied in depth."

Neolithikum

Tegel 2012

Willy Tegel, Rengert Elburg, Dietrich Hakelberg, Harald Stäuble & Ulf Büntgen, *Early Neolithic Water Wells Reveal the World's Oldest Wood Architecture*. PLoS ONE **7** (2012), e51374. DOI:10.1371/journal.pone.0051374.

The European Neolithization ≈6000–4000 BC represents a pivotal change in human history when farming spread and the mobile style of life of the hunter-foragers was superseded by the agrarian culture. Permanent settlement structures and agricultural production systems required fundamental innovations in technology, subsistence, and resource utilization. Motivation, course, and timing of this transformation, however, remain debatable. Here we present annually resolved and absolutely dated dendroarchaeological information from four wooden water wells of the early Neolithic period that were excavated in Eastern Germany. A total of 151 oak timbers preserved in a waterlogged environment were dated between 5469 and 5098 BC and reveal unexpectedly refined carpentry skills. The recently discovered water wells enable for the first time a detailed insight into the earliest wood architecture and display the technological capabilities of humans ≈7000 years ago. The timbered well constructions made of old oak trees feature an unopened tree-ring archive from which annually resolved and absolutely dated environmental data can be culled. Our results question the principle of continuous evolutionary development in prehistoric technology, and contradict the common belief that metal was necessary for complex timber constructions. Early Neolithic craftsmanship now suggests that the first farmers were also the first carpenters.