

Literatur

Afrika

GOMMERY 2011

Dominique Gommery et al., *Les plus anciennes traces d'activités anthropiques de Madagascar sur des ossements d'hippopotames subfossiles d'Anjohibe, Oldest evidence of human activities in Madagascar on subfossil hippopotamus bones from Anjohibe (Mahajanga Province)*. [Comptes Rendus Palevol](#) **10** (2011), 271–278.

Dominique Gommery, Beby Ramanivosoa, Martine Faure, Claude Guérin, Patrice Kerloc'h, Frank Sénégas & Hervé Randrianantenaina

The colonization of Madagascar by man is an active subject of scientific debate. Until recently the oldest evidence of humans on the island dated to a few centuries BC or AD from sites located in the South-West of Madagascar. The discoveries at Anjohibe, about 1500 years older, indicate an early colonization of the North-West of the island. This region is closer than two of the shortest routes from Africa or Asia. The discoveries are not archaeological artefacts but cut marks on bones of subfossil dwarf hippopotami. These observations indicate that the coexistence of humans with extinct subfossil faunas has been much longer than previously thought.

Keywords: Madagascar; Cut marks; Human colonization; Human-subfossil coexistence

MACKAY 2011

Alex Mackay, *Nature and significance of the Howiesons Poort to post-Howiesons Poort transition at Klein Kliphuis rockshelter, South Africa*. [Journal of Archaeological Science](#) **38** (2011), 1430–1440.

This paper considers the transition from Howiesons Poort to post-Howiesons Poort technologies at the rock shelter site of Klein Kliphuis, South Africa. The transition at this site is shown to be gradual, with incremental changes in material selection and in the size and shapes of flakes and cores. Implements which appear to blend characteristics of those distinctive of the earlier and later industries appear briefly at the mid-point of the transition. The results suggest that there is unlikely to have been an occupational hiatus between the Howiesons Poort and post-Howiesons Poort. Explanations for the Howiesons Poort phrased in terms of population expansion and contraction are also difficult to support. Technological changes at this time may relate to environmental variation, though the limited nature of terrestrial archives documenting changes in resource productivity necessitate that any such suggestion be made with caution.

Keywords: Lithic technology; Late Pleistocene; Southern Africa; Howiesons Poort; Demographic change

Aktuell

BRUMFIEL 2011

Geoff Brumfiel & David Cyranoski, *Fukushima deep in hot water, Rising levels of radioactive liquid hamper clean-up effort*. [nature](#) **474** (2011), 135–136.

Kenji Takeshita, a specialist in water treatment at the Tokyo Institute of Technology, says that although a zeolite filtration system worked at Three Mile Island, the water pumped through it was fresh. “This time the water is full of salt,” he says. The chemical similarity between sodium and caesium ions may make the zeolite extraction process far less efficient, he says. Areva’s system will also generate up to 2,000 cubic metres of hot, radioactive sludge by next January. Compared with solid waste, which can be encased in cement for long-term storage, the sludge will need more elaborate containment to prevent it from leaking out into the environment.

COUZIN-FRANKEL 2011

Jennifer Couzin-Frankel, *The Prion Heretic*. [science 332 \(2011\), 1024–1027](#). For 30 years, Laura Manuelidis has rejected the dominant theory that misfolded proteins cause infection. Sticking to a minority view has become a career in itself. She knows that the history of science is littered with heretics who reject conventional wisdom, insisting that their experiments reveal the truth while others’ do not. Often they turn out to be wrong and either abandon their view when the evidence against it grows overwhelming or go to their grave still believing. Sometimes they’re right. Manuelidis, comfortable in the role of dissenter, likes to quote 20th century mathematician and philosopher Bertrand Russell: “Doubt is the essence of science,” she says.

GLUHAK 2011

Tatjana Mirjam Gluhak & Wolfgang Hofmeister, *Geochemical provenance analyses of Roman lava millstones north of the Alps: a study of their distribution and implications for the beginning of Roman lava quarrying in the Eifel region (Germany)*. [Journal of Archaeological Science 38 \(2011\), 1603–1620](#).

In Roman times, rotary querns and different types of millstones, driven either by horsecapstan or water power, were produced in the lava quarries of the quaternary volcanic Eifel region and exported to many parts of the Empire. The geographic distribution of Roman lava millstones from the Eifel region provides important information about trade patterns and, in cases of well dated millstones, also allows an estimate as to when the Roman lava quarrying in the Eifel region began. Sixty-two millstones from Germany, France and Austria were sampled and analyzed for major and trace elements by X-ray fluorescence. To determine their provenance, the millstone data was evaluated by a combination of geochemical discrimination and cluster and discriminant analyses using an extensive and detailed database of all Roman lava quarries in the Eifel region. An Eifel provenance could be confirmed for forty-four artefacts and, furthermore, determined down to the exact lava flow. The affiliation of the other artefacts to other possible regions where millstones of comparable lava were extracted was carried out on the basis of geochemical data from the literature. However, because of insufficient data, only assumptions about the regional provenance can be made. The origins of the other finds are assumed to be the Vogelsberg region, the Massif Central, Orvieto, and, possibly, the Pannonian Basin. A preliminary map of the distribution of Eifel millstones in Roman times based on these data is presented; the beginning of Roman lava quarrying can be constrained to 8–7 BC.

Keywords: Millstone; Eifel; Basalt; Provenance; Geochemistry; Cluster analysis; Discriminant analysis

HARBRING 2011

Christine Harbring & Bernd Irlenbusch, *Sabotage in Tournaments: Evidence from a Laboratory Experiment*. [Management Science 57 \(2011\), 611–627](#).
[ManaSci57-0611-Comment.htm](#)

Although relative performance schemes are pervasive in organizations, reliable empirical data on induced sabotage behavior are almost nonexistent. We study sabotage in repeated tournaments in a controlled laboratory experiment and observe that effort and sabotage are higher for higher wage spreads. Additionally, we find that also in the presence of tournament incentives, agents react reciprocally to higher wages by exerting higher effort. Destructive activities are reduced by explicitly calling them by their name “sabotage.” Communication among principal and agents can curb sabotage when they agree on flat prize structures and increased output. If sabotage is not possible, the principals choose tournament incentives more often.

Key words: decision analysis; applications; organizational studies; decision making; motivation; incentives

KRIMSKY 2011

Sheldon Krinsky, *Beware of gifts that come at too great a cost.* [nature 474 \(2011\), 129.](#)

Danger lurks for state universities when philanthropy encroaches on academic independence, warns Sheldon Krinsky.

I see no problem with funding professorships in the study of classical anarchism or twenty-first-century libertarianism, any more than I would with funding a Marxist scholar. But the autonomy of the university is transgressed when the criteria for funding seek to advance the practice of a political ideology.

The agreement also states that “Individuals holding the sponsored professorship positions will be treated similarly to all other FSU faculty of similar rank”. Really? It is inconceivable that the faculty handbook of FSU or any other state university uses “advancement of the practice” of a political ideology to measure academic success.

WEINBERGER 2011

Sharon Weinberger, *Is this the start of cyberwarfare?* [nature 474 \(2011\), 142–145.](#)

Academic researchers are also inhibited by a certain squeamishness about digital weaponry, according to Herb Lin, chief scientist at the Computer Science and Telecommunications Board of the US National Research Council in Washington DC. He points out that to understand how to guard against cyber attacks, it may help to know how to commit them. Yet teaching graduate students to write malware is “very controversial”, he says. “People say, ‘What do you mean: you’re training hackers?’”

“What would happen if there were a code injection into SCADA? What if someone would activate it suddenly?” Elovici asked. He and other experts have been warning for several years now that such an attack on SCADA (supervisory control and data acquisition) systems controlling the electricity grid could spark nationwide blackouts, or that the safety systems of power plants could be overridden, causing a shutdown or a serious accident. Similar disruptions could hit water and sewage systems, or even food processing plants. Such attacks, Elovici warned, are both realistic and under estimated. Asked how bad one would be, Elovici was unequivocal. “I think,” he said, “it would be much stronger than the impact of setting several atomic bombs on major cities.”

Amerika

OLIVER 2008

Jose R. Oliver, *The Archaeology of Agriculture in Ancient Amazonia.* In: HELAINE SILVERMAN & WILLIAM H. ISBELL (Hrsg.), *Handbook of South American Archaeology.* [\(New York 2008\), 185–216.](#)

The empirical data of sites such as Pedra Pintada, Peña Roja, Abejas, Taperinha and Mina, as a group, begin to shed light on the kind of subsistence patterns and evolving agricultural systems that formed the underpinnings of complex societies in Amazonia. Between 11,000 and 9000 BP at Pedra Pintada there is no evidence of agriculture, but it is likely that the systematic exploitation of nutritious palm seeds and fruit trees led to incipient silviculture focused on a broad spectrum of palm species adapted to both flood plain and upland conditions. Such activities eventually lead to managed (anthropogenic) forest food resources; particularly palm forests, a tradition that is still manifest among the modern Nukak and Makú foragers of the Guaviare-Vaupés regions. Although forest management and cultivation seems likely, there is no direct evidence for plant domestication at this time. But between 9000-8000 BP, the evidence in the Araracuara-Caquetá region strongly suggests a subsistence economy involving itinerant gardening that included lerén (arrowroot) cultivation, with calabashes and bottle gourds grown in and around camp-sites near the river. Between 7800-4500 BP (Taperinha-Paituna phases) bluff settlers and cave users along the lower Amazon appear to continue the previous multiple biotope exploitation and broad spectrum diet strategy focused on fishing, shellfish gathering and tree-fruit and palm seed harvesting, but now pottery made its first appearance (7580-7100 BP). This pottery shows signs of use for cooking food and was not used exclusively for storage or food presentation, as was the case among the San Jacinto 1 (6000-5000 BP) foragers of Colombia (Oyuela-Caycedo and Bonzani 2005). Changes in food preparation techniques (cooking in ceramic vessels) imply improved health from higher nutritional benefits and increase in population growth. This broad spectrum foraging diet, with incipient farming and forest/plant management on the rise, is the platform from which differing Amazonian agricultural systems emerged, creating human-altered, food-yielding landscapes.

For now, the evidence supporting systematic forest disturbances associated with some form of slash-and-burn farming technique within Amazonia is bracketed between 6000 BP and 5000 BP (Piperno and Pearsall 1998: fig. 5.3), and in Araracuara associated with manioc and maize cultivation. This millennium can be proposed as the key period when the shift to agricultural dependence emerged and consolidated, and is a useful benchmark for the beginning of the Amazonian Formative. What followed during and after the Formative is where the history of agricultural development and intensification becomes complex and regionally diverse, the details of which I will leave for discussion at a later opportunity.

It is appropriate to conclude this paper by reiterating one my favorite quotes on the matter of agricultural potential in Amazonia: “Environments are neutral. Their potential for human use is determined by both their characteristics (which people can change) and by the technology available for exploiting them combined with the will to do so. ‘Agricultural potential’ is not inherent in nature. The concept contains the word ‘culture’” (Denevan 2001: 302).

PEARSALL 2008

Deborah M. Pearsall, *Plant Domestication and the Shift to Agriculture in the Andes*. In: HELAINE SILVERMAN & WILLIAM H. ISBELL (Hrsg.), *Handbook of South American Archaeology*. (New York 2008), 105–120.

This review reflects my view, following Rindos (1984) that domestication is an outgrowth of forager-plant interactions, with no external “push” required, and that agriculture is a distinctive process of creating agroecologies. There are three thresholds of domestication and agriculture in the Andes, in common with other primary centers. First, in the Early Holocene there were frequent and dispersed plant domestications, some of which were advantageous and left a trace in the record. Second, early domesticates spread, sometimes widely, through social interactions among forager/horticulturalists. Cultivation was small-scale, in well-watered settings. Third, increasingly productive crops fueled population

growth, which led to the spread of societies into new habitats that were dependent on agriculture, and creation of built environments for farming. This last is the most visible threshold of the process, having left its mark throughout the Andes on the landscape, in sediment cores, and in numbers of sites.

SANDWEISS 2008

Daniel H. Sandweiss & James B. Richardson III, *Central Andean Environments*. In: HELAINE SILVERMAN & WILLIAM H. ISBELL (Hrsg.), *Handbook of South American Archaeology*. (New York 2008), 93–104.

The correlation of the changing paleo-environment with cultural change in the Central Andes is still in its “infancy,” but the last thirty years of research have demonstrated that understanding climatic change and natural disasters is critical to reconstructing cultural trajectories in the Andes. From this brief sampler, it is evident that human-environment interaction remains an important if hotly debated issue in the understanding of ancient Andean peoples. Given the physical and climatic nature of the region over the last 13,000 years, that is hardly surprising.

SILVERMAN 2008

HELAINE SILVERMAN & WILLIAM H. ISBELL (Hrsg.), *Handbook of South American Archaeology*. (New York 2008).

SMITH 2006

Bruce D. Smith, *Eastern North America as an independent center of plant domestication*. *PNAS* **103** (2006), 12223–12228.

The status of eastern North America as an independent center of plant domestication has recently been called into question by a number of genetic and archaeological studies, which suggest that the region may not have witnessed the independent domestication of local crop plants, but rather may have been on the receiving end of domesticated crop plants introduced from Mexico. Here, I provide a synthesis of the currently available archaeological and genetic evidence from both eastern North America and Mexico regarding the spatial and temporal context of initial domestication of the four plant species identified as potential eastern North American domesticates: marshelder (*Iva annua*), chenopod (*Chenopodium berlandieri*), squash (*Cucurbita pepo*), and sunflower (*Helianthus annuus*). Genetic and archaeological evidence provides strong support for the independent domestication of all four of these plant species in the eastern United States and reconfirms the region as one of the world’s independent centers of domestication.

Anthropologie

IZARD 2011

Véronique Izard, Pierre Pica, Elizabeth S. Spelke & Stanislas Dehaene, *Flexible intuitions of Euclidean geometry in an Amazonian indigene group*. *PNAS* **108** (2011), 9782–9787.

[pnas108-09782-Supplement.pdf](#)

Kant argued that Euclidean geometry is synthesized on the basis of an a priori intuition of space. This proposal inspired much behavioral research probing whether spatial navigation in humans and animals conforms to the predictions of Euclidean geometry. However, Euclidean geometry also includes concepts that transcend the perceptible, such as objects that are infinitely small or infinitely large, or statements of necessity and impossibility. We tested the hypothesis that certain aspects of nonperceptible Euclidian geometry map onto intuitions of space that are present in all humans, even in the absence of formal

mathematical education. Our tests probed intuitions of points, lines, and surfaces in participants from an indigene group in the Amazon, the Mundurucu, as well as adults and age-matched children controls from the United States and France and younger US children without education in geometry. The responses of Mundurucu adults and children converged with that of mathematically educated adults and children and revealed an intuitive understanding of essential properties of Euclidean geometry. For instance, on a surface described to them as perfectly planar, the Mundurucu's estimations of the internal angles of triangles added up to ≈ 180 degrees, and when asked explicitly, they stated that there exists one single parallel line to any given line through a given point. These intuitions were also partially in place in the group of younger US participants. We conclude that, during childhood, humans develop geometrical intuitions that spontaneously accord with the principles of Euclidean geometry, even in the absence of training in mathematics.

mathematical cognition | spatial cognition | culture

LORD 2011

Catherine Lord, *How common is autism?* [nature 474 \(2011\), 166–168](#).

Autism spectrum disorders vary greatly in severity. By including children in regular education who received no special help, an epidemiological study has found these disorders to be up to three times more prevalent than thought.

Grundlagen

BLASIUS 1987

Jörg Blasius, *Korrespondenzanalyse – Ein multivariates Verfahren zur Analyse qualitativer Daten*. [Historical Social Research 12 \(1987\), 172–189](#).

The purpose of the article is to introduce the method of correspondence analysis, using data from the Reichsstudentenwerk, collected from 1933 to 1942 and published by Arminger in 1984. Correspondence analysis is a multivariate technique which main characteristics is to display the columns and rows of twodimensional contingency tables graphically. Apart from the graphical display, further dimensions may be interpreted numerically. With this method we want to describe groups in six first memberships in organisations (NSDAP, SS, SA, NSDStB, others, no member) by age, their fathers home country and status, sex, subject of study, and period of first loan. Correspondence analysis provides an adequate method for analyzing and describing the six subpopulations.

MISARTI 2011

Nicole Misarti, Bruce P. Finney & Herbert Maschner, *Reconstructing site organization in the eastern Aleutian Islands, Alaska using multi-element chemical analysis of soils*. [Journal of Archaeological Science 38 \(2011\), 1441–1455](#).

This study presents the results of multi-element analysis of weak-acid extractions of 953 soil samples collected by coring on and around pre-historic village sites on two islands, Sanak and Amaknak, in the eastern Aleutians. Concentrations of aluminum (Al), barium (Ba), calcium (Ca), iron (Fe), potassium (K), magnesium (Mg), manganese (Mn), phosphorus (P), strontium (Sr), titanium (Ti), and zinc (Zn) were determined using an inductively coupled plasma-mass spectrometer (ICP-MS). Resultant elemental signatures allow the identification of site features and organization in the absence of large-scale excavation. All the archeological sites showed similar and distinct chemical signatures regardless of the several thousand year date range of the sites or the length of time a site was occupied. However, intensity of occupation does appear to affect concentrations of elements. Site features such as houses, house berms, house floors and middens had

distinct anthropogenic signatures and could be distinguished from one another. This approach may be used to identify sites that do not have distinct surface features and to target areas for excavation.

Keywords: Soil analysis; ICP-MS; Anthropogenic signature; Aleutian Islands; Arctic

MORTENSEN 2009

U. Mortensen, *Einführung in die Faktorenanalyse*. Skript, Westfälische Wilhelms-Universität (Münster 2009). <<http://www.uwe-mortensen.de/fakanalysews0506a.pdf>>.

MORTENSEN 2011

U. Mortensen, *Einführung in die Korrespondenzanalyse*. Skript, Westfälische Wilhelms-Universität (Münster 2011). <<http://www.uwe-mortensen.de/caneu1c.pdf>>.

Isotope

LEE-THORP 2006

Julia Lee-Thorp & Matt Sponheimer, *Contributions of Biogeochemistry to Understanding Hominin Dietary Ecology*. *Yearbook of Physical Anthropology* **49** (2006), 131–148.

Dietary ecology is one key to understanding the biology, lifeways, and evolutionary pathways of many animals. Determining the diets of long-extinct hominins, however, is a considerable challenge. Although archaeological evidence forms a pillar of our understanding of diet and subsistence in the more recent past, for early hominins, the most direct evidence is to be found in the fossils themselves. Here we review the suite of emerging biochemical paleodietary tools based on stable isotope and trace element archives within fossil calcified tissues. We critically assess their contribution to advancing our understanding of australopith, early Homo, and Neanderthal diets within the broader context of non-biogeochemical techniques for dietary reconstruction, such as morphology and dental microwear analysis. The most significant outcomes to date are the demonstration of high trophic-level diets among Neanderthals and Late Pleistocene modern humans in Glacial Europe, and the persistent inclusion of C4 grass-related foods in the diets of Plio-Pleistocene hominins in South Africa. Such studies clearly show the promise of biogeochemical techniques for testing hypotheses about the diets of early hominins. Nevertheless, we argue that more contextual data from modern ecosystem and experimental studies are needed if we are to fully realize their potential.

KEY WORDS fossil teeth; stable isotopes of carbon; nitrogen and oxygen; trace elements; microwear; dental morphology; australopiths; Homo; Neanderthals

OELZE 2011

Vicky M. Oelze et al., *Exploring the contribution and significance of animal protein in the diet of bonobos by stable isotope ratio analysis of hair*. *PNAS* **108** (2011), 9792–9797.

[pnas108-09792-Supplement.pdf](https://doi.org/10.1073/pnas.108-09792-Supplement.pdf)

Vicky M. Oelze, Benjamin T. Fuller, Michael P. Richards, Barbara Fruth, Martin Surbeck, Jean-Jacques Hublin and Gottfried Hohmann

In primates, age, sex, and social status can strongly influence access to food resources. In Pan, these criteria are assumed to influence access to vertebrate meat. However, the significance of meat in terms of its role in the nutrition of Pan is still debated. Here we

present a study using stable carbon and nitrogen isotope ratios in hair samples from habituated, wild bonobos (*Pan paniscus*) to explore these issues. Over a period of 5 months, hair samples were collected from fresh bonobo nests at LuiKotale, Democratic Republic of Congo. Hair samples were assigned to known individuals and were of sufficient length to allow the evaluation of isotopic variation over several months. Samples of plant foods and sympatric fauna were also analyzed. The $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ results of the bonobo hair were remarkably homogeneous over time and for the group as a whole. There are no differences in diet between the sexes. Within the group of males, however, there was a positive correlation between dominance status and $\delta^{15}\text{N}$. The isotopic data indicate that the contribution of fauna to bonobo diet is marginal and that plant food is the dietary protein source. In only some cases did elevated $\delta^{15}\text{N}$ hair values correlate with observed faunivory and not correspond to the $\delta^{15}\text{N}$ measured in the dominant plant foods. Given the large variation in hunting and meat eating of *Pan* across the African continent, the detection of seasonal changes in faunivory by elevated $\delta^{15}\text{N}$ values in sectioned ape hair is a promising approach.

feeding ecology | great apes

UGAN 2011

Andrew Ugan & Joan Coltrain, *Variation in collagen stable nitrogen values in black-tailed jackrabbits (*Lepus californicus*) in relation to small-scale differences in climate, soil, and topography*. [Journal of Archaeological Science](#) **38** (2011), 1417–1429.

Longstanding observations about the relationship between increasing aridity and ^{15}N enrichment in mammalian collagen values have led to an interest in their use as a paleoclimatic marker. Here we report on variability in collagen nitrogen values from five modern and two archaeological samples of blacktailed jackrabbits (*Lepus californicus*) from the eastern Great Basin of the United States ($N=178$ individuals). Nitrogen $\delta^{15}\text{N}$ values were highly variable within all samples. Modern samples showed significant differences despite similarities in average annual precipitation and temperature. Archaeological samples were indistinguishable from each other or from modern samples taken from the same area despite independent evidence for differences in precipitation for the two prehistoric periods considered. Differences between modern samples were most strongly associated with soil characteristics. We discuss these results in light of their relationship with topography and vegetation and highlight their implications for archaeological applications of stable nitrogen analyses in several contexts.

Keywords: Zooarchaeology; Paleoclimate; Stable isotopes; Stable nitrogen; Great basin; Small mammal; Lagomorph

Klima

D'ANDREA 2011

William J. D'Andrea, Yongsong Huang, Sherilyn C. Fritz & N. John Anderson, *Abrupt Holocene climate change as an important factor for human migration in West Greenland*. [PNAS](#) **108** (2011), 9765–9769.

[pnas108-09765-Supplement.pdf](#)

West Greenland has had multiple episodes of human colonization and cultural transitions over the past 4,500 y. However, the explanations for these large-scale human migrations are varied, including climatic factors, resistance to adaptation, economic marginalization, mercantile exploration, and hostile neighborhood interactions. Evaluating the potential role of climate change is complicated by the lack of quantitative paleoclimate reconstructions near settlement areas and by the relative stability of Holocene temperature derived from ice cores atop the Greenland ice sheet. Here we present high-resolution records of

temperature over the past 5,600 y based on alkenone unsaturation in sediments of two lakes in West Greenland. We find that major temperature changes in the past 4,500 y occurred abruptly (within decades), and were coeval in timing with the archaeological records of settlement and abandonment of the Saqqaq, Dorset, and Norse cultures, which suggests that abrupt temperature changes profoundly impacted human civilization in the region. Temperature variations in West Greenland display an antiphased relationship to temperature changes in Ireland over centennial to millennial timescales, resembling the interannual to multidecadal temperature seesaw associated with the North Atlantic Oscillation.

anthropology | Arctic | biomarker | paleoclimatology

Mittelpaläolithikum

PAWLIK 2011

Alfred F. Pawlik & Jürgen P. Thissen, *Hafted armatures and multi-component tool design at the Micoquian site of Inden-Altdorf, Germany*. *Journal of Archaeological Science* **38** (2011), 1699–1708.

Excavation of the Micoquian site Inden-Altdorf (Weisweiler-124) near the former German capital Bonn in western Germany has revealed the first valid open-site habitation features with hut-like structures and associated hearths for the Middle Palaeolithic in Central Europe. It has been dated to the Eemian interglacial (OIS 5e), a warm interglacial between 128 and 115 ka BP. Various wear traces and especially organic residues have been detected on a large number of stone tools using microscopic use-wear analysis of lithics recovered from the site. A multi-level analysis developed through an experimental framework and archaeological study using optical light microscopes, scanning electron microscopes and energy-dispersive X-ray microprobes identified the adhering residues as birch pitch. Birch pitch is the oldest synthetically produced material and was used as an adhesive to attach lithic implements to wooden shafts. While such hafting technology is commonly associated with modern humans in the Upper Palaeolithic, the birch pitch residues found on the Micoquian tools of Inden-Altdorf suggest that hafting technologies and the frequent use of multi-component tools already existed in the Middle Palaeolithic, c. 120 ka BP in central Europe.

Keywords: Hafting residues; Micro-wear analysis; Lithic technology; Behavioural modernity; Micoquian; Eemian; Central Europe

Neolithikum

LACAN 2011

Marie Lacan et al., *Ancient DNA reveals male diffusion through the Neolithic Mediterranean route*. *PNAS* **108** (2011), 9788–9791.

pnas108-09788-Supplement.pdf

Marie Lacan, Christine Keyser, François-Xavier Ricaut, Nicolas Brucato, Francis Duranthon, Jean Guilaine, Eric Crubézy and Bertrand Ludes

The Neolithic is a key period in the history of the European settlement. Although archaeological and present-day genetic data suggest several hypotheses regarding the human migration patterns at this period, validation of these hypotheses with the use of ancient genetic data has been limited. In this context, we studied DNA extracted from 53 individuals buried in a necropolis used by a French local community 5,000 y ago.

The relatively good DNA preservation of the samples allowed us to obtain autosomal, Y-chromosomal, and/or mtDNA data for 29 of the 53 samples studied. From these datasets, we established close parental relationships within the necropolis and determined

maternal and paternal lineages as well as the absence of an allele associated with lactase persistence, probably carried by Neolithic cultures of central Europe. Our study provides an integrative view of the genetic past in southern France at the end of the Neolithic period. Furthermore, the Y-haplotype lineages characterized and the study of their current repartition in European populations confirm a greater influence of the Mediterranean than the Central European route in the peopling of southern Europe during the Neolithic transition.

Physik

ADAMIC 2011

Lada Adamic, *Unzipping Zipf's law*. *nature* **474** (2011), 164–165.

One mathematical model can account for power-law distributions in a variety of systems. Eschewing system-specific assumptions, it utilizes a shared feature of the observed distributions: they all describe the division of items into groups.

Perhaps the only thing more abundant in both natural and man-made systems than power laws are the models that have been developed to explain them. Writing in the *New Journal of Physics*, Baek et al.1 argue that because such models depend on the specifics of each system, they fail to capture the shared cause of this regularity. The authors instead propose a general model that can be applied to any division of items into groups, and that can, for example, account for Zipf's law of word frequencies in text, the popularity of last names, and city and county populations.

BAEK 2011

Seung Ki Baek, Sebastian Bernhardsson & Petter Minnhagen, *Zipf's law unzipped*. *New Journal of Physics* **13** (2011), 43004. <<http://dx.doi.org/10.1088/1367-2630/13/4/043004>>.

Why does Zipf's law give a good description of data from seemingly completely unrelated phenomena? Here it is argued that the reason is that they can all be described as outcomes of a ubiquitous random group division: the elements can be citizens of a country and the groups family names, or the elements can be all the words making up a novel and the groups the unique words, or the elements could be inhabitants and the groups the cities in a country and so on. A random group formation (RGF) is presented from which a Bayesian estimate is obtained based on minimal information: it provides the best prediction for the number of groups with k elements, given the total number of elements, groups and the number of elements in the largest group. For each specification of these three values, the RGF predicts a unique group distribution $N(k) \sim \exp(-bk)/k^\gamma$, where the power-law index γ is a unique function of the same three values. The universality of the result is made possible by the fact that no system-specific assumptions are made about the mechanism responsible for the group division. The direct relation between γ and the total number of elements, groups and the number of elements in the largest group is calculated. The predictive power of the RGF model is demonstrated by direct comparison with data from a variety of systems. It is shown that γ usually takes values in the interval $1 \leq \gamma \leq 2$ and that the value for a given phenomenon depends in a systematic way on the total size of the dataset. The results are put in the context of earlier discussions on Zipf's and Gibrat's laws, $N(k) \sim k^{-2}$ and the connection between growth models and RGF is elucidated.

Religion

ATRAN 2004

Scott Atran & Ara Norenzayan, *Religion's evolutionary landscape: Counterin-*

tuition, commitment, compassion, communion. [Behavioral and Brain Sciences 27 \(2004\), 713–770.](#)

Religion is not an evolutionary adaptation per se, but a recurring cultural by-product of the complex evolutionary landscape that sets cognitive, emotional, and material conditions for ordinary human interactions. Religion exploits only ordinary cognitive processes to passionately display costly devotion to counterintuitive worlds governed by supernatural agents. The conceptual foundations of religion are intuitively given by task-specific panhuman cognitive domains, including folkmechanics, folkbiology, and folkpsychology. Core religious beliefs minimally violate ordinary notions about how the world is, with all of its inescapable problems, thus enabling people to imagine minimally impossible supernatural worlds that solve existential problems, including death and deception. Here the focus is on folkpsychology and agency. A key feature of the supernatural agent concepts common to all religions is the triggering of an “Innate Releasing Mechanism,” or “agency detector,” whose proper (naturally selected) domain encompasses animate objects relevant to hominid survival - such as predators, protectors, and prey - but which actually extends to moving dots on computer screens, voices in wind, and faces on clouds. Folkpsychology also crucially involves metarepresentation, which makes deception possible and threatens any social order. However, these same metacognitive capacities provide the hope and promise of open-ended solutions through representations of counterfactual supernatural worlds that cannot be logically or empirically verified or falsified. Because religious beliefs cannot be deductively or inductively validated, validation occurs only by ritually addressing the very emotions motivating religion. Cross-cultural experimental evidence encourages these claims.

Keywords: agency; death anxiety; evolution; folkpsychology; Maya; memory; metarepresentation; morality; religion; supernatural

CHAVES 1999

Mark Chaves, Mary Ellen Konieczny, Kraig Beyerlein & Emily Barman, *The National Congregations Study: Background, Methods, and Selected Results.* [Journal for the Scientific Study of Religion 38 \(1999\), 458–476.](#)

The National Congregations Study (NCS) was conducted in conjunction with the 1998 General Social Survey (GSS). The 1998 GSS asked respondents who attend religious services to name their religious congregation, thus generating a nationally representative sample of religious congregations. Data about these congregations were collected via a one-hour interview with one key informant – a minister, priest, rabbi, or other staff person or leader – from 1236 congregations. Information was gathered about multiple aspects of congregations’ social composition, structure, activities, and programming. This article describes NCS methodology and presents selected univariate results in four areas: denominational ties, size, political activities, and worship practices.

NORENZAYAN 2006

Ara Norenzayan & Ian G. Hansen, *Belief in Supernatural Agents in the Face of Death.* [Personality and Social Psychology Bulletin 32 \(2006\), 174–187.](#)

Four studies examined whether awareness of mortality intensifies belief in supernatural agents among North Americans. In Studies 1 and 2, mortality salience led to more religiosity, stronger belief in God, and in divine intervention. In Studies 3 and 4, mortality salience increased supernatural agent beliefs even when supernatural agency was presented in a culturally alien context (divine Buddha in Study 3, Shamanic spirits in Study 4). The latter effects occurred primarily among the religiously affiliated, who were predominantly Christian. Implications for the role of supernatural agent beliefs in assuaging mortality concerns are discussed.

Keywords: religion; supernatural agents; mortality salience; culture; existential concerns