

## Literatur

### Aktuell

#### AMBRASAT 2014

Jens Ambrasat, Christian von Scheve, Markus Conrad, Gesche Schauburg & Tobias Schröder, *Consensus and stratification in the affective meaning of human sociality*. [PNAS 111 \(2014\), 8001–8006](#).

We investigate intrasocietal consensus and variation in affective meanings of concepts related to authority and community, two elementary forms of human sociality. Survey participants ( $n = 2,849$ ) from different socioeconomic status (SES) groups in German society provided ratings of 909 social concepts along three basic dimensions of affective meaning. Results show widespread consensus on these meanings within society and demonstrate that a meaningful structure of socially shared knowledge emerges from organizing concepts according to their affective similarity. The consensus finding is further qualified by evidence for subtle systematic variation along SES differences. In relation to affectively neutral words, high-status individuals evaluate intimacy-related and socially desirable concepts as less positive and powerful than middle- or low-status individuals, while perceiving antisocial concepts as relatively more threatening. This systematic variation across SES groups suggests that the affective meaning of sociality is to some degree a function of social stratification.

cultural consensus | affect control theory | large-scale survey | cluster analysis | mixed-effects models

#### COUZIN-FRANKEL 2014

Jennifer Couzin-Frankel, *Needed: More Females in Animal and Cell Studies*. [science 344 \(2014\), 679](#).

“You have this real lack of understanding of female biology,” says Annaliese Beery, a neuroendocrinologist at Smith College in Northampton, Massachusetts.

#### DOMINGUE 2014

Benjamin W. Domingue, Jason Fletcher, Dalton Conley & Jason D. Boardman, *Genetic and educational assortative mating among US adults*. [PNAS 111 \(2014\), 7996–8000](#).

Understanding the social and biological mechanisms that lead to homogamy (similar individuals marrying one another) has been a long-standing issue across many fields of scientific inquiry. Using a nationally representative sample of non-Hispanic white US adults from the Health and Retirement Study and information from 1.7 million single-nucleotide polymorphisms, we compare genetic similarity among married couples to noncoupled pairs in the population. We provide evidence for genetic assortative mating in this population but the strength of this association is substantially smaller than the strength of educational assortative mating in the same sample. Furthermore, genetic similarity explains at most 10% of the assortative mating by education levels. Results are replicated using comparable data from the Framingham Heart Study.

homophily | random mating | genetic homogamy

## GANTMAN 2014

Ana P. Gantman & Jay J. Van Bavel, *The moral pop-out effect: Enhanced perceptual awareness of morally relevant stimuli*. *Cognition* **132** (2014), 22–29.

People perceive religious and moral iconography in ambiguous objects, ranging from grilled cheese to bird feces. In the current research, we examined whether moral concerns can shape awareness of perceptually ambiguous stimuli. In three experiments, we presented masked moral and non-moral words around the threshold for conscious awareness as part of a lexical decision task. Participants correctly identified moral words more frequently than non-moral words—a phenomenon we term the moral pop-out effect. The moral pop-out effect was only evident when stimuli were presented at durations that made them perceptually ambiguous, but not when the stimuli were presented too quickly to perceive or slowly enough to easily perceive. The moral pop-out effect was not moderated by exposure to harm and cannot be explained by differences in arousal, valence, or extremity. Although most models of moral psychology assume the initial perception of moral stimuli, our research suggests that moral beliefs and values may shape perceptual awareness.

Keywords: Morality | Awareness | Vision | Perception | Ambiguity

## GAO 2014

Lei Gao, Haibo Hu, Xuelin Sui, Changle Chen, & Qianwang Chen, *One for Two, Conversion of Waste Chicken Feathers to Carbon Microspheres and  $(\text{NH}_4)\text{HCO}_3$* . *Environmental Science & Technology* **48** (2014), 6500–6507.

EnvSciTec48-06500-Supplement.pdf

Pyrolysis of 1 g of waste chicken feathers (quills and barbs) in supercritical carbon dioxide (sc-CO<sub>2</sub>) system at 600 °C for 3 h leads to the formation of 0.25 g well-shaped carbon microspheres with diameters of 1–5 μm and 0.26 g ammonium bicarbonate ((NH<sub>4</sub>)HCO<sub>3</sub>). The products were characterized by powder X-ray diffraction (XRD), Field emission scanning electron microscopy (FE-SEM), Raman spectroscopic, FT-IR spectrum, X-ray electron spectroscopy (XPS), and N<sub>2</sub> adsorption/desorption measurements. The obtained carbon microspheres displayed great superhydrophobicity as fabric coatings materials, with the water contact angle of up to  $165.2 \pm 2.5^\circ$ . The strategy is simple, efficient, does not require any toxic chemicals or catalysts, and generates two valuable materials at the same time. Moreover, other nitrogen-containing materials (such as nylon and amino acids) can also be converted to carbon microspheres and (NH<sub>4</sub>)HCO<sub>3</sub> in the sc-CO<sub>2</sub> system. This provides a simple strategy to extract the nitrogen content from natural and man-made waste materials and generate (NH<sub>4</sub>)HCO<sub>3</sub> as fertilizer.

## Amerika

## CHATTERS 2014

James C. Chatters et al., *Late Pleistocene Human Skeleton and mtDNA Link Paleoamericans and Modern Native Americans*. *science* **344** (2014), 750–754.

s344-0750-Supplement.pdf

James C. Chatters, Douglas J. Kennett, Yemane Asmerom, Brian M. Kemp, Victor Polyak, Alberto Nava Blank, Patricia A. Beddows, Eduard Reinhardt, Joaquin Arroyo-Cabrales, Deborah A. Bolnick, Ripan S. Malhi, Brendan J. Culleton,

Pilar Luna Erreguerena, Dominique Rissolo, Shanti Morell-Hart & Thomas W. Stafford Jr.

Because of differences in craniofacial morphology and dentition between the earliest American skeletons and modern Native Americans, separate origins have been postulated for them, despite genetic evidence to the contrary. We describe a near-complete human skeleton with an intact cranium and preserved DNA found with extinct fauna in a submerged cave on Mexico's Yucatan Peninsula. This skeleton dates to between 13,000 and 12,000 calendar years ago and has Paleoamerican craniofacial characteristics and a Beringian-derived mitochondrial DNA (mtDNA) haplogroup (D1). Thus, the differences between Paleoamericans and Native Americans probably resulted from in situ evolution rather than separate ancestry.

#### GIBBONS 2014

Ann Gibbons, *New Sites Bring the Earliest Americans Out of the Shadows*. [science](#) **344** (2014), 567–568.

A generation ago, most researchers thought that the first Americans were the Clovis big-game hunters, who left their distinctive fluted spear points in the open basins and ranges of North America starting about 13,000 years ago. Few believed the scattered claims for Paleoindians before Clovis, and the doubts squelched funding for research that might have sped the acceptance of older sites. But over time, the evidence for preClovis sites became incontrovertible. “I think it’s irrefutable that by 13,000 years ago, South America was occupied by people with their own cultural and technological tradition,” Waters says. “It was not Clovis people marching south.” Adds Rademaker: “What we have is these ancient people emerging everywhere.”

## Anthropologie

#### ROCHE 1999

H. Roche, A. Delagnes, J.-P. Brugal, C. Feibel, M. Kibunjia, V. Mourre & P.-J. Texier, *Early hominid stone tool production and technical skill 2.34 Myr ago in West Turkana, Kenya*. [nature](#) **399** (1999), 57–60.

Well-documented Pliocene archaeological sites are exceptional. At present they are known only in East Africa, in the Hadar and Shungura formations of Ethiopia and in the Nachukui formation of Kenya. Intensive archeological survey and a series of test excavations conducted in the Nachukui formation since 1987 have led to the discovery of more than 25 archaeological sites whose ages range from 2.34 to 0.7 million years before present (Myr), and to the extensive excavation of two 2.34-Myr sites, Lokalalei 1 in 1991 and Lokalalei 2C in 1997. Lokalalei 2C yielded nearly 3,000 archaeological finds from a context of such good preservation that it was possible to reconstitute more than 60 sets of complementary matching stone artefacts. These refits, predating the Koobi Fora refits by 500 kyr, are the oldest ever studied. Here we describe a technological analysis of the core reduction sequences, based on these refits, which allows unprecedented accuracy in the understanding of flake production processes. We can thus demonstrate greater cognitive capacity and motor skill than previously assumed for early hominids, and highlight the diversity of Pliocene technical behaviour.

## Biologie

DEAN 2006

M. E. Dean, ‘*An innocent deception*’: placebo controls in the St Petersburg homeopathy trial, 1829–1830. *JRSocMed* **99** (2006), 375–376.

The ‘no treatment’ patients, in fact, did better than those in both the allopathic and homeopathic wards. The trial had important implications not just for homeopathy but also for the excessive allopathic drugging and bleeding that was prevalent. As a result of the report, homeopathy was banned in Russia for some years, although allopathy was not.

SANDOM 2014

Christopher Sandom, Søren Faurby, Brody Sandel & Jens-Christian Svenning, *Global late Quaternary megafauna extinctions linked to humans, not climate change*. *Proc. Royal Society B* **281** (2014), 20133254.

ProcRSocB281-20133254-Supplement1.docx, ProcRSocB281-20133254-Supplement2.docx, ProcRSocB281-20133254-Supplement3.xls, ProcRSocB281-20133254-Supplement4.xls, ProcRSocB281-20133254-Supplement5.rtf

The late Quaternary megafauna extinction was a severe global-scale event. Two factors, climate change and modern humans, have received broad support as the primary drivers, but their absolute and relative importance remains controversial. To date, focus has been on the extinction chronology of individual or small groups of species, specific geographical regions or macroscale studies at very coarse geographical and taxonomic resolution, limiting the possibility of adequately testing the proposed hypotheses. We present, to our knowledge, the first global analysis of this extinction based on comprehensive country-level data on the geographical distribution of all large mammal species (more than or equal to 10 kg) that have gone globally or continentally extinct between the beginning of the Last Interglacial at 132 000 years BP and the late Holocene 1000 years BP, testing the relative roles played by glacial–interglacial climate change and humans. We show that the severity of extinction is strongly tied to hominin palaeobiogeography, with at most a weak, Eurasia-specific link to climate change. This first species-level macroscale analysis at relatively high geographical resolution provides strong support for modern humans as the primary driver of the worldwide megafauna losses during the late Quaternary.

**Subject Areas:** palaeontology, ecology

**Keywords:** climate change, macroecology, megafauna extinction, overkill, palaeoecology

## Grundlagen

BLACK 2014

Stephen L. Black & Alston V. Thoms, *Hunter-gatherer earth ovens in the archaeological record: fundamental concepts*. *American Antiquity* **79** (2014), 204–226.

Remains of earth ovens with rock heating elements of various sizes and configurations are common at hunter-gatherer sites around the world. They span the last 30,000 years in the Old World and some 10,000 years in the New World. Although various foods were baked in these ovens, plants predominate. Earth ovens are ethnographically well documented as familysize and bulk cooking facilities, but related technology and its archaeological signatures remain poorly understood

and understudied. These ubiquitous features are often mischaracterized as generic cooking facilities termed hearths. It is proposed that, in fact, most rock “hearths” are heating elements of earth ovens. Reliable identification and interpretation of earth ovens requires documentation of heating elements, pit structure, rock linings, and various remnants thereof. Fundamental technological concepts for investigating their archaeological signatures include thermodynamics, construction designs, and life cycles in systemic context, as informed by ethnographic, archaeological, and experimental data. Earth oven technology explains well the primary purpose of labor-intensive thermal storage for long-term cooking and conserving fuel. Information from the extensive archaeological record of earth ovens on the Edwards Plateau of south-central North America illustrates these points.

#### SHENNAN 2007

Stephen Shennan & Kevan Edinborough, *Prehistoric population history, From the Late Glacial to the Late Neolithic in Central and Northern Europe*. [Journal of Archaeological Science](#) **34** (2007), 1339–1345.

Summed probability distributions of radiocarbon dates are used to make inferences about the history of population fluctuations from the Mesolithic to the late Neolithic for three countries in central and northern Europe: Germany, Poland and Denmark. Two different methods of summing the dates produce very similar overall patterns. The validity of the aggregate patterns is supported by a number of regional studies based on other lines of evidence. The dramatic rise in population associated with the arrival of farming in these areas that is visible in the date distributions is not surprising. Much more unexpected are the fluctuations during the course of the Neolithic, and especially the indications of a drop in population at the end of the LBK early Neolithic that lasted for nearly a millennium. Possible reasons for the pattern are discussed.

Keywords: Mesolithic; Neolithic; Radiocarbon dates; Population history

#### WADE 2014

Lizzie Wade, *Beyond the Temples*. [science](#) **344** (2014), 684–686.

Turning their backs on spectacular monuments, archaeologists are studying ordinary households to uncover the daily rhythms of long-lost cities.

## Isotope

#### SZPAK 2014

Paul Szpak, Fred J. Longstaffe, Jean-François Millaire & Christine D. White, *Large variation in nitrogen isotopic composition of a fertilized legume*. [Journal of Archaeological Science](#) **45** (2014), 72–79.

JAS045-0072-Supplement.pdf

Plant nitrogen isotopic compositions are highly variable and are influenced by a diversity of environmental and anthropogenic factors, including the application of animal-derived fertilizers. Legumes that acquire most of their nitrogen from atmospheric N<sub>2</sub> (rather than mineralized soil nitrogen) tend to have relatively low d<sup>15</sup>N values (consistently around 0 ‰), and it has been presumed that their d<sup>15</sup>N values are largely or wholly unaffected by fertilization. This study presents nitrogen isotopic data from leguminous (garden bean, *Phaseolus vulgaris*) and non-leguminous (summer squash, *Cucurbita pepo*) plants subjected to seabird guano fertilization while growing under controlled conditions. Both bean and squash tissue d<sup>15</sup>N values were substantially increased by seabird guano fertilization: +16.3 to +19.2 ‰ for bean and +19.6 to +24.5 ‰ for squash. The results of this

study demonstrate that the enrichment in plant  $^{15}\text{N}$  resulting from seabird guano fertilization occurs consistently in non-maize species. Moreover, it demonstrates that under conditions of high soil nitrogen availability, leguminous plants may obtain a substantial portion of their nitrogen through the uptake of inorganic soil nitrogen (ammonium and nitrate), rather than atmospheric  $\text{N}_2$ . In general, where the  $\delta^{15}\text{N}$  values of fertilizers differ substantially from that of endogenous soil nitrogen and mineralized nitrogen derived from the fertilizer is readily available, a significant manuring effect can be expected in leguminous plants.

Keywords: Stable isotopes | Nitrogen | Fertilizer | Seabird guano | Legumes | Pulses | Paleodiet

## Jungpaläolithikum

BOUDADI-MALIGNE 2014

Myriam Boudadi-Maligne & Gilles Escarguel, *A biometric re-evaluation of recent claims for Early Upper Palaeolithic wolf domestication in Eurasia*. [Journal of Archaeological Science](#) **45** (2014), 80–89.

The timing of wolf domestication remains a subject of intense debate, especially as recent genetic, morphological and radiometric analyses of relevant skeletal material apparently demonstrate the presence of canids on Eurasian Early Upper Palaeolithic sites to be more widespread than previously envisaged. However, numerous questions still surround wolf domestication, not least of which is satisfactorily explaining the process whereby this social carnivore progressively became a ‘member’ of human societies.

The analysis presented here emphasises the substantial variability of both modern and Pleistocene wolf populations, and in doing so, further highlights the need for caution when considering species attributions and, more particularly, accurately identifying dog rather than wolf remains in archaeological assemblages. A combination of biometric and morphological data provides a reliable basis for critiquing a series of recent publications purportedly demonstrating the presence of dogs alongside humans during the Early Upper Palaeolithic.

Keywords: Dogs | Wolves | Palaeolithic | Morphometry | Variability size index

## Klima

AHN 2014

Jinho Ahn & Edward J. Brook, *Siple Dome ice reveals two modes of millennial  $\text{CO}_2$  change during the last ice age*. [Nature Communications](#) **5** (2014), 3723. DOI:10.1038/ncomms4723.

NatComm05-3723-Supplement.xlsx

Reconstruction of atmospheric  $\text{CO}_2$  during times of past abrupt climate change may help us better understand climate-carbon cycle feedbacks. Previous ice core studies reveal simultaneous increases in atmospheric  $\text{CO}_2$  and Antarctic temperature during times when Greenland and the northern hemisphere experienced very long, cold stadial conditions during the last ice age. Whether this relationship extends to all of the numerous stadial events in the Greenland ice core record has not been clear. Here we present a high-resolution record of atmospheric  $\text{CO}_2$  from the Siple Dome ice core, Antarctica for part of the last ice age. We find that  $\text{CO}_2$  does not significantly change during the short Greenlandic stadial events, implying that the climate system perturbation that produced the short stadials was not strong enough to substantially alter the carbon cycle.

#### BELKNAP 2014

Daniel F. Belknap & Daniel H. Sandweiss, *Effect of the Spanish Conquest on coastal change in Northwestern Peru*. [PNAS 111 \(2014\), 7986–7989](#).

When Francisco Pizarro and his small band of Spanish conquistadores landed in northern Peru in A.D. 1532 to begin their conquest of the vast Inca Empire, they initiated profound changes in the culture, language, technology, economics, and demography of western South America. They also altered anthropogenically modulated processes of shoreline change that had functioned for millennia. Beginning with the extirpation of local cultures as a result of the Spanish Conquest, and continuing through today, the intersection of demography, economy, and El Niño-driven beachridge formation on the Chira beach-ridge plain of Northwestern Peru has changed the nature of coastal evolution in this region. A similar event may have occurred at about 2800 calibrated y B.P. in association with increased El Niño frequency.

#### JOUGHIN 2014

Ian Joughin, Benjamin E. Smith & Brooke Medley, *Marine Ice Sheet Collapse Potentially Under Way for the Thwaites Glacier Basin, West Antarctica*. [science 344 \(2014\), 735–738](#).

[s344-0735-Supplement.pdf](#)

Resting atop a deep marine basin, the West Antarctic Ice Sheet has long been considered prone to instability. Using a numerical model, we investigated the sensitivity of Thwaites Glacier to ocean melt and whether its unstable retreat is already under way. Our model reproduces observed losses when forced with ocean melt comparable to estimates. Simulated losses are moderate (<0.25 mm per year at sea level) over the 21st century but generally increase thereafter. Except possibly for the lowest-melt scenario, the simulations indicate that early-stage collapse has begun. Less certain is the time scale, with the onset of rapid (>1 mm per year of sea-level rise) collapse in the different simulations within the range of 200 to 900 years.

#### KEEGAN 2014

Kaitlin M. Keegan, Mary R. Albert, Joseph R. McConnell & Ian Baker, *Climate change and forest fires synergistically drive widespread melt events of the Greenland Ice Sheet*. [PNAS 111 \(2014\), 7964–7967](#).

In July 2012, over 97% of the Greenland Ice Sheet experienced surface melt, the first widespread melt during the era of satellite remote sensing. Analysis of six Greenland shallow firn cores from the dry snow region confirms that the most recent prior widespread melt occurred in 1889. A firn core from the center of the ice sheet demonstrated that exceptionally warm temperatures combined with black carbon sediments from Northern Hemisphere forest fires reduced albedo below a critical threshold in the dry snow region, and caused the melting events in both 1889 and 2012. We use these data to project the frequency of widespread melt into the year 2100. Since Arctic temperatures and the frequency of forest fires are both expected to rise with climate change, our results suggest that widespread melt events on the Greenland Ice Sheet may begin to occur almost annually by the end of century. These events are likely to alter the surface mass balance of the ice sheet, leaving the surface susceptible to further melting.

#### RIGNOT 2014

E. Rignot, J. Mouginot, M. Morlighem, H. Seroussi & B. Scheuchl, *Widespread, rapid grounding line retreat of Pine Island, Thwaites, Smith,*

and Kohler glaciers, West Antarctica, from 1992 to 2011. *Geophysical Research Letters* (2014), preprint, 1–8. DOI:10.1002/2014GL060140.

GeoResLet2014-Rignot-Supplement1.pdf, GeoResLet2014-Rignot-Supplement2.pdf, GeoResLet2014-Rignot-Supplement3.pdf, GeoResLet2014-Rignot-Supplement4.gif, GeoResLet2014-Rignot-Supplement5.gif, GeoResLet2014-Rignot-Supplement6.jpg, GeoResLet2014-Rignot-Supplement7.jpg

We measure the grounding line retreat of glaciers draining the Amundsen Sea sector of West Antarctica using Earth Remote Sensing (ERS-1/2) satellite radar interferometry from 1992 to 2011. Pine Island Glacier retreated 31 km at its center, with most retreat in 2005–2009 when the glacier ungrounded from its ice plain. Thwaites Glacier retreated 14 km along its fast flow core and 1 to 9 km along the sides. Haynes Glacier retreated 10 km along its flanks. Smith/Kohler glaciers retreated the most, 35 km along its ice plain, and its ice shelf pinning points are vanishing. These rapid retreats proceed along regions of retrograde bed elevation mapped at a high spatial resolution using a mass conservation technique that removes residual ambiguities from prior mappings. Upstream of the 2011 grounding line positions, we find no major bed obstacle that would prevent the glaciers from further retreat and draw down the entire basin. These observations of change in velocity and grounding line retreat therefore concur with recent ice sheet model simulations to indicate that this sector of West Antarctica has developed a marine instability. We conclude that this sector of West Antarctica is undergoing a marine ice sheet instability that will significantly contribute to sea level rise in decades to centuries to come.

#### SUMNER 2014

Thomas Sumner, *No Stopping the Collapse of West Antarctic Ice Sheet. science* **344** (2014), 683.

In a paper on page 735, they report that in as few as 2 centuries Thwaites Glacier’s edge will recede past an underwater ridge now stalling its retreat. Their models suggest that the glacier will then cascade into rapid collapse. [...] “The next stable state for the West Antarctic Ice Sheet might be no ice sheet at all,” says the Science paper’s lead author, glaciologist Ian Joughin of the University of Washington (UW), Seattle.

#### WICKS 2014

Karen Wicks & Steven Mithen, *The impact of the abrupt 8.2 ka cold event on the Mesolithic population of western Scotland, A Bayesian chronological analysis using ‘activity events’ as a population proxy. Journal of Archaeological Science* **45** (2014), 240–269.

JAS045-0240-Supplement.xlsx

The potential impact of the abrupt 8.2 ka cold event on human demography, settlement patterns and culture in Europe and the Near East has emerged as a key theme in current discussion and debate. We test whether this event had an impact on the Mesolithic population of western Scotland, a case study located within the North Atlantic region where the environmental impact of the 8.2 ka event is likely to have been the most severe. By undertaking a Bayesian analysis of the radiocarbon record and using the number of activity events as a proxy for the size of the human population, we find evidence for a dramatic reduction in the Mesolithic population synchronous with the 8.2 ka event. We interpret this as reflecting the demographic collapse of a low density population that lacked the capability to adapt to the rapid onset of new environmental conditions. This impact of the 8.2 ka event in the North Atlantic region lends credence to the

possibility of a similar impact on populations in Continental Europe and the Near East.

Keywords: 8.2 ka event | Bayesian chronological analysis | Mesolithic population collapse | Environmental change | Western Scotland

## Kultur

HENRICH 2014

Joseph Henrich, *Rice, Psychology, and Innovation*. [science 344 \(2014\), 593–594](#).

People in wheat-cultivating areas of China are more individualistic and analytical than those in rice-cultivating areas.

The effects were big: The average number of analytical matches increased by about 56 % in going from all-rice to no-rice cultivation. The results hold both nationwide and for the counties in the central provinces along the rice-wheat (north-south) border, where other differences are minimized.

TALHELM 2014

T. Talhelm, X. Zhang, S. Oishi, C. Shimin, D. Duan, X. Lan & S. Kitayama, *Large-Scale Psychological Differences Within China Explained by Rice Versus Wheat Agriculture*. [science 344 \(2014\), 603–608](#).  
[s344-0603-Supplement.pdf](#)

Cross-cultural psychologists have mostly contrasted East Asia with the West. However, this study shows that there are major psychological differences within China. We propose that a history of farming rice makes cultures more interdependent, whereas farming wheat makes cultures more independent, and these agricultural legacies continue to affect people in the modern world. We tested 1162 Han Chinese participants in six sites and found that rice-growing southern China is more interdependent and holistic-thinking than the wheat-growing north. To control for confounds like climate, we tested people from neighboring counties along the rice-wheat border and found differences that were just as large. We also find that modernization and pathogen prevalence theories do not fit the data.

## Methoden

GALETA 2014

Patrik Galeta, Jaroslav Bruzek & Martina Lázničková-Galetová, *Is sex estimation from handprints in prehistoric cave art reliable? A view from biological and forensic anthropology*. [Journal of Archaeological Science 45 \(2014\), 141–149](#).

Estimation the sex of the creators of rock art scenes from handprints left in prehistoric caves has been of growing interest in archaeology in recent years. It has been suggested that both males and females were involved in symbolic activities, which has shaped the view of gender roles in prehistory. The experience from biological and forensic anthropology suggests, however, that using recent standards for the sex estimation of prehistoric handprints may be prone to errors. The aim of this study is to document the accuracy and reliability of sex estimation from handprints in a recent European sample and to assess the applicability of recent standards to the sex prediction of prehistoric artists. Our sample consists from 100

handprints of recent males and females from southern France. The sex of handprints is estimated by two discriminant functions using five direct measurements (DFdirect) and two indices (DFindex). The results showed that DFdirect correctly predicts sex in 92 % of recent handprints but only about half the handprints can be classified with a certainty higher than 95 %. The accuracy of DFindex is only 63 % and cannot be successfully applied to sex estimation. We further suggest that the accuracy of both functions is overestimated due to the correct classification of handprints by chance and that especially DFindex is able to predict sex even in randomised datasets with no sexual differences. Finally, we demonstrate that both DFdirect and DFindex perform poorly when they are applied to population with hand size different from that used to derive them, i.e. that functions do not generalise across different populations and time periods. We argue that, given the lack of information about hand size in the population of prehistoric artists, recent attempts to estimate sex from handprints depicted in Palaeolithic cave art using morphometric data from recent populations is inevitably associated with unpredictable bias.

**Keywords:** Handprints | Rock art | Sex estimation | Accuracy | Reliability | Bias | Digit ratio

PROFFITT 2014

Tomos Proffitt & Ignacio de la Torre, *The effect of raw material on inter-analyst variation and analyst accuracy for lithic analysis, A case study from Olduvai Gorge.* *Journal of Archaeological Science* **45** (2014), 270–283.

This study aims to understand what effect, in terms of inter-analysis variation and analyst accuracy, different raw material types have on modern technological analyses of lithic assemblages. This is done through a series of blind analysis tests undertaken on experimentally derived assemblages of cores and flakes. Novelty of our approach include the introduction of refit studies as a method to assess analyst's accuracy, and the use of statistical tests specifically designed to address inter-analyst variability, common in other disciplines but rarely used in Archaeology. The experimental assemblages were produced from raw materials collected at Olduvai Gorge, an archaeological sequence that has been a source for studies of early human technology for several decades, and where re-analyses of the same assemblages have usually offered different interpretations. The results of the blind analyses are compared to the true technological values obtained through full refit analysis of the experimental material, and suggest that there is a significant difference in terms of inter-analyst variability as well as accuracy related to different raw materials. Our paper highlights the interpretative problems posed by difficult-to-analyse raw materials such as quartzite, and stresses subjectivity present in stone-tool technological studies, which may contribute to explain differences in the interpretation of Early Stone Age lithic assemblages.

**Keywords:** Lithic technology | Olduvai Gorge | Blind tests | Inter-analyst variability | Analyst accuracy | Refit analysis

## Neolithikum

SKOGLUND 2014

Pontus Skoglund et al., *Genomic Diversity and Admixture Differs for Stone-Age Scandinavian Foragers and Farmers.* *science* **344** (2014), 747–750.

s344-0747-Supplement.pdf

Pontus Skoglund, Helena Malmström, Ayça Omrak, Maanasa Raghavan, Cristina Valdiosera, Torsten Günther, Per Hall, Kristiina Tambets, Jüri Parik, Karl-Göran Sjögren, Jan Apel, Eske Willerslev, Jan Storå, Anders Götherström & Mattias Jakobsson

Prehistoric population structure associated with the transition to an agricultural lifestyle in Europe remains a contentious idea. Population-genomic data from 11 Scandinavian Stone Age human remains suggest that hunter-gatherers had lower genetic diversity than that of farmers. Despite their close geographical proximity, the genetic differentiation between the two Stone Age groups was greater than that observed among extant European populations. Additionally, the Scandinavian Neolithic farmers exhibited a greater degree of hunter-gatherer-related admixture than that of the Tyrolean Iceman, who also originated from a farming context. In contrast, Scandinavian hunter-gatherers displayed no significant evidence of introgression from farmers. Our findings suggest that Stone Age foraging groups were historically in low numbers, likely owing to oscillating living conditions or restricted carrying capacity, and that they were partially incorporated into expanding farming groups.

## Ostasien

YANG 2014

Yimin Yang, Anna Shevchenko, Andrea Knaust, Idelisi Abuduresule, Wenying Li, Xingjun Hu, Changsui Wang & Andrej Shevchenko, *Proteomics evidence for kefir dairy in Early Bronze Age China*. [Journal of Archaeological Science](#) **45** (2014), 178–186.

JAS045-0178-Supplement1.xls, JAS045-0178-Supplement2.xls, JAS045-0178-Supplement3.xls, JAS045-0178-Supplement4.pdf

Cheese making has been inferred at several sites in northern Europe as early as the 6th millennium BC and was common in Egypt and Mesopotamia in 3rd millennium BC. However, the remains of ancient cheeses have never been found and recipes of ancient dairy, its production scale, social and economic impact remain poorly understood. Here we present direct proteomics evidence for the production of an earliest known cheese that was found as an organic mass associated with the mummies of Early Bronze Age cemetery of Xiaohe (1980–1450 BC) in Xinjiang, China. Kefir fermentation of ruminant milk by a symbiotic culture of *Lactobacillus kefirifaciens* and other lactic acid bacteria and yeasts was the basis of robust, scalable, probiotic, lactose-free dairy and a key technological advance that introduced economic benefits of extensive herding into a semi-pastoral household of the Eastern Eurasia population already in the Early Bronze Age.

Keywords: Archaeology | Ancient diet | Ancient dairy | Bronze Age | Eastern Eurasia | Proteomics

## Story or Book

FRIZELL 2014

John Frizell, *Trials, An experimental direction*. [nature](#) **509** (2014), 526.