Liste erstellt am 2012-05-15

Literatur

Aktuell

Gewin 2012

Virginia Gewin, *Uncovering misconduct*. nature **485** (2012), 137–139.
Cases of scientific wrongdoing seem to be rising. But when should researchers blow the whistle?
Almost 2 % of scientists admitted to having fabricated, falsified or modified data or results at least once, and 14 % knew of fabrication or falsification by colleagues. Yet consistently, almost no one reports misconduct to the proper authorities.
Evolutionary biologist Marc Hauser resigned from Harvard last year after he was found solely responsible for eight instances of scientific misconduct. Several of the experiments in question have since been replicated by Hauser and colleagues and the results published, highlighting the fine line between a lack of data integrity and misconduct.

Amerika

Curry 2012

Andrew Curry, *Coming to America*. nature **485** (2012), 30–32.
For decades, scientists thought that the Clovis hunters were the first to cross the Arctic to America. They were wrong — and now they need a better theory.

Dillehay 2008

Tom D. Dillehay, C. Ramírez, M. Pino, M. B. Collins, J. Rossen & J. D. Pino-Navarro, *Monte Verde: Seaweed, Food, Medicine, and the Peopling of South America*. science **320** (2008), 784–786.
s320-0784-Supplement.pdf
The identification of human artifacts at the early archaeological site of Monte Verde in southern Chile has raised questions of when and how people reached the tip of South America without leaving much other evidence in the New World. Remains of nine species of marine algae were recovered from hearths and other features at Monte Verde II, an upper occupational layer, and were directly dated between 14,220 and 13,980 calendar years before the present (≈12,310 and 12,290 carbon-14 years ago). These findings support the archaeological interpretation of the site and indicate that the site's inhabitants used seaweed from distant beaches and estuarine environments for food and medicine. These data are consistent with the ideas that an early settlement of South America was along the Pacific coast and that seaweeds were important to the diet and health of early humans in the Americas.

Kemp 2007

Brian M. Kemp et al., *Genetic Analysis of Early Holocene Skeletal Remains From Alaska and its Implications for the Settlement of the Americas*. American Journal of Physical Anthropology **132** (2007), 605–621.
Brian M. Kemp, Ripan S. Malhi, John McDonough, Deborah A. Bolnick, Jason A. Eshleman, Olga Rickards, Cristina Martinez-Labarga, John R. Johnson, Joseph G. Lorenz, E. James Dixon, Terence E. Fifield, Timothy H. Heaton, Rosita Worl and David Glenn Smith

Mitochondrial and Y-chromosome DNA were analyzed from 10,300-year-old human remains excavated from On Your Knees Cave on Prince of Wales Island, Alaska (Site 49-PET-408). This individual's mitochondrial DNA (mtDNA) represents the founder haplotype of an additional subhaplogroup of haplogroup D that was brought to the Americas, demonstrating that widely held assumptions about the genetic composition of the earliest Americans are incorrect. The amount of diversity that has accumulated in the subhaplogroup over the past 10,300 years suggests that previous calibrations of the mtDNA clock may have underestimated the rate of molecular evolution. If substantiated, the dates of events based on these previous estimates are too old, which may explain the discordance between inferences based on genetic and archaeological evidence regarding the timing of the settlement of the Americas. In addition, this individual's Y-chromosome belongs to haplogroup Q-M3*, placing a minimum date of 10,300 years ago for the emergence of this haplogroup.
KEY WORDS mitochondrial DNA; ancient DNA; molecular clock; phylogenetic dispersion; Y-chromosome

Rasmussen 2010

Morten Rasmussen et al., *Ancient human genome sequence of an extinct Palaeo-Eskimo*. nature **463** (2010), 757–762.
n463-0757-Supplement.pdf
Morten Rasmussen, Yingrui Li, Stinus Lindgreen, Jakob Skou Pedersen, Anders Albrechtsen, Ida Moltke, Mait Metspalu, Ene Metspalu, Toomas Kivisild, Ramneek Gupta, Marcelo Bertalan, Kasper Nielsen, M. Thomas P. Gilbert, Yong Wang, Maanasa Raghavan, Paula F. Campos, Hanne Munkholm Kamp, Andrew S. Wilson, Andrew Gledhill, Silvana Tridico, Michael Bunce, Eline D. Lorenzen, Jonas Binladen, Xiaosen Guo, Jing Zhao, Xiuqing Zhang, Hao Zhang, Zhuo Li, Minfeng Chen, Ludovic Orlando, Karsten Kristiansen, Mads Bak, Niels Tommerup, Christian Bendixen, Tracey L. Pierre, Bjarne Grønnow, Morten Meldgaard, Claus Andreasen, Sardana A. Fedorova, Ludmila P. Osipova, Thomas F. G. Higham, Christopher Bronk Ramsey, Thomas v. O. Hansen, Finn C. Nielsen, Michael H. Crawford, Søren Brunak, Thomas Sicheritz-Pontén, Richard Villems, Rasmus Nielsen, Anders Krogh, Jun Wang & Eske Willerslev
We report here the genome sequence of an ancient human. Obtained from,4,000-year-old permafrost-preserved hair, the genome represents a male individual from the first known culture to settle in Greenland. Sequenced to an average depth of 203, we recover 79 % of the diploid genome, an amount close to the practical limit of current sequencing technologies. We identify 353,151 high-confidence single-nucleotide polymorphisms (SNPs), of which 6.8 % have not been reported previously. We estimate raw read contamination to be no higher than 0.8 %. We use functional SNP assessment to assign possible phenotypic characteristics of the individual that belonged to a culture whose location has yielded only trace human remains.We compare the high-confidence SNPs to those of contemporary populations to find the populations most closely related to the individual. This provides evidence for a migration from Siberia into the New World some 5,500 years ago, independent of that giving rise to the modern Native Americans and Inuit.

Tamm 2007

Erika Tamm et al., *Beringian Standstill and Spread of Native American Founders*. PLoS ONE **2** (2007), e829. DOI:10.1371/journal.pone.0000829.
Erika Tamm, Toomas Kivisild, Maere Reidla, Mait Metspalu, David Glenn Smith, Connie J. Mulligan, Claudio M. Bravi, Olga Rickards, Cristina Martinez-Labarga, Elsa K. Khusnutdinova, Sardana A. Fedorova, Maria V. Golubenko, Vadim A. Stepanov, Marina A. Gubina, Sergey I. Zhadanov, Ludmila P. Ossipova, Larisa Damba, Mikhail I. Voevoda, Jose E. Dipierri, Richard Villems, Ripan S. Malhi

Native Americans derive from a small number of Asian founders who likely arrived to the Americas via Beringia. However, additional details about the intial colonization of the Americas remain unclear. To investigate the pioneering phase in the Americas we analyzed a total of 623 complete mtDNAs from the Americas and Asia, including 20 new complete mtDNAs from the Americas and seven from Asia. This sequence data was used to direct high-resolution genotyping from 20 American and 26 Asian populations. Here we describe more genetic diversity within the founder population than was previously reported. The newly resolved phylogenetic structure suggests that ancestors of Native Americans paused when they reached Beringia, during which time New World founder lineages differentiated from their Asian sister-clades. This pause in movement was followed by a swift migration southward that distributed the founder types all the way to South America. The data also suggest more recent bi-directional gene flow between Siberia and the North American Arctic.

Anthropologie

Appenzeller 2012

Tim Appenzeller, *Eastern Odyssey*. nature **485** (2012), 24–26.
Humans had spread across Asia by 50,000 years ago. Everything else about our original exodus from Africa is up for debate.

Macaulay 2005

Vincent Macaulay et al., *Single, Rapid Coastal Settlement of Asia Revealed by Analysis of Complete Mitochondrial Genomes*. science **308** (2005), 1034–1036.
s308-1034-Supplement.pdf
Vincent Macaulay, Catherine Hill, Alessandro Achilli, Chiara Rengo, Douglas Clarke, William Meehan, James Blackburn, Ornella Semino, Rosaria Scozzari, Fulvio Cruciani, Adi Taha, Norazila Kassim Shaari, Joseph Maripa Raja, Patimah Ismail, Zafarina Zainuddin, William Goodwin, David Bulbeck, Hans-Jürgen Bandelt, Stephen Oppenheimer, Antonio Torroni & Martin Richards
A recent dispersal of modern humans out of Africa is now widely accepted, but the routes taken across Eurasia are still disputed. We show that mitochondrial DNA variation in isolated "relict" populations in southeast Asia supports the view that there was only a single dispersal from Africa, most likely via a southern coastal route, through India and onward into southeast Asia and Australasia. There was an early offshoot, leading ultimately to the settlement of the Near East and Europe, but the main dispersal from India to Australia ≈65,000 years ago was rapid, most likely taking only a few thousand years.

Peopling 2012

Peopling the Planet. nature **485** (2012), 23.

Stringer 2012

Chris Stringer, *What makes a modern human*. nature **485** (2012), 33–35.
We probably all carry genes from archaic species such as Neanderthals. Chris Stringer explains why the DNA we have in common is more important than any differences.
The majority of our genes (>90 %) derives from our common African heritage, and this should take precedence over the minor amount of DNA that is different – however and whenever it was acquired.

Datierung

Callaway 2012

Ewen Callaway, *Date with History*. nature **485** (2012), 27–29.
By revamping radiocarbon dating, Tom Higham is painting a new picture of humans' arrival in Europe.

Caron 2011

François Caron, Francesco d'Errico, Pierre Del Moral, Frédéric Santos & João Zilhão, *The Reality of Neandertal Symbolic Behavior at the Grotte du Renne, Arcy-sur-Cure, France*. PLoS ONE **6** (2011), e21545. DOI:.
Background: The question of whether symbolically mediated behavior is exclusive to modern humans or shared with anatomically archaic populations such as the Neandertals is hotly debated. At the Grotte du Renne, Arcy-sur-Cure, France, the Châtelperronian levels contain Neandertal remains and large numbers of personal ornaments, decorated bone tools and colorants, but it has been suggested that this association reflects intrusion of the symbolic artifacts from the overlying Protoaurignacian and/or of the Neandertal remains from the underlying Mousterian.
Methodology/Principal Findings: We tested these hypotheses against the horizontal and vertical distributions of the various categories of diagnostic finds and statistically assessed the probability that the Châtelperronian levels are of mixed composition. Our results reject that the associations result from large or small scale, localized or generalized postdepositional displacement, and they imply that incomplete sample decontamination is the parsimonious explanation for the stratigraphic anomalies seen in the radiocarbon dating of the sequence.
Conclusions/Significance: The symbolic artifacts in the Châtelperronian of the Grotte du Renne are indeed Neandertal material culture.

Manning 1992

Sturt W. Manning & Bernhard Weninger, *A light in the dark: archaeological wiggle matching and the absolute chronology of the close of the Aegean Late Bronze Age*. Antiquity **66** (1992), 636–663.
The conventional chronology of the Aegean Late Bronze Age was challenged by P.J. James and his co-workers in Centuries of darkness (1991). The present paper is an exhaustive and critical re-examination ofradiocarbon datesfrom a number of key sites in the region using the technique of probabilistic computer archaeological wiggle matching which concludes that the conventional arhcaeological chronology still holds good (whatever the flaws in its original construction) on the basis of the independent radiocarbon evidence.

Klima

Cook 1998

Edward R. Cook, Rosanne D. D'Arrigo & Keith R. Briffa, *A reconstruction of the North Atlantic Oscillation using tree-ring chronologies from North America and Europe*. The Holocene **8** (1998), 9–17.
Tree-ring records, six from eastern North America and four from northwestern Europe, are used to develop the first reconstruction of the winter North Atlantic Oscillation (NAO). The reconstructed series spans the interval AD 1701-1980 and explains 41 %, of

the variance in the NAO over the AD 1874-1980 calibration period. The reconstruction also captures the spectral properties of this index, suggesting that the oscillatory character of the NAO is a long-term feature of the North Atlantic climate system.
Key words: North Atlantic Oscillation, NAO, tree-ring reconstruction, calibration/verification, spectral analysis.

Luterbacher 1999

Jürg Luterbacher, Christoph Schmutz, Dimitrios Gyalistras, Eleni Xoplaki & Heinz Wanner, *Reconstruction of monthly NAO and EU indices back to AD 1675*. Geophysical Research Letters **26** (1999), 2745–2748.
Instrumental station pressure, temperature and precipitation measurements and proxy data were used to statistically reconstruct monthly time series of the North Atlantic Oscillation (NAO) and the Eurasian (EU) circulation indices back to 1675. Systematic testing of the reconstruction procedure indicated generally reliable reconstructions throughout the entire period, except for summertime before about 1750. Predictive skill varied for different sub-periods depending on data availability. It was highest for autumn and winter and was generally better for the EU than for the NAO index. Wavelet analysis suggested significant low-frequency variability, especially for the spring, summer and annual averaged indices. The co-variability between the NAO and EU indices was found to exhibit large decadal to century timescale variations, indicating that climate variability over the continent is temporarily decoupled from the NAO.

Martin-Puertas 2012

Celia Martin-Puertas et al., *Regional atmospheric circulation shifts induced by a grand solar minimum*. Nature Geoscience (2012) preprint, 1–5. DOI:10.1038/NGEO1460.
NatGeo2012-preprint-Supplement.pdf
Celia Martin-Puertas, Katja Matthes, Achim Brauer, Raimund Muscheler, Felicitas Hansen, Christof Petrick, Ala Aldahan, Göran Possnert and Bas van Geel
Large changes in solar ultraviolet radiation can indirectly affect climate1 by inducing atmospheric changes. Specifically, it has been suggested that centennial-scale climate variability during the Holocene epoch was controlled by the Sun2,3. However, the amplitude of solar forcing is small when compared with the climatic effects and, without reliable data sets, it is unclear which feedback mechanisms could have amplified the forcing. Here we analyse annually laminated sediments of Lake Meerfelder Maar, Germany, to derive variations in wind strength and the rate of 10Be accumulation, a proxy for solar activity, from 3,300 to 2,000 years before present. We find a sharp increase in windiness and cosmogenic 10Be deposition 2,759 ± 39 varve years before present and a reduction in both entities 199 ± 9 annual layers later. We infer that the atmospheric circulation reacted abruptly and in phase with the solar minimum. A shift in atmospheric circulation in response to changes in solar activity is broadly consistent with atmospheric circulation patterns in long-term climate model simulations, and in reanalysis data that assimilate observations from recent solar minima into a climate model. We conclude that changes in atmospheric circulation amplified the solar signal and caused abrupt climate change about 2,800 years ago, coincident with a grand solar minimum.

Rodwell 1999

M. J. Rodwell, D. P. Rowell & C. K. Folland, *Oceanic forcing of the wintertime North Atlantic Oscillation and European climate*. nature **398** (1999), 320–323.
The weather over the North Atlantic Ocean, particularly in winter, is often characterized by strong eastward air-flow between the 'Icelandic low' and the 'Azores high', and

by a 'stormtrack' of weather systems which move towards western Europe. The North Atlantic Oscillation—an index of which can be defined as the difference in atmospheric pressure at sea level between the Azores and Iceland—is an important mode of variability in the global atmosphere and is intimately related to the position and strength of the North Atlantic stormtrack owing to dynamic processes internal to the atmosphere. Here we use a general circulation model of the atmosphere to investigate the ocean's role in forcing North Atlantic and European climate. Our simulations indicate that much of the multiannual to multidecadal variability of the winter North Atlantic Oscillation over the past half century may be reconstructed from a knowledge of North Atlantic sea surface temperature. We argue that sea surface temperature characteristics are 'communicated' to the atmosphere through evaporation, precipitation and atmospheric-heating processes, leading to changes in temperature, precipitation and storminess over Europe. As it has recently been proposed that there may be significant multiannual predictability of North Atlantic sea surface temperature patterns, our results are encouraging for the prediction of European winter climate up to several years in advance.

Kultur

Normile 2012

Dennis Normile, *Experiments Probe Language's Origins and Development*. science **336** (2012), 408–411.

In a new twist for an old field, language researchers are heading to the laboratory to test hypotheses

Also, he says their experimental findings suggest that languages used by larger and more diverse groups, with more transmission to naïve learners, tend to be simpler. More complex languages appear to arise when user groups are smaller and more cohesive. That is consistent with what Gary Lupyan of the University of Wisconsin, Madison, and Rick Dale of the University of California, Merced, found in a survey of 2000 languages reported in PLoS ONE in 2010. "The analyses suggest that languages spoken by large groups have simpler inflectional morphology than languages spoken by smaller groups as measured on a variety of factors," the pair wrote.

Neolithikum

Balter 2012

Michael Balter, *Ancient Migrants Brought Farming Way of Life to Europe*. science **336** (2012), 400–401.

The genetic distinctions between people living close together at the same time support a "leapfrog" model of the spread of farming, in which advancing farmers sometimes interbred with local hunter-gatherers and sometimes bypassed them, says Deguilloux, who discussed this model in a recent issue of Evolutionary Anthropology.

Skoglund 2012

Pontus Skoglund et al., *Origins and Genetic Legacy of Neolithic Farmers and Hunter-Gatherers in Europe*. science **336** (2012), 466–469.

s336-0466-Supplement.pdf

Pontus Skoglund, Helena Malmström, Maanasa Raghavan, Jan Storå, Per Hall, Eske Willerslev, M. Thomas P. Gilbert, Anders Götherström & Mattias Jakobsson

The farming way of life originated in the Near East some 11,000 years ago and had reached most of the European continent 5000 years later. However, the impact of the agricultural revolution on demography and patterns of genomic variation in Europe remains

unknown. We obtained 249 million base pairs of genomic DNA from ≈5000-year-old remains of three hunter-gatherers and one farmer excavated in Scandinavia and find that the farmer is genetically most similar to extant southern Europeans, contrasting sharply to the hunter-gatherers, whose distinct genetic signature is most similar to that of extant northern Europeans. Our results suggest that migration from southern Europe catalyzed the spread of agriculture and that admixture in the wake of this expansion eventually shaped the genomic landscape of modern-day Europe.

Religion

GERVAIS 2012

Will M. Gervais & Ara Norenzayan, *Analytic Thinking Promotes Religious Disbelief*. science **336** (2012), 493–496.

s336-0493-Supplement.pdf

Scientific interest in the cognitive underpinnings of religious belief has grown in recent years. However, to date, little experimental research has focused on the cognitive processes that may promote religious disbelief. The present studies apply a dual-process model of cognitive processing to this problem, testing the hypothesis that analytic processing promotes religious disbelief. Individual differences in the tendency to analytically override initially flawed intuitions in reasoning were associated with increased religious disbelief. Four additional experiments provided evidence of causation, as subtle manipulations known to trigger analytic processing also encouraged religious disbelief. Combined, these studies indicate that analytic processing is one factor (presumably among several) that promotes religious disbelief. Although these findings do not speak directly to conversations about the inherent rationality, value, or truth of religious beliefs, they illuminate one cognitive factor that may influence such discussions.

Story or Book

SCHMITZ 2012

Birger Schmitz, *How a world came to be*. nature **485** (2012), 39.

Birger Schmitz revels in an account of how life and rock evolved together on Earth.

The Story of Earth: The First 4.5 Billion Years, From Stardust to Living Planet. Robert M. Hazen. Viking Books: 2012. 320 pp. $27.95, £17.50

Without geologists, the Western world would probably still hold to the biblical account of how Earth and life were created.

Hazen has done his job well. His concise and colourful story of the evolution of our planet and life — how they started from dust, how the evolution of minerals and organisms is intertwined, how the sequence of events depends on countless improbable "if nots" — makes it seem a miracle that we and the rich and diverse nature around us exist. What a wonderful Earth. Let us not destroy what took 4.6 billion years to create.