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Literatur

Aktuell

Dutton 2013

William H. Dutton, *Running in Social Media Circles*. science **342** (2013), 933–934.

Status Update. Celebrity, Publicity, and Branding in the Social Media Age. by Alice E. Marwick, Yale University Press, New Haven, CT, 2013. 368 pp. $27.50, £17.99. ISBN 9780300176728.

Marwick saw the founding culture embedded in social media applications. Those encourage competition for attention, visibility, and status by design, such as by accumulating "friends," "likes," "followers," retweets, and comments on posts—all various signs of importance within different social media worlds. Rather than enabling democratic empowerment, users are incentivized to think strategically about how to present themselves and their posts online to gain popularity. Improving your status in this world involves strategic self-promotion. Social media are about upgrading your status. The author makes a valuable distinction "between making information public and publicizing it." Marwick sees this not as an accident but as a product of the culture of Silicon Valley's social media entrepreneurs.

Kennedy 2013

Donald Kennedy, *Time to Deal with Antibiotics*. science **342** (2013), 777.

Even nations with strong health care systems, respected medical centers, and fine hospitals are experiencing a growing epidemic of infections that they now simply cannot cure. Here in the United States, such infections kill nearly 23,000 people each year, according to the Centers for Disease Control and Prevention's (CDC's) report Antibiotic Resistance Threats in the United States, 2013. As FDA commissioner at the time, I argued that the vulnerability of infectious agents to antibiotics constituted a "kind of Commons"—that is, a future health benefit shared by all members of the public. Our effort, hard fought by the livestock industry, failed to get congressional support, as the industry blamed the practice of human medicine for the resistance problem. Donald Kennedy is president emeritus at Stanford University, Stanford, CA, and a former editor-in-chief of Science.

Lavoie 2013

Raphael A. Lavoie, Timothy D. Jardine, Matthew M. Chumchal, Karen A. Kidd & Linda M. Campbell, *Biomagnification of Mercury in Aquatic Food Webs, A Worldwide Meta-Analysis*. Environmental Science & Technology **47** (2013), 13385–13394.

EnvSciTec47-13385-Supplement.pdf

The slope of the simple linear regression between log10 transformed mercury (Hg) concentration and stable nitrogen isotope values (d15N), hereafter called trophic magnification slope (TMS), from several trophic levels in a food web can represent the overall degree of Hg biomagnification. We compiled data from 69 studies that determined total Hg (THg) or methyl Hg (MeHg) TMS values in 205 aquatic food webs worldwide. Hg TMS values were compared against physicochemical and biological factors hypothesized to affect Hg biomagnification in aquatic systems. Food

webs ranged across 1.7 ± 0.7 (mean $\pm$ SD) and 1.8 ± 0.8 trophic levels (calculated using d15N from baseline to top predator) for THg and MeHg, respectively. The average trophic level (based on d15N) of the upper-trophic-level organisms in the food web was 3.7 ± 0.8 and 3.8 ± 0.8 for THg and MeHg food webs, respectively. For MeHg, the mean TMS value was 0.24 ± 0.08 but varied from 0.08 to 0.53 and was, on average, 1.5 times higher than that for THg with a mean of 0.16 ± 0.11 (range: -0.19 to 0.48). Both THg and MeHg TMS values were significantly and positively correlated with latitude. TMS values in freshwater sites increased with dissolved organic carbon and decreased with total phosphorus and atmospheric Hg deposition. Results suggest that Hg biomagnification through food webs is highest in cold and low productivity systems; however, much of the among-system variability in TMS values remains unexplained. We identify critical data gaps and provide recommendations for future studies that would improve our understanding of global Hg biomagnification.

Li 2013

Jiang Li, Haosheng Chen & Howard A. Stone, *Ice lubrication for moving heavy stones to the Forbidden City in 15th- and 16th-century China*. PNAS **110** (2013), 20023–20027.

Lubrication plays a crucial role in reducing friction for transporting heavy objects, from moving a 60-ton statue in ancient Egypt to relocating a 15,000-ton building in modern society. Although in China spoked wheels appeared ca. 1500 B.C., in the 15th and 16th centuries sliding sledges were still used in transporting huge stones to the Forbidden City in Beijing. We show that an ice lubrication technique of water-lubricated wood-on-ice sliding was used instead of the common ancient approaches, such as wood-on-wood sliding or the use of log rollers. The technique took full advantage of the natural properties of ice, such as sufficient hardness, flatness, and low friction with a water film. This ice-assisted movement is more efficient for such heavy-load and low-speed transportation necessary for the stones of the Forbidden City. The transportation of the huge stones provides an early example of ice lubrication and complements current studies of the high-speed regime relevant to competitive ice sports.

Linton 2013

Jonathan D. Linton, *All journals need to correct errors*. nature **504** (2013), 33.

Our search revealed an alarming number of errors. Ten papers had one or more mistakes that were substantial enough to affect the findings and conclusions. There were errors that were not so significant in almost one-third of the papers. We notified the journals that published substantial errors. Only four of the ten formally corrected their mistakes. These corrections were published 4–8 months from initial notification. The remaining journals declined to publish a correction; some even had a policy not to publish criticisms of their papers.

Schulson 2013

Erland Schulson, *Sliding heavy stones to the Forbidden City on ice*. PNAS **110** (2013), 19978–19979.

Under the transport conditions (temperature of -3.7 °C, sliding at a velocity of 8 cm/s, calculated by assuming 8.5 h/ d of movement), the coefficient of kinetic friction of wood on ice is $\approx$0.22. Li et al. note that under the conditions of the 1557 transport of the 123-ton stone, a thin ($\approx$70-µm) layer of water would have been produced through frictional heating and melting, based upon modern research.

The effect would have been to reduce the coefcient of kinetic friction to 0.02–0.03. The problem, however, was that a 70 µm layer would have frozen in less time than the 120 s it would have taken to advance a 9.6-m sledge one length when moving at 8 cm/s. To avoid that issue, Li et al. suggest that the special method the Chinese practiced was to increase the thickness of the lubricating layer by pouring water onto the icy road, perhaps to 10-times the thickness of the natural layer or to 700 µm. I made a calculation following the heat-transfer analysis described in Li et al.'s SI Materials and Methods and found that a layer of ≈300 µm would have been required to avoid freezing under the thermal gradient at the time. The thicker layer offered a "factor of safety" of around two that would have guarded against fluctuations in the thermal gradient.

Amerika

Smith 2009

Silvia E. Smith, M. Geoffrey Hayes, Graciela S. Cabana, Chad Huff, Joan Brenner Coltrain & Dennis H. O'Rourke, *Inferring Population Continuity Versus Replacement with aDNA, A Cautionary Tale from the Aleutian Islands*. HumanBiology **81** (2009), 407–426.

In The Aleutian and Commander Islands and Their Inhabitants (Philadelphia: Wistar Institute of Anatomy and Biology, 1945), Hrdlička proposed a population replacement event in the Aleutian Islands approximately 1,000 years ago based on a perceived temporal shift in cranial morphology. However, the archaeological record indicates cultural, and presumed population, continuity for more than 4,000 years. We use mtDNA haplogroup data in the series of prehistoric eastern Aleutian samples (n = 86) studied craniometrically by Hrdlička to test alternative hypotheses regarding population continuity or replacement in the region. This molecular characterization, in conjunction with direct dating of individual specimens, provided increased resolution for hypothesis testing. Results indicate an apparent shift in mtDNA haplogroup frequencies in the eastern Aleutians approximately 1,000 years ago, in concert with changes in mortuary practices and isotopic signatures reflecting resource acquisition strategies. The earliest Aleut populations were characterized by a high frequency of haplogroup A, as are most modern populations of the North American arctic. Later prehistoric peoples in the Aleutians were characterized by a high frequency of haplogroup D and a correspondingly lower frequency of haplogroup A, a pattern typified by modern Aleut populations.

Key Words: ancient DNA, MtDNA haplogroups, replacement, population continuity, Aleutian islands

Anthropologie

Bermúdez de Castro 1997

J. M. Bermúdez de Castro, J. L. Arsuaga, E. Carbonell, A. Rosas, I. Martínez & M. Mosquera, *A Hominid from the Lower Pleistocene of Atapuerca, Spain, Possible Ancestor to Neandertals and Modern Humans*. science **276** (1997), 1392–1395.

Human fossil remains recovered from the TD6 level (Aurora stratum) of the lower Pleistocene cave site of Gran Dolina, Sierra de Atapuerca, Spain, exhibit a unique combination of cranial, mandibular, and dental traits and are suggested as a new species of Homo—H. antecessor sp. nov. The fully modern midfacial morphology

of the fossils antedates other evidence of this feature by about 650,000 years. The midfacial and subnasal morphology of modern humans may be a retention of a juvenile pattern that was not yet present in H. ergaster. Homo antecessor may represent the last common ancestor for Neandertals and modern humans.

Callaway 2013

Ewen Callaway, *Hominin DNA baffles experts*. nature **504** (2013), 16–17.

Analysis of oldest sequence from a human ancestor suggests link to mystery population.

Pääbo notes that previously published full nuclear genomes of Neanderthals and Denisovans suggest that the two had a common ancestor that lived up to 700,000 years ago. He suggests that the Sima de los Huesos hominins could represent a founder population that once lived all over Eurasia and gave rise to the two groups. Both may have then carried the mitochondrial sequence seen in the caves. But these mitochondrial lineages go extinct whenever a female does not give birth to a daughter, so the Neanderthals could have simply lost that sequence while it lived on in Denisovan women.

[Stringer] thinks that the newly decoded mitochondrial genome may have come from another distinct group of hominins. Not far from the caves, researchers have discovered hominin bones from about 800,000 years ago that have been attributed to an archaic hominin called Homo antecessor, thought to be a European descendant of Homo erectus. Stringer proposes that this species interbred with a population that was ancestral to both Denisovans and Sima de los Huesos hominins, introducing the newly decoded mitochondrial lineage to both populations. This scenario, Stringer says, explains another oddity thrown up by the sequencing of ancient hominin DNA. As part of a widely discussed and soon-to-be-released analysis of high-quality Denisovan and Neanderthal nuclear genomes, Pääbo's team suggests that Denisovans seem to have interbred with a mysterious hominin group.

Meyer 2002

C. Meyer, C. Jung, T. Kohl, A. Poenicke, A. Poppe & K. W. Alt, *Syphilis 2001 – a palaeopathological reappraisal*. HOMO—Journal of Comparative Human Biology **53** (2002), 39–58.

The origin and subsequent spread of the treponematoses, especially that of venereal syphilis, has been the subject of considerable scientific attention. Various theories were put forth and palaeopathological specimens were used for their validation in recent times. One influential contribution was the paper by Baker & Armelagos in 1988. Numerous new findings and results on both sides of the Atlantic call for a new evaluation of the available osseous material. A review of the recent literature leads to the suggestion of a worldwide distribution of non-venereal treponemal disease since the emergence of Homo and to a first epidemic outbreak of venereal syphilis in Europe of the late 15th and the early 16th century, which was a time of change and enormous sexual liberty. Old World specimens with pathological alterations attributed to venereal syphilis and dated to precolumbian times seem to invalidate the Columbian theory and call for a more differentiated analysis of the phenomenon of syphilis than a theory based on a single factor can provide. With the help of molecular methods which now allow a positive identification of Treponema pallidum pallidum, causative agent of venereal syphilis, in palaeopathological material, it seems possible to elucidate the matter of origin and spread of syphilis further and to evaluate previous diagnoses of treponemal disease.

Der Ursprung und die Verbreitung der Treponematosen, allen voran der venerischen Syphilis, sind seit 500 Jahren ein Hauptthema der Forschung. Verschiedene Theorien wurden vorgebracht und vor allem in jüngerer Zeit anhand von paläopathologischem Skelettmaterial zu belegen versucht. Einen umfassenden Beitrag, die bis dato vorliegenden Erkenntnisse auszuwerten, legten Baker & Armelagos 1988 vor. Zahlreiche Neufunde beiderseits des Atlantik machen eine Revision des gezeichneten Verbreitungsbildes nötig. Dabei ergibt sich eine weltweite Verbreitung der nicht-venerischen Treponematosen seit dem Erscheinen des Genus Homo und ein erstes epidemisches Auftreten der venerischen Syphilis in Europa an der Schwelle vom 15. zum 16. Jh. n. Chr., einer Zeit des Umbruchs und hochgradiger sexueller Freizügigkeit. Vorkolumbianisch datierte Funde von Knochen mit syphilitischen Veränderungen aus der Alten Welt scheinen die Kolumbianische Theorie zu widerlegen, und fordern eine differenziertere Betrachtung des Phänomens Syphilis als an einem Faktum aufgehängte Theorien dies zu leisten vermögen. Die Einbeziehung molekularer Methoden, mittels derer es mittlerweile möglich ist, den Erreger der venerischen Syphilis an paläopathologischem Material nachzuweisen, verspricht neue Erkenntnisse und die Möglichkeit einer kritischen Überprüfung zuvor gestellter Diagnosen.

Biologie

Corbett-Detig 2013

Russell B. Corbett-Detig, Jun Zhou, Andrew G. Clark, Daniel L. Hartl & Julien F. Ayroles, *Genetic incompatibilities are widespread within species*. nature **504** (2013), 135–137.

The importance of epistasis—non-additive interactions between alleles—in shaping population fitness has long been a controversial topic, hampered in part by lack of empirical evidence1–4. Traditionally, epistasis is inferred on the basis of non-independence of genotypic values between loci for a given trait. However, epistasis for fitness should also have a genomic footprint5–7. To capture this signal, we have developed a simple approach that relies on detecting genotype ratio distortion as a sign of epistasis, and we apply this method to a large panel of Drosophila melanogasterrecombinant inbred lines8,9. Here we confirm experimentally that instances of genotype ratio distortion represent loci with epistatic fitness effects; we conservatively estimate that any two haploid genomes in this study are expected to harbour 1.15 pairs of epistatically interacting alleles. This observation hasimportant implications for speciationgenetics, as it indicates that the raw material to drive reproductive isolation is segregating contemporaneously within species and does not necessarily require, as proposed by the Dobzhansky–Muller model, the emergence of incompatible mutations independently derived and fixed in allopatry. The relevance of our result extends beyond speciation, as it demonstrates that epistasis is widespread but that it may often go undetected owing to lack of statistical power or lack of genome-wide scope of the experiments.

Pennisi 2013

Elizabeth Pennisi, *Old Dogs Teach a New Lesson About Canine Origins*. science **342** (2013), 785–786.

Some geneticists argue that dogs became domesticated once agriculture arose, but the new study reinforces the idea that domestication happened much earlier, among hunter-gatherers. Wayne and his colleagues calculate, based on mutation rates and observed genetic differences in their samples, that dog domestication began between 18,800 and 32,100 years ago, and that canines were well entrenched

with people between 15,000 and 20,000 years ago, before humans farmed. The researchers were unable to get suitable DNA from ancient Middle Eastern canids and had no access to ancient specimens from East Asia. That's a major flaw, says Savolainen, who remains convinced that dogs originated in southern China. "It's not really an objective study." He and others also fault the work for including just a few modern wolves from the Middle East and China but dozens from Europe. "[It is] the same as if you wanted to do a study of the origins of humans and you didn't have a single sample from Africa."

Pennisi 2013

Elizabeth Pennisi, *The Man Who Bottled Evolution*. science **342** (2013), 790–793.

Richard Lenski's 25-year experiment in bacterial evolution shows no signs of running out of surprises about how mutation and selection shape living things. They found that many earlier mutations—some of them deleterious in the short term—had to accumulate before a final "enabling" mutation conferred the new trait. The work demonstrated that complex traits, such as the vertebrate eye, likely come about through a series of intermediate steps that open the way for future adaptation.

Thalmann 2013

O. Thalmann et al., *Complete Mitochondrial Genomes of Ancient Canids Suggest a European Origin of Domestic Dogs*. science **342** (2013), 871–874.

s342-0871-Supplement1.pdf, s342-0871-Supplement2.pdf

O. Thalmann, B. Shapiro, P. Cui, V. J. Schuenemann, S. K. Sawyer, D. L. Greenfield, M. B. Germonpré, M. V. Sablin, F. López-Giráldez, X. Domingo-Roura, H. Napierala, H-P. Uerpmann, D. M. Loponte, A. A. Acosta, L. Giemsch, R. W. Schmitz, B. Worthington, J. E. Buikstra, A. Druzhkova, A. S. Graphodatsky, N. D. Ovodov, N. Wahlberg, A. H. Freedman, R. M. Schweizer, K.-P. Koepfli, J. A. Leonard, M. Meyer, J. Krause, S. Pääbo, R. E. Green & R. K. Wayne

The geographic and temporal origins of the domestic dog remain controversial, as genetic data suggest a domestication process in East Asia beginning 15,000 years ago, whereas the oldest doglike fossils are found in Europe and Siberia and date to >30,000 years ago. We analyzed the mitochondrial genomes of 18 prehistoric canids from Eurasia and the New World, along with a comprehensive panel of modern dogs and wolves. Themitochondrial genomes of all modern dogs are phylogeneticallymost closely related to either ancient or modern canids of Europe. Molecular dating suggests an onset of domestication there 18,800 to 32,100 years ago. These findings imply that domestic dogs are the culmination of a process that initiated with European hunter-gatherers and the canids with whom they interacted.

Grabung

Meyer 2012

Christian Meyer, Ole Warnberg & Kurt W. Alt, *Feuer und Stein in der Bronzezeit, Eine rätselhafte Doppelbestattung aus Wennungen*. Archäologie in Sachsen-Anhalt (2012), Sonderband 19, 94–98.

Klima

Bard 2013

Edouard Bard, *Out of the African Humid Period*. science **342** (2013), 808–809.

Data from an East African marine core help to explain the transition from the more humid conditions in the early Holocene to today's arid climate.
By comparing their Gulf of Aden record with published records, Tierney and deMenocal conclude that the African Humid Period ended abruptly within a few centuries and was synchronous in the western and eastern part of Africa. By considering modern climate observations and model simulations, they propose that East African rainfall responded in a nonlinear way to surface temperatures in the Indian Ocean.

Kerr 2013

Richard A. Kerr, *Humans Fueled Global Warming Millennia Ago*. science **342** (2013), 918.

Mitchell 2013

Logan Mitchell, Ed Brook, James E. Lee, Christo Buizert & Todd Sowers, *Constraints on the Late Holocene Anthropogenic Contribution to the Atmospheric Methane Budget*. science **342** (2013), 964–966.

s342-0964-Supplement.pdf

The origin of the late preindustrial Holocene (LPIH) increase in atmospheric methane concentrations has been much debated. Hypotheses invoking changes in solely anthropogenic sources or solely natural sources have been proposed to explain the increase in concentrations. Here two high-resolution, high-precision ice core methane concentration records from Greenland and Antarctica are presented and are used to construct a high-resolution record of the methane inter-polar difference (IPD). The IPD record constrains the latitudinal distribution of emissions and shows that LPIH emissions increased primarily in the tropics, with secondary increases in the subtropical Northern Hemisphere. Anthropogenic and natural sources have different latitudinal characteristics, which are exploited to demonstrate that both anthropogenic and natural sources are needed to explain LPIH changes in methane concentration.

Parton 2013

Ash Parton et al., *An early MIS 3 pluvial phase in Southeast Arabia, Climatic and archaeological implications*. Quaternary International (2013), preprint, 1–13. DOI:10.1016/j.quaint.2013.02.016.

Ash Parton, Andrew R. Farrant, Melanie J. Leng, Jean-Luc Schwenninger, Jeffrey I. Rose, Hans-Peter Uerpmann & Adrian G. Parker

Climatic changes in Arabia are of critical importance to our understanding of both monsoon variability and the dispersal of anatomically modern humans (AMH) out of Africa. The timing of dispersal is associated with the occurrence of pluvial periods during Marine Isotope Stage (MIS) 5 (ca. 130–74 ka), after which arid conditions between ca. 74 and 10.5 ka are thought to have restricted further migration and range expansion within the Arabian interior. Whilst a number of records indicate that this phase of aridity was punctuated by an increase in monsoon strength during MIS 3, uncertainties regarding the precision of terrestrial records and suitability of marine archives as records of precipitation, mean that the occurrence of this pluvial remains debated. Here we present evidence from a series of relict

lake deposits within southeastern Arabia, which formed at the onset of MIS 3 (ca. 61–58 ka). At this time, the incursion of monsoon rainfall into the Arabian interior activated a network of channels associated with an alluvial fan system along the western flanks of the Hajar Mountains, leading to lake formation. Multiproxy evidence indicates that precipitation increases intermittently recharged fluvial systems within the region, leading to lake expansion in distal fan zones. Conversely, decreased precipitation led to reduced channel flow, lake contraction and a shift to saline conditions. These findings are in contrast to the many other palaeoclimatic records from Arabia, which suggest that during MIS 3, the latitudinal position of the monsoon was substantially further south and did not penetrate the peninsula. Additionally, the occurrence of increased rainfall at this time challenges the notion that the climate of Arabia following MIS 5 was too harsh to permit the further range expansion of indigenous communities.

Tierney 2013

Jessica E. Tierney & Peter B. deMenocal, *Abrupt Shifts in Horn of Africa Hydroclimate Since the Last Glacial Maximum*. science **342** (2013), 843–846.

s342-0843-Supplement.pdf

The timing and abruptness of the initiation and termination of the Early Holocene African Humid Period are subjects of ongoing debate, with direct consequences for our understanding of abrupt climate change, paleoenvironments, and early human cultural development. Here, we provide proxy evidence from the Horn of Africa region that documents abrupt transitions into and out of the African Humid Period in northeast Africa. Similar and generally synchronous abrupt transitions at other East African sites suggest that rapid shifts in hydroclimate are a regionally coherent feature. Our analysis suggests that the termination of the African Humid Period in the Horn of Africa occurred within centuries, underscoring the nonlinearity of the region's hydroclimate.

Methoden

Alt 2013

K. W. Alt, P. Held & N. Nicklisch, *Forensische Feldmethoden, Prospektion, Bergung und Dokumentation*. Rechtsmedizin **23** (2013), 85–91.

Hauschild 2013

Maya Hauschild, Martin Schönfelder, Mirjam Scheeres, Corina Knipper, Kurt W. Alt & Christopher Pare, *Nebringen, Münsingen und Monte Bibele, Zum archäologischen und bioarchäometrischen Nachweis von Mobilität im 4./3. Jahrhundert v. Chr.* Archäologisches Korrespondenzblatt **43** (2013), 345–364.

The cemeteries Nebringen (Lkr. Böblingen/D), Münsingen-Rain (Kt. Bern/CH) and Monte Bibele (prov. Bolgna/I) are im portant sites in the core country and periphery of the La Tène culture which expanded across the Alps up to Northern Italy in the 4th/3rd century BC. Some graves provide evidence for the mobility of the buried. This phenomenon is partly mirrored by the results of a strontium isotope analysis. It was shown that single individuals or small groups had changed their locality – however, the movement of large population groups as reported by the ancient authors under the title "Celtic migration" is not confirmed.

Die Gräberfelder Nebringen (Lkr. Böblingen/D), Münsingen-Rain (Kt. Bern/CH) und Monte Bibele (prov. Bologna/I) sind wichtige Fundorte im Kern- und Expansionsraum der Latènekultur, die sich im 4./3. Jahrhundert v. Chr. über die Alpen bis nach Norditalien ausweitete. Einige Grabfunde geben Hinweise auf Mobilität unter den Bestatteten. Dieses Phänomen wird in den Ergebnissen einer Strontiumisotopenanalyse teilweise widergespiegelt. Ortswechsel konnten für einzelne Individuen oder kleinere Personengruppen nachgewiesen werden – die Bewegung großer Bevölkerungsteile, wie sie uns von den antiken Autoren als keltische Wanderungen überliefert ist, wird hingegen nicht bestätigt.

Meyer 2013

Christian Meyer, Angelina Siebert & Kurt W. Alt, *Sturm auf Beda? Bemerkungen zum Nachweis von Spuren der Gewalt am Beispiel der Skelettfunde aus dem spätantik-frühmittelalterlichen Gräberfeld von Bitburg "An der Römermauer"*. In: Orsolya Heinrich-Tamaska (Hrsg.), *Rauben – Plündern – Morden: Nachweis von Zerstörung und kriegerischer Gewalt im archäologischen Befund, 6. Tagung Spätantike und Frühmittelalter: Zerstörung und Gewalt im ar äologis en Befund (Bremen 5.–6. 10. 2011)*. Studien zu Spätantike und Frühmittelalter 5 (Hamburg 2013), 67–80.

Human skeletal remains represent the most direct approach for studying acts of violence in the archaeological past. The victims of violence can be found in mass graves, but also intermingled with other graves on regular burial sites. The Late Roman to Early Medieval cemetery 'An der Römermauer' (Bitburg, Germany) is one of these sites, containing a high number of skeletons with evidence of violent injuries. Incompletely preserved graves and fragmented skeletal remains pose a difficulty for recording these lesions, but choosing a system based on an anatomical zonation of the human skeleton still enables a detailed palaeoepidemiological analysis and the comparison of results with other sites. Further bioarchaeological methods should be applied to gather as much information as possible to put the recognized violence into a site- and time-specific context.

Menschliche Skelettreste stellen den direktesten Zugang zu gewalttätigen Akten in archäologisch relevanten Zeiträumen dar. Diese können aus eindeutig gewaltbedingten Befunden wie z.B. Massengräbern geborgen werden, Gewaltopfer finden sich aber auch auf regulären Bestattungsplätzen. Das spätrömisch-frühmittelalterliche Gräberfeld "An der Römermauer" in Bitburg ist ein solcher, auf dem Gewaltopfer bestattet worden sind. Stark gestörte Befunde und Skelette bedingen in diesem Fall ein methodisches Vorgehen, das die taphonomischen Faktoren angemessen berücksichtigt, aber auch die anthropologischen Befunde in größtmöglicher Detailtiefe erfassen und auswerten kann. Eine anatomische Zonierung des Skeletts stellt hier die beste Wahl dar und ermöglicht den validen Vergleich mit anderen Fundorten. Weitere bioarchäologische Ansätze sind jeweils angeraten, um den Kontext der festgestellten Gewalt besser interpretieren zu können.

Schlagwörter: Prähistorische Anthropologie, Paläopathologie, anthropologische Methoden, Traumatologie, Bioarchäologie

Keywords: physical anthropology, palaeopathology, osteological methods, traumatology, bioarchaeology

Neolithikum

Brotherton 2013

Paul Brotherton et al., *Neolithic mitochondrial haplogroup H genomes*

and the genetic origins of Europeans. Nature Communications **4** (2013), 1764. DOI:10.1038/ncomms2656.

Paul Brotherton, Wolfgang Haak, Jennifer Templeton, Guido Brandt, Julien Soubrier, Christina Jane Adler, Stephen M. Richards, Clio der Sarkissian, Robert Ganslmeier, Susanne Friederich, Veit Dresely, Mannis van Oven, Rosalie Kenyon, Mark B. van der Hoek, Jonas Korlach, Khai Luong, Simon Y. W. Ho, Lluis Quintana-Murci, Doron M. Behar, Harald Meller, Kurt W. Alt, Alan Cooper & The Genographic Consortium

Haplogroup H dominates present-day Western European mitochondrial DNA variability (>40 %), yet was less common (≈19 %) among Early Neolithic farmers (≈5450 BC) and virtually absent in Mesolithic hunter-gatherers. Here we investigate this major component of the maternal population history of modern Europeans and sequence 39 complete haplogroup H mitochondrial genomes from ancient human remains. We then compare this 'real-time' genetic data with cultural changes taking place between the Early Neolithic (≈5450 BC) and Bronze Age (≈2200 BC) in Central Europe. Our results reveal that the current diversity and distribution of haplogroup H were largely established by the Mid Neolithic (≈4000 BC), but with substantial genetic contributions from subsequent pan-European cultures such as the Bell Beakers expanding out of Iberia in the Late Neolithic (≈2800 BC). Dated haplogroup H genomes allow us to reconstruct the recent evolutionary history of haplogroup H and reveal a mutation rate 45 % higher than current estimates for human mitochondria.

Physik

Cho 2013

Adrian Cho, *Hint of Dark Matter May Be Just Cosmic Ray Debris*. science **342** (2013), 787.

Those positrons could come from particles of dark matter—the invisible stuff whose gravity binds the galaxies—annihilating one another. Instead, they say, the positrons are all "secondary" cosmic rays produced when primary cosmic rays, such as protons from exploding stars, smack into hydrogen and helium in space. The theorists use measurements of other secondary cosmic rays such as boron nuclei to infer how many secondary positrons could be produced at a given energy. AMS never sees more than that number, they report in a paper in press at Physical Review Letters.

Story or Book

Phillips 2013

Rob Phillips, *The Feynman Lectures on Physics*. nature **504** (2013), 30–31.

Rob Phillips celebrates the US physicist's seminal series as it nears its 50th anniversary.

The popularity of the lectures and the enduring appeal of the books that grew from them are often attributed to the individual and spontaneous genius of Feynman. But they were painstakingly prepared and practised, and had generous financial backing. (The lectures were part of broader changes to the teaching at Caltech's physics department funded with some US$1 million from the Ford Foundation.) This is a lesson that university officials would do well to remember as funding is cut and pressure placed on faculty members to cram more into their timetables.