

Literatur

Aktuell

FOHRBECK 2013

Sebastian Fohrbeck, *Neue Demografie und alte Schulden, Amerikas Hochschulen unter Druck*. [Forschung & Lehre 20 \(2013\), 554–556](#).

In den weltweiten Rankings finden sich amerikanische Universitäten regelmäßig auf den vorderen Plätzen. Zunehmend zeigen sich jedoch Risse im amerikanischen Hochschul-System: So nimmt die Verschuldung der Universitäten auf der einen und die der Studierenden auf der anderen Seite immer mehr zu, während der Wert und die Qualität eines Bachelor-Abschlusses abnehmen.

Nach einer Untersuchung der American Institutes of Research können 20 Prozent der Bachelorabsolventen nicht ausrechnen, ob ihr Auto noch genug Benzin bis zur nächsten Tankstelle hat, und 50 Prozent sind nicht in der Lage, die Angebote verschiedener Kreditkartenfirmen zu vergleichen oder die Kernargumente eines Zeitungsartikels zusammenzufassen. Dem steht eine unrealistische Noten-Inflation gegenüber: 43 Prozent aller an Vierjahresuniversitäten vergebenen Noten sind Einsen ("A"). Unter anderem wegen der Entwertung des ersten Abschlusses gehen mehr und mehr Amerikaner auf die "Graduate School", um einen zweiten Grad zu erwerben: "The Master's is the new normal" – der Master ist der neue Standardabschluss.

KAMENICA 2013

Emir Kamenica, Robert Naclerio & Anup Malani, *Advertisements impact the physiological efficacy of a branded drug*. [PNAS 110 \(2013\), 12931–12935](#).

We conducted randomized clinical trials to examine the impact of direct-to-consumer advertisements on the efficacy of a branded drug. We compared the objectively measured, physiological effect of Claritin (Merck & Co.), a leading antihistamine medication, across subjects randomized to watch a movie spliced with advertisements for Claritin or advertisements for Zyrtec (McNeil), a competitor antihistamine. Among subjects who test negative for common allergies, exposure to Claritin advertisements rather than Zyrtec advertisements increases the efficacy of Claritin. We conclude that branded drugs can interact with exposure to television advertisements.

advertising | placebo effect

PRICE 2013

Michael Holton Price & Douglas W. Bird, *Interpreting the evidence for middle Holocene gene flow from India to Australia*. [PNAS 110 \(2013\), E2948](#).

The "magic bullet" explanation of middle Holocene archaeological change in Australia, whereby the introduction of external technology explains complex middle Holocene archaeological changes, is difficult to sustain given present archaeological and genetic data.

PUGACH 2013

Irina Pugach & Mark Stoneking, *No inconsistency between the date of gene flow from India and the Australian archaeological record, Reply to Price and Bird*. [PNAS 110 \(2013\), E2949](#).

However, if the Indian gene flow to Australia was not a one-time event, but occurred over a period of time, then the inferred date of admixture would indicate the most recent period of contact. Hence, there is no contradiction between the (controversial) earlier dates cited for the appearance of the microliths and detoxification of plants and the date for the presumed gene flow from India.

Anthropologie

CULOTTA 2013

Elizabeth Culotta, *Latest Skirmish Over Ancestral Violence Strikes Blow for Peace*. [science 340 \(2013\), 224](#).

Those on the other side of the debate say that the paper lacks the numerical data to evaluate how common war and homicide actually are. “This is essentially a list of anecdotes—there’s no real method in these ethnographies,” says anthropologist Kim Hill of Arizona State University, Tempe, whose own detailed field studies found warfare in three South American groups. He and others cite recent work suggesting that ancient war was frequent enough to have influenced our evolution, for example by encouraging altruistic cooperation among warriors. [...] For example, the Andamanese Islanders are reported as having few killing events, but other researchers have documented additional killings there, often between groups.

FRY 2013

Douglas P. Fry & Patrik Söderberg, *Lethal Aggression in Mobile Forager Bands and Implications for the Origins of War*. [science 340 \(2013\), 270–273](#).

[s340-0270-Supplement.pdf](#)

It has been argued that warfare evolved as a component of early human behavior within foraging band societies. We investigated lethal aggression in a sample of 21 mobile forager band societies (MFBS) derived systematically from the standard cross-cultural sample. We hypothesized, on the basis of mobile forager ethnography, that most lethal events would stem from personal disputes rather than coalitionary aggression against other groups (war). More than half of the lethal aggression events were perpetrated by lone individuals, and almost two-thirds resulted from accidents, interfamilial disputes, within-group executions, or interpersonal motives such as competition over a particular woman. Overall, the findings suggest that most incidents of lethal aggression among MFBS may be classified as homicides, a few others as feuds, and a minority as war.

Klima

KELLY 2013

Ryan Kelly, Melissa L. Chipman, Philip E. Higuera, Ivanka Stefanova, Linda B. Brubaker & Feng Sheng Hu, *Recent burning of boreal forests exceeds fire regime limits of the past 10,000 years*. [PNAS 110 \(2013\), 13055–13060](#).

[pnas110-13055-Supplement.doc](#)

Wildfire activity in boreal forests is anticipated to increase dramatically, with far-reaching ecological and socioeconomic consequences. Paleorecords are indispensable for elucidating boreal fire regime dynamics under changing climate, because fire return intervals and successional cycles in these ecosystems occur over decadal to centennial timescales. We present charcoal records from 14 lakes in the Yukon Flats of interior Alaska, one of the most flammable ecoregions of the boreal forest biome, to infer causes and consequences of fire regime change over the past 10,000 y. Strong correspondence between charcoal-inferred and observational fire records shows the fidelity of sedimentary charcoal records as archives of past fire regimes. Fire frequency and area burned increased $\approx 6,000$ – $3,000$ y ago, probably as a result of elevated landscape flammability associated with increased *Picea mariana* in the regional vegetation. During the Medieval Climate Anomaly (MCA; $\approx 1,000$ – 500 cal B.P.), the period most similar to recent decades, warm and dry climatic conditions resulted in peak biomass burning, but severe fires favored less-flammable deciduous vegetation, such that fire frequency remained relatively stationary. These results suggest that boreal forests can sustain high-severity fire regimes for centuries under warm and dry conditions, with vegetation feedbacks modulating climate–fire linkages. The apparent limit to MCA burning has been surpassed by the regional fire regime of recent decades, which is characterized by exceptionally high fire frequency and biomass burning. This extreme combination suggests a transition to a unique regime of unprecedented fire activity. However, vegetation dynamics similar to feedbacks that occurred during the MCA may stabilize the fire regime, despite additional warming.

paleoecology | Holocene | Arctic | climate change | climate–fire–vegetation interactions

PETAEV 2013

Michail I. Petaev, Shichun Huang, Stein B. Jacobsen & Alan Zindler, *Large Pt anomaly in the Greenland ice core points to a cataclysm at the onset of Younger Dryas*. *PNAS* **110** (2013), 12917–12920.

One explanation of the abrupt cooling episode known as the Younger Dryas (YD) is a cosmic impact or airburst at the YD boundary (YDB) that triggered cooling and resulted in other calamities, including the disappearance of the Clovis culture and the extinction of many large mammal species. We tested the YDB impact hypothesis by analyzing ice samples from the Greenland Ice Sheet Project 2 (GISP2) ice core across the Bølling-Allerød/YD boundary for major and trace elements.

We found a large Pt anomaly at the YDB, not accompanied by a prominent Ir anomaly, with the Pt/Ir ratios at the Pt peak exceeding those in known terrestrial and extraterrestrial materials. Whereas the highly fractionated Pt/Ir ratio rules out mantle or chondritic sources of the Pt anomaly, it does not allow positive identification of the source. Circumstantial evidence such as very high, superchondritic Pt/Al ratios associated with the Pt anomaly and its timing, different from other major events recorded on the GISP2 ice core such as well-understood sulfate spikes caused by volcanic activity and the ammonium and nitrate spike due to the biomass destruction, hints for an extraterrestrial source of Pt. Such a source could have been a highly differentiated object like an Ir-poor iron meteorite that is unlikely to result in an airburst or trigger wide wildfires proposed by the YDB impact hypothesis.

meteorite impact | climate change | ICP-MS analysis | PGE

Neolithikum

BERSAGLIERI 2004

Todd Bersaglieri et al., *Genetic Signatures of Strong Recent Positive Selection at the Lactase Gene*. [American Journal of Human Genetics 74 \(2004\), 1111–1120](#).

Todd Bersaglieri, Pardis C. Sabeti, Nick Patterson, Trisha Vanderploeg, Steve F. Schaffner, Jared A. Drake, Matthew Rhodes, David E. Reich & Joel N. Hirschhorn In most human populations, the ability to digest lactose contained in milk usually disappears in childhood, but in European-derived populations, lactase activity frequently persists into adulthood (Scrimshaw and Murray 1988). It has been suggested (Cavalli-Sforza 1973; Hollox et al. 2001; Enattah et al. 2002; Poulter et al. 2003) that a selective advantage based on additional nutrition from dairy explains these genetically determined population differences (Simoons 1970; Kretchmer 1971; Scrimshaw and Murray 1988; Enattah et al. 2002), but formal population-genetics-based evidence of selection has not yet been provided. To assess the population-genetics evidence for selection, we typed 101 single-nucleotide polymorphisms covering 3.2 Mb around the lactase gene. In northern European-derived populations, two alleles that are tightly associated with lactase persistence (Enattah et al. 2002) uniquely mark a common ($\approx 77\%$) haplotype that extends largely undisrupted for >1 Mb. We provide two new lines of genetic evidence that this long, common haplotype arose rapidly due to recent selection: (1) by use of the traditional F_{ST} measure and a novel test based on pexcess, we demonstrate large frequency differences among populations for the persistence-associated markers and for anking markers throughout the haplotype, and (2) we show that the haplotype is unusually long, given its high frequency—a hallmark of recent selection. We estimate that strong selection occurred within the past 5,000–10,000 years, consistent with an advantage to lactase persistence in the setting of dairy farming; the signals of selection we observe are among the strongest yet seen for any gene in the genome.

CURRY 2013

Andrew Curry, *The milk revolution*. [nature 500 \(2013\), 20–22](#).

When a single genetic mutation first let ancient Europeans drink milk, it set the stage for a continental upheaval.

Once the LP allele appeared, it offered a major selective advantage. In a 2004 study, researchers estimated that people with the mutation would have produced up to 19% more fertile offspring than those who lacked it. The researchers called that degree of selection “among the strongest yet seen for any gene in the genome”. As Middle Eastern Neolithic cultures moved into Europe, their farming and herding technologies helped them to out-compete the local hunter-gatherers. And as the southerners pushed north, says Gerbault, the LP allele ‘surf’ the wave of migration. Lactase persistence had a harder time becoming established in parts of southern Europe, because Neolithic farmers had settled there before the mutation appeared. But as the agricultural society expanded northwards and westwards into new territory, the advantage provided by lactase persistence had a big impact. “As the population grows quickly at the edge of the wave, the allele can increase in frequency,” says Gerbault.

Ozeanien

PUGACH 2013

Irina Pugach, Frederick Delfin, Ellen Gunnarsdóttir, Manfred Kayser & Mark Stoneking, *Genome-wide data substantiate Holocene gene flow from India to Australia*. [PNAS 110 \(2013\), 1803–1808](#).

[pnas110-01803-Comment1.pdf](#), [pnas110-01803-Reply1.pdf](#)

The Australian continent holds some of the earliest archaeological evidence for the expansion of modern humans out of Africa, with initial occupation at least 40,000 y ago. It is commonly assumed that Australia remained largely isolated following initial colonization, but the genetic history of Australians has not been explored in detail to address this issue. Here, we analyze large-scale genotyping data from aboriginal Australians, New Guineans, island Southeast Asians and Indians. We find an ancient association between Australia, New Guinea, and the Mamanwa (a Negrito group from the Philippines), with divergence times for these groups estimated at 36,000 y ago, and supporting the view that these populations represent the descendants of an early “southern route” migration out of Africa, whereas other populations in the region arrived later by a separate dispersal. We also detect a signal indicative of substantial gene flow between the Indian populations and Australia well before European contact, contrary to the prevailing view that there was no contact between Australia and the rest of the world. We estimate this gene flow to have occurred during the Holocene, 4,230 y ago. This is also approximately when changes in tool technology, food processing, and the dingo appear in the Australian archaeological record, suggesting that these may be related to the migration from India.

admixture time | population history | human evolution

Physik

CLARY 2013

David C. Clary, *100 Years of Atomic Theory*. [science 340 \(2013\), 244–245](#).

One hundred years ago, Niels Bohr’s pioneering paper on the electronic structure of the hydrogen atom revolutionized atomic theory.