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References

Afrika

Brandt 2012

Steven A. Brandt et al., *Early MIS 3 occupation of Mochena Borago Rockshelter, Southwest Ethiopian Highlands, Implications for Late Pleistocene archaeology, paleoenvironments and modern human dispersals*. Quaternary International **274** (2012), 38–54.

Steven A. Brandt, Erich C. Fisher, Elisabeth A. Hildebrand, Ralf Vogelsang, Stanley H. Ambrose, Joséphine Lesur & Hong Wang

Between 70 and 50 ka BP, anatomically modern humans dispersed across and out of Africa to eventually populate all inhabitable continents. Knowledge of paleoenvironments and human behavioral patterns in Africa prior to and during these dispersals is crucial for understanding how and why hunter-gatherers were able to adapt rapidly to the new environments they encountered. However, few well-dated sites from this time period are known from the Horn of Africa, one of the purported staging areas for population movements into southern Arabia and Asia. Excavations at Mochena Borago Rockshelter, situated on the western slopes of a dormant volcano where the SW Ethiopian Highlands meet the Ethiopian Rift, have yielded the first securely dated archaeological sequence for later periods of the dispersal. Three major lithostratigraphic groups incorporating occupational episodes have yielded charcoal radiocarbon ages ≈53–38 ka calBP; deeper deposits have been tested but remain undated. Archaeological assemblages consist mainly of obsidian flaked stone artifacts manufactured from small, minimally prepared, single- to multi-platform flake cores; radially prepared cores are rare and blade cores are absent. Small unifacial to bifacial points from non-radial cores dominate the earliest shaped tool assemblages, and backed pieces first appear by ≈45 ka calBP. By ≈43 ka calBP, scrapers and backed pieces are predominant, rather than points. However, there is little evidence for technological change other than the appearance of bipolar technology. Mochena Borago's archaeological sequence thus cannot be neatly classified as Middle Stone Age, Later Stone Age or "transitional" and calls into question some of the principles by which archaeologists have attempted to classify African toolmaking traditions.

Aktuell

McDonnell 2015

Jeffrey J. McDonnell, *Creating a research brand*. science **349** (2015), 758.

The trick is to find the optimal research brand width: too broad and you blend in with others and lack a niche to carve out; too narrow and you seem too limited. You want some connection to your adviser's research brand, but you also want to move in a new direction that honors your unique skills. The old adage "only do what only you can do" can be helpful as you ponder this.

Peer 2015

Michael Peer, Roy Salomon, Ilan Goldberg, Olaf Blanke & Shahar Arzy, *Brain system for mental orientation in space, time, and person.* PNAS **112** (2015), 11072–11077.

Orientation is a fundamental mental function that processes the relations between the behaving self to space (places), time (events), and person (people). Behavioral and neuroimaging studies have hinted at interrelations between processing of these three domains. To unravel the neurocognitive basis of orientation, we used high-resolution 7T functional MRI as 16 subjects compared their subjective distance to different places, events, or people. Analysis at the individual-subject level revealed cortical activation related to orientation in space, time, and person in a precisely localized set of structures in the precuneus, inferior parietal, and medial frontal cortex. Comparison of orientation domains revealed a consistent order of cortical activity inside the precuneus and inferior parietal lobes, with space orientation activating posterior regions, followed anteriorly by person and then time. Core regions at the precuneus and inferior parietal lobe were activated for multiple orientation domains, suggesting also common processing for orientation across domains. The medial prefrontal cortex showed a posterior activation for time and anterior for person. Finally, the default-mode network, identified in a separate resting-state scan, was active for all orientation domains and overlapped mostly with person-orientation regions. These findings suggest that mental orientation in space, time, and person is managed by a specific brain system with a highly ordered internal organization, closely related to the default-mode network.

Keywords: cognitive map | disorientation | precuneus | default network | fMRI

Significance: Processing of spatial, temporal, and social relations relies on mental cognitive maps, on which the behaving self is oriented relative to different places, events, and people. Using high-resolution functional MRI scanning in individual subjects, we show that mental orientation in space, time, and person produces a sequential posterior–anterior pattern of activity in each participant's brain. These activations are adjacent and partially overlapping, highlighting the relation between mental orientation in these domains. Furthermore, the activity is highly overlapping with the brain's default-mode network, a system involved in selfreferential processing. These findings may shed new light on fundamental cognitive processing of space, time, and person and alter our understanding of disorientation phenomena in neuropsychiatric disorders such as Alzheimer's disease.

Ren 2015

Jiawen Ren, Fang-Fang Li, Jason Lau, Luis González-Urbina & Stuart Licht, *One-Pot Synthesis of Carbon Nanofibers from CO_2.* ACS Nanoletters (2015), preprint, 1–7. DOI:10.1021/acs.nanolett.5b02427.

Carbon nanofibers, CNFs, due to their superior strength, conductivity, flexibility, and durability have great potential as a material resource but still have limited use due to the cost intensive complexities of their synthesis. Herein, we report the highyield and scalable electrolytic conversion of atmospheric CO2 dissolved in molten carbonates into CNFs. It is demonstrated that the conversion of CO2 -> CCNF + O2 can be driven by efficient solar, as well as conventional, energy at inexpensive steel or nickel electrodes. The structure is tuned by controlling the electrolysis conditions, such as the addition of trace transition metals to act as CNF nucleation sites, the addition of zinc as an initiator and the control of current density. A less expensive source of CNFs will facilitate its adoption as a societal resource, and using carbon dioxide as a reactant to generate a value added product such as CNFs provides impetus to consume this greenhouse gas to mitigate climate change.

Keywords: Carbon nanofibers | carbon composites | carbon capture | climate change | solar energy

Altpaläolithikum

Leppard 2015

Thomas P. Leppard, *Passive Dispersal versus Strategic Dispersal in Island Colonization by Hominins*. Current Anthropology **56** (2015), 590–595.

It has been argued recently that artifacts from islands in the Mediterranean and Island Southeast Asia are representative of deliberate maritime colonization by archaic hominins. This runs contrary to the more usual understanding of seas and oceans as barriers to rather than enablers of dispersal in Homo. This paper advances the debate beyond an impasse between maximalist and minimalist interpretations of these data by suggesting that passive sweepstakes dispersal events may be implicated in the distribution of Homo. Very unlikely in the short term but increasingly likely over evolutionary time, it is argued that the small body of data that has been taken to be indicative of early seagoing could in fact represent the archaeological signature of passive long-distance dispersal by archaic hominins. This allows these data to be built into the standard model of hominin dispersal without abandoning the concept of oceans as, in general, representative of barriers to this process.

Anthropologie

Hardy 2015

Karen Hardy, Jennie Brand-Miller, Katherine D. Brown, Mark G. Thomas & Les Copeland, *The Importance of Dietary Carbohydrate in Human Evolution*. Quarterly Review of Biology **90** (2015), 251–268.

We propose that plant foods containing high quantities of starch were essential for the evolution of the human phenotype during the Pleistocene. Although previous studies have highlighted a stone tool-mediated shift from primarily plant-based to primarily meat-based diets as critical in the development of the brain and other human traits, we argue that digestible carbohydrates were also necessary to accommodate the increased metabolic demands of a growing brain. Furthermore, we acknowledge the adaptive role cooking played in improving the digestibility and palatability of key carbohydrates. We provide evidence that cooked starch, a source of preformed glucose, greatly increased energy availability to human tissues with high glucose demands, such as the brain, red blood cells, and the developing fetus. We also highlight the auxiliary role copy number variation in the salivary amylase genes may have played in increasing the importance of starch in human evolution following the origins of cooking. Salivary amylases are largely ineffective on raw crystalline starch, but cooking substantially increases both their energy-yielding potential and glycemia. Although uncertainties remain regarding the antiquity of cooking and the origins of salivary amylase gene copy number variation, the hypothesis we present makes a testable prediction that these events are correlated.

Keywords: human evolution | diet | carbohydrate | preformed glucose | salivary amylase genes | copy number variation

Ramon 2015

Meike Ramon, Luca Vizioli, Joan Liu-Shuang & Bruno Rossion, *Neural microgenesis of personally familiar face recognition*. PNAS **112** (2015), E4835–E4844.

Despite a wealth of information provided by neuroimaging research, the neural basis of familiar face recognition in humans remains largely unknown. Here, we isolated the discriminative neural responses to unfamiliar and familiar faces by slowly increasing visual information (i.e., high-spatial frequencies) to progressively reveal faces of unfamiliar or personally familiar individuals. Activation in ventral occipitotemporal face-preferential regions increased with visual information, independently of long-term face familiarity. In contrast, medial temporal lobe structures (perirhinal cortex, amygdala, hippocampus) and anterior inferior temporal cortex responded abruptly when sufficient information for familiar face recognition was accumulated. These observations suggest that following detailed analysis of individual faces in core posterior areas of the face-processing network, familiar face recognition emerges categorically in medial temporal and anterior regions of the extended cortical face network.

Keywords: personally familiar face recognition | coarse-to-fine | fusiform face area | amygdala | medial temporal lobe

Significance: We addressed the open question of how the human brain recognizes personally familiar faces. A dynamic visual-stimulation paradigm revealed that familiar face recognition is achieved first and foremost in medial and anterior temporal regions of the extended face-processing system. These regions, including the amygdala, respond categorically to individual familiar faces. In contrast, activation in posterior core face-preferential regions is associated with the amount of visual information available, irrespective of familiarity. Through integration of core and extended face-processing systems, these observations provide a common framework for understanding the neural basis of familiar face recognition.

Sacks 2010

Oliver Sacks, *Face-Blind, Why are some of us terrible at recognizing faces?* New Yorker **2010**, Aug. 30.

I have had difficulty recognizing faces for as long as I can remember. I did not think too much about this as a child, but by the time I was a teen-ager, in a new school, it was often a cause of embarrassment. My frequent inability to recognize schoolmates would cause bewilderment, and sometimes offense—it did not occur to them (why should it?) that I had a perceptual problem.

I am particularly thrown if I see people out of context, even if I have been with them five minutes before. This happened one morning just after an appointment with my psychiatrist. (I had been seeing him twice weekly for several years at this point.) A few minutes after I left his office, I encountered a soberly dressed man who greeted me in the lobby of the building. I was puzzled as to why this stranger seemed to know me, until the doorman greeted him by name—it was, of course, my analyst.

Sołtysiak 2015

Arkadiusz Sołtysiak, *The Osteological Paradox, Selective Mortality, and Stress Markers Revisited*. Current Anthropology **56** (2015), 569–570.

Antisemitismus

Schwartz-Bostunitsch 1937
: Gregor Schwartz-Bostunitsch, *Jüdischer Imperialismus*, *Dreitausend Jahre Kampf mosaistischer Kader um Einfluß und Macht*. (Viöl 2001). Faksimile der 1937 erschienenen dritten Auflage.

Bibel

Mandell 2012
: Alice Mandell, *"I bless you to YHWH and his Asherah", Writing and performativity at Kuntillet ʿAjrud*. Maarav **19** (2012), 131–162.

  In conclusion, KA 3.1 and 3.6 were originally blessings spoken by travelers that were then inscribed in the shrine area at Kuntillet Ajrud. Once the blessings were articulated verbally, they were transcribed to enhance their efficaciousness. Such graffiti functioned in a similar way to to visitors' graffiti left in Egyptian tombs and temples, and were meant to endure long after the worshiper had left the sacred area. The specific similarities to Egyptian epigraphic and iconographic traditions may have arisen in part from Kuntillet Ajrud's geographic proximity to Egypt. However, the epigraphic record in the Iron II also attests to a general increase in written dedications, and in particular, blessing and curse texts, which suggests that as writing became progressively relevant to daily life in Israel and Judah, it was incorporated increasingly into religious practice. Overall, the presence of such inscriptional materials in Judah and Israel (presuming that Kuntillet Ajrud does reflect a northern orientation) attests to the evolving role of scribes (and perhaps other literate individuals) who served a similar role to their Egyptian counterparts and produced, what may be described as, personalized "magical" texts. Writing thus became the next step in performative ritual, transforming spoken invocations, blessings, and curses into something much more permanent and efficacious.

Biologie

Singh 2015
: Nadia D. Singh, Dallas R. Criscoe, Shelly Skolfield, Kathryn P. Kohl, Erin S. Keebaugh & Todd A. Schlenke, *Fruit flies diversify their offspring in response to parasite infection*. science **349** (2015), 747–750.

  s349-0747-Supplement.pdf

  The evolution of sexual reproduction is often explained by Red Queen dynamics: Organisms must continually evolve to maintain fitness relative to interacting organisms, such as parasites. Recombination accompanies sexual reproduction and helps diversify an organism's offspring, so that parasites cannot exploit static host genotypes. Here we show that Drosophila melanogaster plastically increases the production of recombinant offspring after infection. The response is consistent across genetic backgrounds, developmental stages, and parasite types but is not induced after sterile wounding. Furthermore, the response appears to be driven by transmission distortion rather than increased recombination. Our study extends the Red Queen model to include the increased production of recombinant offspring and uncovers a remarkable ability of hosts to actively distort their recombination fraction in rapid response to environmental cues.

Energie

Bonka 1992

Hans Bonka, *Comparison of measured radioecological parameters in Aachen after Chernobyl accident with values used in the Federal Republic of Germany.* In: *Proceedings of the 8. International Congress of the International Radiation Protection Association (IRPA8); Montreal, Quebec (Canada); 17–22 May 1992.* (Montreal 1992), 1705–1708.

After the nuclear reactor accident at Chernobyl it was possible just like after the nuclear weapon tests to measure important radioecological parameters. It could be explained why the transport of I 131 from air into milk was overestimated by a factor of approx. 5 due to the used compartment model. The most important measured parameters in Aachen are stated.

Sterner 2011

Michael Sterner, Mareike Jentsch & Uwe Holzhammer, *Energiewirtschaftliche und ökologische Bewertung eines Windgas-Angebotes.* (Kassel 2011).

EE-Gas wird für die Langzeitspeicherung von erneuerbaren Energien in Gasspeichern und der Rückverstromung in Gaskraftwerken und KWKAnlagen als Backup zum Ausgleich von wetterbedingten Fluktuationen im Stromsystem und der Stabilisierung der Stromnetze benötigt.

Strom-zu-Gas-zu-Strom: 34–44 % bei Verstromung mit 60 % und Kompression auf 80 bar.

Die größte Klimaschutzwirkung erreicht EE-Gas im Verkehr durch die Vermeidung von Coal-to-Liquid. Gesamtwirkungsgrad für die direkte Nutzung von EE-Methan über konventionelles Erdgasfahrzeug: etwa 15–20 %.

Isotope

Knipper 2015

Corina Knipper et al., *Superior in Life—Superior in Death, Dietary Distinction of Central European Prehistoric and Medieval Elites.* Current Anthropology **56** (2015), 579–589.

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Corina Knipper, Petra Held, Marc Fecher, Nicole Nicklisch, Christian Meyer, Hildrun Schreiber, Bernd Zich, Carola Metzner-Nebelsick, Vera Hubensack, Leif Hansen, Elke Nieveler, and Kurt W. Alt

Food production provoked social inequality in agricultural societies. Starting in the European late Neolithic, conspicuously equipped inhumations with elaborate grave architecture indicated representatives of local and possibly regional elites. However, burials are always shaped by a complex combination of the desires of the deceased and of the bereaved, along with ritual customs and norms. Therefore, a superior burial may not always be preceded by long-term superior life conditions. One widely accepted characteristic of social distinction is access to different, supposedly higher-quality food, which is deducible from light stable isotope analysis of carbon and nitrogen in bone collagen (d13C and d15N). Four remarkable cases of high-elite individuals from the modern territory of Germany spanning from the Early Bronze Age to Medieval times exhibited d15N values that exceeded those of

contemporaneous “commoner” populations significantly. This demonstrates outstanding dietary compositions, including larger shares of meat and dairy products but also possibly fish, poultry, and the meat of young animals. The results support enduringly different lifestyles and privileges for the representatives of the respective highest social class, despite very different prehistoric and historic contexts.

Significance: The pronounced social distinctness of the individuals investigated here is especially important because in previous studies, archaeologically implied social differences within cemeteries were sometimes only weakly represented in the stable isotope data (Privat, O’Connell, and Richards 2002) or revealed gradual differentiations rather than single outliers (Jay 2006; Le Huray and Schutkowski 2005; Oelze et al. 2012; Yoder 2012). In contrast, this study investigated single individuals that formed the very summit of accumulated wealth within their time periods. Their outstanding stable isotope ratios emphasize their outstanding social positions and show that exclusive lifestyles of single individuals were a regular phenomenon in Central European (pre)history. Despite dissimilar historical contexts, the general patterns are strikingly alike over more than 3 millennia and attest to sustainably different lifestyles and long-term privileges for individuals marked as the highest elite by their own societies.

Klima

Thornalley 2015

D. J. R. Thornalley et al., *A warm and poorly ventilated deep Arctic Mediterranean during the last glacial period*. science **349** (2015), 706–710.

s349-0706-Supplement.pdf

D. J. R. Thornalley, H. A. Bauch, G. Gebbie, W. Guo, M. Ziegler, S. M. Bernasconi, S. Barker, L. C. Skinner & J. Yu

Changes in the formation of dense water in the Arctic Ocean and Nordic Seas [the “Arctic Mediterranean” (AM)] probably contributed to the altered climate of the last glacial period. We examined past changes in AM circulation by reconstructing radiocarbon ventilation ages of the deep Nordic Seas over the past 30,000 years. Our results show that the glacial deep AM was extremely poorly ventilated (ventilation ages of up to 10,000 years). Subsequent episodic overflow of aged water into the mid-depth North Atlantic occurred during deglaciation. Proxy data also suggest that the deep glacial AM was ≈2° to 3°C warmer than modern temperatures; deglacial mixing of the deep AM with the upper ocean thus potentially contributed to the melting of sea ice, icebergs, and terminal ice-sheet margins.

Kultur

Lancy 2015

David F. Lancy, *Children as a Reserve Labor Force*. Current Anthropology **56** (2015), 545–568.

Comments by: Robin M. Bernstein, David F. Bjorklund, Alyssa N. Crittenden, Marco Del Giudice, David W. Lawson and Sophie Hedges, Steven Mintz, Alice Schlegel, Charles-Édouard de Suremain & Akira Takada

Human life history is unique in the great length of its juvenile, or immature, period. This lengthened period is often attributed to the time required for youth to master the culture, particularly subsistence and survival skills. But studies in increasing number show that children become skilled well before they gain complete

independence and adult status. As children learn through play and participation in the domestic economy, they seem to be acquiring a "reserve capacity" of skills and knowledge that may not be fully employed for many years. To resolve this paradox, the theory offered here poses that this reserve capacity of children, both individually and collectively, can be rapidly activated to offset a shortfall in familial resources brought on by crises such as the loss of older family members. Additionally, social forces engendered by war, disease, famine, and economic change may lead to the wholesale recruitment of children into the labor force—with consequent attenuation of the developmental opportunities of an extended juvenility. In effect, humans display a primary life history strategy and an accelerated strategy with a shortened period of dependency. A wide array of cases from anthropology and history will be offered in support of this proposal.

Methoden

Edinborough 2015

Kevan Edinborough, Enrico R. Crema, Tim Kerig & Stephen Shennan, *An ABC of lithic arrowheads, A case study from southeastern France*. In: Kristian Brink, Susan Hydén, Kristina Jennbert, Lars Larsson & Deborah Olausson (Hrsg.), *Neolithic Diversities, Perspectives from a conference in Lund, Sweden*. Acta Archaeologica Lundensia 65 (Lund 2015), 213–223.

If archaeology is to take a leading role in the social sciences, new theoretical and methodological advances emerging from the natural sciences cannot be ignored. This requires considerable retooling for archaeology as a discipline at a population scale of analysis. Such an approach is not easy to carry through, especially owing to historically contingent regional traditions; however, the knowledge gained by directly addressing these problems head-on is well worth the effort. This paper shows how population level processes driving cultural evolution can be better understood if mathematical and computational methods, often with a strong element of simulation, are applied to archaeological datasets. We use computational methods to study patterns and process of temporal variation in the frequency of cultural variants. More specifically, we will explore how lineages of lithic technologies are transmitted over time using a well-analysed and chronologically fine-grained assemblage of central European Neolithic armatures from the French Jura. We look for sharp cultural transitions in the frequency of armature types by trying to detect significant mismatches between predictions dictated by an unbiased transmission model and observed empirical data. A simple armature classification scheme based on morphology is introduced. The results have considerable implications for analysing and understanding cultural transmission pathways not only for Neolithic armatures, but also for the evolution of lithic technology more generally in different spatiotemporal contexts.

Neolithikum

Munro 2015

Natalie D. Munro & Mary C. Stiner, *Zooarchaeological Evidence for Early Neolithic Colonization at Franchthi Cave (Peloponnese, Greece)*. Current Anthropology **56** (2015), 596–603.

CurrAnth56-596-Supplement.pdf

Franchthi Cave is a cornerstone for research on the mechanisms of the forager-producer transition in the southern Balkans region. Publications on this site have documented the geological, artifactual, and macrobotanical records, but detailed information on the faunas is lacking. This zooarchaeological study focuses on the Final Mesolithic and Initial Neolithic periods and the question of whether livestock were adopted as isolated components by late Mesolithic foragers or the site was colonized by people who possessed a fully agricultural lifestyle. Because minor stratigraphic mixing may underlie earlier perceptions of a gradual inclusion of domestic animals into the diet during the Initial Neolithic occupation, we examine this question with the help of zooarchaeological and taphonomic data. Changes in taxonomic abundance, contrasting patterns of burning damage, and caprine (sheep and goat) demographic and body-size data together reveal an abrupt shift from a broad spectrum diet during the Final Mesolithic period to a fully fledged domestic economy in the Initial Neolithic that centered on caprines, especially sheep. The caprines transported to Franchthi were small in size, and these animals were intensively managed to optimize meat production. The evidence indicates a wholesale replacement of Mesolithic economies by a Neolithic package at Franchthi Cave soon after 7000 cal BC.