EAORC BULLETIN 1,021 – 8 January 2023

CONTENTS

NOTICES

PUBLICATION ALERTS

If you have had a paper or book published, or you see something which would be of interest to the group, please send me a publication alert so that I can include it in the newsletter. Many thanks to those who have already sent in alerts.
If there is a journal you feel I should be tracking on a regular basis, let me know.
And if you have any other ideas for extending the "EAORC experience", please contact me.

ACADEMIA.EDU – Going big versus going small: Lithic miniaturization in hominin lithic technology

Evolutionary Anthropology 28:2, 72-85 (2019).

JUSTIN PARGETER & JOHN J. SHEA – Going big versus going small: Lithic miniaturization in hominin lithic technology

Lithic miniaturization was one of our Pleistocene ancestors' more pervasive stone tool production strategies and it marks a key difference between human and non-human tool use. Frequently equated with "microlith" production, lithic miniaturization is a more complex, variable, and evolutionarily consequential phenomenon involving small backed tools, bladelets, small retouched tools, flakes, and small cores. In this review, we evaluate lithic miniaturization's various technological and functional elements. We examine archeological assumptions about why prehistoric stoneworkers engaged in processes of lithic miniaturization by making small stone tools, small elongated tools, and small retouched and backed

tools. We point to functional differences that motivate different aspects of lithic miniaturization and several instances where archeological systematics have possibly led archeologists to false negative findings about lithic miniaturization. Finally, we suggest productive avenues by which archeologists can move closer to understanding the complex evolutionary forces driving variability in lithic miniaturization.
https://www.academia.edu/38661179/Going_big_versus_going_small_Lithic_miniaturization_in_hominin_lithic_technology

NEWS

SCIENCE NEWS – Human gene linked to bigger brains was born from seemingly useless DNA

Researchers discover how DNA sequences must mutate to free their RNA to make proteins.
https://www.science.org/content/article/human-gene-linked-bigger-brains-was-born-seemingly-useless-dna

THE CONVERSATION – Foster children can easily lose their first language

Children may struggle to recall basic words in their first language within a couple of months of stopping using it – but giving it a place in daily life can make a big difference.
https://theconversation.com/foster-children-can-easily-lose-their-first-language-but-giving-it-a-place-in-daily-life-can-make-a-big-difference-196177

PUBLICATIONS

Acta Linguistica Hafniensia

PAPERS

BJARNE ØRSNES – Focus particles as utterances – the case of German ausgerechnet!

Focus particles such as auch “also”, nur “only” and sogar “even” form a closed word class and do not occur as immediate constituents in German. They usually have to adjoin to an associated focus constituent and are even occasionally referred to as function words. It is quite surprising that the focus particle ausgerechnet “of all X” (Peter kommt ausgerechnet heute “Peter is coming today of all days”) also occurs as an independent utterance as in Peter kommt heute. Ausgerechnet! “Peter is coming today. Of all days!”. The article describes this little studied (colloquial) use of ausgerechnet. It presents a detailed analysis of the focus particle ausgerechnet showing that it is an expressive item in the sense of Christopher Potts. The expressive semantics motivates its use as an utterance in analogy to exclamations with expressives such as the interjection Donnerwetter! “Oh dear!” or the adjective Toll! “great”. The analysis is presented in a construction-based framework and illustrates the need to integrate core and peripheral grammatical phenomena.
https://www.tandfonline.com/doi/full/10.1080/03740463.2022.2131976

American Journal of Biological Anthropology

PAPERS

FRANCISCO J. BERMÚDEZ et al with JOSÉ MARÍA BERMÚDEZ DE CASTRO – A human lower third molar from the Acheulean site of Cueva del Ángel (Lucena, Córdoba, Spain)

We described the morphology of this human right lower third molar at both the outer enamel surface and the enamel–dentine junction by means of micro-computed tomography. In order to better understand hominin diversity, our morphological and metrical results were compared with those of other hominins obtained from published research. We provide a direct aspartic acid racemization dating of the molar.
The direct dating (104.3 ka) situates the molar within the Marine isotopic stage 5d. The crown dimensions are comparable to those of the Sima de los Huesos sample and modern humans. The combination of a continuous middle trigonid crest and a well-developed anterior fovea lies within the range of morphological variation reported for Neanderthal lower molars. The distal portion of the molar has a prominent protostylid.
Crown and root morphology of this molar fits within the Neanderthal morphological pattern. However, both its dimensions and the absence of a hypoconulid tend to position this specimen away from contemporaneous Neanderthals and rather relate it more closely to some Middle Pleistocene populations.
A new dental specimen is added to the Iberian Peninsula fossil record from the Marine isotopic stage 5, attesting to some degree of dental variability in the early Upper Pleistocene.
https://onlinelibrary.wiley.com/doi/abs/10.1002/ajpa.24677

Current Biology

NEWS

A genetic hair loss formula

Mammals that have lost their hair evolved this trait independently but relying on the same set of genes.
https://elifesciences.org/digests/76911/a-genetic-hair-loss-formula

ARTICLES

MATTHEW D DEAN – Evolution: How (some) mammals lost their hair

An approach that allows scientists to identify regions of the genome that evolved faster in hairless mammals reveals candidate genetic mechanisms that gave rise to hairlessness.
https://elifesciences.org/articles/84865

PAPERS

KAI HWANG et al – Thalamocortical contributions to cognitive task activity

Thalamocortical interaction is a ubiquitous functional motif in the mammalian brain. Previously (Hwang et al., 2021), we reported that lesions to network hubs in the human thalamus are associated with multi-domain behavioral impairments in language, memory, and executive functions. Here, we show how task-evoked thalamic activity is organized to support these broad cognitive abilities. We analyzed functional magnetic resonance imaging (MRI) data from human subjects that performed 127 tasks encompassing a broad range of cognitive representations. We first investigated the spatial organization of task-evoked activity and found a basis set of activity patterns evoked to support processing needs of each task. Specifically, the anterior, medial, and posterior-medial thalamus exhibit hub-like activity profiles that are suggestive of broad functional participation. These thalamic task hubs overlapped with network hubs interlinking cortical systems. To further determine the cognitive relevance of thalamic activity and thalamocortical functional connectivity, we built a data-driven thalamocortical model to test whether thalamic activity can be used to predict cortical task activity. The thalamocortical model predicted task-specific cortical activity patterns, and outperformed comparison models built on cortical, hippocampal, and striatal regions. Simulated lesions to low-dimensional, multi-task thalamic hub regions impaired task activity prediction. This simulation result was further supported by profiles of neuropsychological impairments in human patients with focal thalamic lesions. In summary, our results suggest a general organizational principle of how the human thalamocortical system supports cognitive task activity.
https://elifesciences.org/articles/81282

AMANDA KOWALCZYK, MARIA CHIKINA & NATHAN CLARK – Complementary evolution of coding and noncoding sequence underlies mammalian hairlessness

Body hair is a defining mammalian characteristic, but several mammals, such as whales, naked mole-rats, and humans, have notably less hair. To find the genetic basis of reduced hair quantity, we used our evolutionary-rates-based method, RERconverge, to identify coding and noncoding sequences that evolve at significantly different rates in so-called hairless mammals compared to hairy mammals. Using RERconverge, we performed a genome-wide scan over 62 mammal species using 19,149 genes and 343,598 conserved noncoding regions. In addition to detecting known and potential novel hair-related genes, we also discovered hundreds of putative hair-related regulatory elements. Computational investigation revealed that genes and their associated noncoding regions show different evolutionary patterns and influence different aspects of hair growth and development. Many genes under accelerated evolution are associated with the structure of the hair shaft itself, while evolutionary rate shifts in noncoding regions also included the dermal papilla and matrix regions of the hair follicle that contribute to hair growth and cycling. Genes that were top ranked for coding sequence acceleration included known hair and skin genes KRT2, KRT35, PKP1, and PTPRM that surprisingly showed no signals of evolutionary rate shifts in nearby noncoding regions. Conversely, accelerated noncoding regions are most strongly enriched near regulatory hair-related genes and microRNAs, such as mir205, ELF3, and FOXC1, that themselves do not show rate shifts in their protein-coding sequences. Such dichotomy highlights the interplay between the evolution of protein sequence and regulatory sequence to contribute to the emergence of a convergent phenotype.
https://elifesciences.org/articles/76911

European Journal of Human Genetics

PAPERS

LOTTIE D. MORISON et al – CDK13-related disorder: a deep characterization of speech and language abilities and addition of 33 novel cases

Speech and language impairments are central features of CDK13-related disorder. While pathogenic CDK13 variants have been associated with childhood apraxia of speech (CAS), a systematic characterisation of communication has not been conducted. Here we examined speech, language, non-verbal communication skills, social behaviour and health and development in 41 individuals with CDK13-related disorder from 10 countries (male = 22, median-age 7 years 1 month, range 1–25 years; 33 novel). Most participants used augmentative and alternative communication (AAC) in early childhood (24/41). CAS was common (14/22). Performance varied widely across intellectual ability, social behaviour and expressive language skills, with participants ranging from within average through to the severely impaired range. Receptive language was significantly stronger than expressive language ability. Social motivation was a relative strength. In terms of a broader health phenotype, a quarter had one or more of: renal, urogenital, musculoskeletal, and cardiac malformations, vision impairment, ear infections and/or sleep disturbance. All had gross and fine motor impairments (41/41). Other conditions included mild-moderate intellectual disability (16/22) and autism (7/41). No genotype-phenotype correlations were found. Recognition of

CAS, a rare speech disorder, is required to ensure appropriately targeted therapy. The high prevalence of speech and language impairment underscores the importance of tailored speech therapy, particularly early access to AAC supports.
https://www.nature.com/articles/s41431-022-01275-8

Interface: Journal of the Royal Society

PAPERS

TAKUYA TAKAHASHI & YASUO IHARA – Spatial evolution of human cultures inferred through Bayesian phylogenetic analysis

Spatial distribution of human culture reflects both descent from the common ancestor and horizontal transmission among neighbouring populations. To analyse empirically documented geographical variations in cultural repertoire, we will describe a framework for Bayesian statistics in a spatially explicit model. To consider both horizontal transmission and mutation of the cultural trait in question, our method employs a network model in which populations are represented by nodes. Using algorithms borrowed from Bayesian phylogenetic analysis, we will perform a Markov chain Monte Carlo (MCMC) method to compute the posterior distributions of parameters, such as the rate of horizontal transmission and the mutation rates among trait variants, as well as the identity of trait variants in unobserved populations. Besides the inference of model parameters, our method enables the reconstruction of the genealogical tree of the focal trait, provided that the mutation rate is sufficiently small. We will also describe a heuristic algorithm to reduce the dimension of the parameter space explored in the MCMC method, where we simulate the coalescent process in the network of populations. Numerical examples show that our algorithms compute the posterior distribution of model parameters within a practical computation time, although the posterior distribution tends to be broad if we use uninformative priors.
https://royalsocietypublishing.org/doi/10.1098/rsif.2022.0543

Mind & Language

PAPERS

JIE GAO – Should credence be sensitive to practical factors? A cost–benefit analysis

According to evidentialist views, credence in a proposition p should be proportional to the degree of evidential support that one has in favor of p. However, empirical evidence suggests that our credences are systematically sensitive to practical factors. In this article, I provide a cost–benefit analysis of credences' practical sensitivity. The upshot of this analysis is that credences sensitive to practical factors fare better than practically insensitive ones along several dimensions. All things considered, our credences should be sensitive to practical factors.
https://onlinelibrary.wiley.com/doi/full/10.1111/mila.12451

Nature

ARTICLES

ANDREW BERRY – Alfred Russel Wallace's first expedition ended in flames

Born 200 years ago, the evolutionary biologist experienced many setbacks during his career — none more severe than when he headed home with his precious collections from Brazil.
https://www.nature.com/articles/d41586-022-04507-5

CAMILA C. RIBAS – Escaping Darwin's shadow: how Alfred Russel Wallace inspires Indigenous researchers

Wallace, who independently discovered the theory of evolution, relied on local knowledge to craft his seminal work on species ranges in the Amazon. Now, the region's Indigenous scientists have taken charge of their research using this and other cross-cultural tools.
https://www.nature.com/articles/d41586-022-04508-4

Nature Ecology & Evolution

PAPERS

KEVIN G. HATALA, STEPHEN M. GATESY & PETER L. FALKINGHAM – Arched footprints preserve the motions of fossil hominin feet

The longitudinal arch of the human foot is viewed as a pivotal adaptation for bipedal walking and running. Fossil footprints from Laetoli, Tanzania, and Ileret, Kenya, are believed to provide direct evidence of longitudinally arched feet in hominins from the Pliocene and Pleistocene, respectively. We studied the dynamics of track formation using biplanar X-ray, three-dimensional animation and discrete element particle simulation. Here, we demonstrate that longitudinally arched footprints are false indicators of foot anatomy; instead they are generated through a specific pattern of foot kinematics that is characteristic of human walking. Analyses of fossil hominin tracks from Laetoli show only partial evidence of this walking style, with a similar heel strike but a different pattern of propulsion. The earliest known evidence for fully modern human-like bipedal kinematics comes from the early Pleistocene Ileret tracks, which were presumably made by members of the genus

Homo. This result signals important differences in the foot kinematics recorded at Laetoli and Ileret and underscores an emerging picture of locomotor diversity within the hominin clade.
https://www.nature.com/articles/s41559-022-01929-2

GABRIELE SANSALONE et al – Homo sapiens and Neanderthals share high cerebral cortex integration into adulthood
There is controversy around the mechanisms that guided the change in brain shape during the evolution of modern humans. It has long been held that different cortical areas evolved independently from each other to develop their unique functional specializations. However, some recent studies suggest that high integration between different cortical areas could facilitate the emergence of equally extreme, highly specialized brain functions. Here, we analyse the evolution of brain shape in primates using three-dimensional geometric morphometrics of endocasts. We aim to determine, firstly, whether modern humans present unique developmental patterns of covariation between brain cortical areas; and secondly, whether hominins experienced unusually high rates of evolution in brain covariation as compared to other primates. On the basis of analyses including modern humans and other extant great apes at different developmental stages, we first demonstrate that, unlike our closest living relatives, Homo sapiens retain high levels of covariation between cortical areas into adulthood. Among the other great apes, high levels of covariation are only found in immature individuals. Secondly, at the macro-evolutionary level, our analysis of 400 endocasts, representing 148 extant primate species and 6 fossil hominins, shows that strong covariation between different areas of the brain in H. sapiens and Homo neanderthalensis evolved under distinctly higher evolutionary rates than in any other primate, suggesting that natural selection favoured a greatly integrated brain in both species. These results hold when extinct species are excluded and allometric effects are accounted for. Our findings demonstrate that high covariation in the brain may have played a critical role in the evolution of unique cognitive capacities and complex behaviours in both modern humans and Neanderthals.
https://www.nature.com/articles/s41559-022-01933-6

NI A. AN et al – De novo genes with an lncRNA origin encode unique human brain developmental functionality
Human de novo genes can originate from neutral long non-coding RNA (lncRNA) loci and are evolutionarily significant in general, yet how and why this all-or-nothing transition to functionality happens remains unclear. Here, in 74 human/hominoid-specific de novo genes, we identified distinctive U1 elements and RNA splice-related sequences accounting for RNA nuclear export, differentiating mRNAs from lncRNAs, and driving the origin of de novo genes from lncRNA loci. The polymorphic sites facilitating the lncRNA–mRNA conversion through regulating nuclear export are selectively constrained, maintaining a boundary that differentiates mRNAs from lncRNAs. The functional new genes actively passing through it thus showed a mode of pre-adaptive origin, in that they acquire functions along with the achievement of their coding potential. As a proof of concept, we verified the regulations of splicing and U1 recognition on the nuclear export efficiency of one of these genes, the ENSG00000205704, in human neural progenitor cells. Notably, knock-out or over-expression of this gene in human embryonic stem cells accelerates or delays the neuronal maturation of cortical organoids, respectively. The transgenic mice with ectopically expressed ENSG00000205704 showed enlarged brains with cortical expansion. We thus demonstrate the key roles of nuclear export in de novo gene origin. These newly originated genes should reflect the novel uniqueness of human brain development.
https://www.nature.com/articles/s41559-022-01925-6

Nature Human Behaviour

PAPERS

BASILE GARCIA et al – Experiential values are underweighted in decisions involving symbolic options
Standard models of decision-making assume each option is associated with subjective value, regardless of whether this value is inferred from experience (experiential) or explicitly instructed probabilistic outcomes (symbolic). In this study, we present results that challenge the assumption of unified representation of experiential and symbolic value. Across nine experiments, we presented participants with hybrid decisions between experiential and symbolic options. Participants' choices exhibited a pattern consistent with a systematic neglect of the experiential values. This normatively irrational decision strategy held after accounting for alternative explanations, and persisted even when it bore an economic cost. Overall, our results demonstrate that experiential and symbolic values are not symmetrically considered in hybrid decisions, suggesting they recruit different representational systems that may be assigned different priority levels in the decision process. These findings challenge the dominant models commonly used in value-based decision-making research.
https://www.nature.com/articles/s41562-022-01496-3

Nature Scientific Reports

PAPERS

GAL BADIHI et al with KLAUS ZUBERBÜHLER & CATHERINE HOBAITER – Dialects in leaf-clipping and other leaf-modifying gestures between neighbouring communities of East African chimpanzees
Dialects are a cultural property of animal communication previously described in the signals of several animal species. While dialects have predominantly been described in vocal signals, chimpanzee leaf-clipping and other 'leaf-modifying' gestures,

used across chimpanzee and bonobo communities, have been suggested as a candidate for cultural variation in gestural communication. Here we combine direct observation with archaeological techniques to compare the form and use of leaf-modifying gestures in two neighbouring communities of East African chimpanzees. We found that while both communities used multiple forms, primarily within sexual solicitation, they showed a strong preference for a single, different gesture form. The observed variation in form preference between these neighbouring communities within the same context suggests that these differences are, at least in part, socially derived. Our results highlight an unexplored source of variation and flexibility in gestural communication, opening the door for future research to explore socially derived dialects in non-vocal communication.
https://www.nature.com/articles/s41598-022-25814-x

JOHAN LUNDIN KLEBERG et al – Social feedback enhances learning in Williams syndrome
Williams syndrome (WS) is a rare genetic condition characterized by high social interest and approach motivation as well as intellectual disability and anxiety. Despite the fact that social stimuli are believed to have an increased intrinsic reward value in WS, it is not known whether this translates to learning and decision making. Genes homozygously deleted in WS are linked to sociability in the general population, making it a potential model condition for understanding the social brain. Probabilistic reinforcement learning was studied with either social or non-social rewards for correct choices. Social feedback improved learning in individuals with Williams syndrome but not in typically developing controls or individuals with other intellectual disabilities. Computational modeling indicated that these effects on social feedback were mediated by a shift towards higher weight given to rewards relative to punishments and increased choice consistency. We conclude that reward learning in WS is characterized by high volatility and a tendency to learn how to avoid punishment rather than how to gain rewards. Social feedback can partly normalize this pattern and promote adaptive reward learning.
https://www.nature.com/articles/s41598-022-26055-8

JUAN IGNACIO MARTIN-VIVEROS et al with GONEN SHARON – Butchering knives and hafting at the Late Middle Paleolithic open-air site of Nahal Mahanayeem Outlet (NMO), Israel
Much of what is known about human behavior and subsistence strategies in the Levantine Middle Paleolithic comes from long sequences from caves and rock shelters. In this context, studies of stone tool function have traditionally focused on determining the use of Levallois points and triangular elements, either as projectiles or, more rarely, multipurpose knives. Little is known about such tool use and hafting in Middle Paleolithic open-air sites in the Levant through the systematic application of micro-wear analysis. Here we report the results of a low and high-power study performed on the lithic assemblage of the Late Middle Paleolithic open-air site of Nahal Mahanayeem Outlet (NMO, Israel). Most pointed items, including Levallois and non-Levallois points, were used as butchering knives, many of them while hafted; to a much lesser extent they were also used for hide, bone, and wood/plant processing activities. Blades and flakes were mostly handheld and used as butchering knives, with hide, bone, antler, and wood/plant-processing tasks being rare. Hafted artifacts include morphologies and activities for which hafting is not required, indicating that NMO inhabitants possessed varied hafting expertise. Wood/plant processing tools, some of which were hafted, attest that manufacture and maintenance tasks were planned well in advance of game procurement at the site. These results attest to early evidence of hafted butchering knives and hafted plant processing tools for a Late Middle Paleolithic open-air site in the Levant, and support previous interpretations of NMO as a short-term task-specific location focused on animal processing activities, mostly butchery.
https://www.nature.com/articles/s41598-022-27321-5

New Scientist

NEWS

Living in trees may have given great apes vocal skills for consonants
A comparison of consonant-like sounds in great apes suggests an arboreal lifestyle may have been a step towards complex speech in our ancestors.
https://www.newscientist.com/article/2352503-living-in-trees-may-have-given-great-apes-vocal-skills-for-consonants/

Mysterious symbols in cave paintings may be earliest form of writing
Stone Age people in Europe appear to have recorded the reproductive habits of animals with markings on cave paintings, hinting at the early origins of writing.
https://www.newscientist.com/article/mg25634202-800-mysterious-symbols-in-cave-paintings-may-be-earliest-form-of-writing/

ARTICLES

DAVID ROBSON – How to take control of your self-narrative for a better, happier life
The story you tell about yourself, known as your narrative identity, has a big influence on your well-being and ability to achieve personal goals. Here's how to harness it to your advantage.

https://www.newscientist.com/article/mg25634204-800-how-to-take-control-of-your-self-narrative-for-a-better-happier-life/

PeerJ

PAPERS

KAMIL K. IMBIR et al – The role of subjective significance, valence and arousal in the explicit processing of emotion-laden words

Emotional categorisation (deciding whether a word is emotional or not) is a task that employs the explicit analysis of the emotional meaning of words. Therefore, it allows for assessing the role of emotional factors, i.e., valence, arousal, and subjective significance, in emotional word processing. The aim of the current experiment was to investigate the role of subjective significance, a reflective form of activation that is similar to arousal (the automatic form), in the processing of emotional meaning. We applied the orthogonal manipulation of three emotional factors. Thus, we were able to precisely differentiate the effects of each factor and search for interactions between them. We expected valence to shape the late positive complex LPC component, while subjective significance and arousal were expected to shape the P300 and N400 components. We observed the effects of subjective significance throughout the whole span of processing, while the arousal effect was present only in the LPC component. We also observed that amplitudes for N400 and LPC discriminated negative from positive valence. The results showed that all factors included in the analysis should be taken into account while explaining the processing of emotion-laden words; especially interesting is the subjective significance, which was shown to shape processing individually, as well as to come into interaction with valence and arousal.
https://peerj.com/articles/14583/

PLoS One

PAPERS

JIAJING WANG et al – New evidence for rice harvesting in the early Neolithic Lower Yangtze River, China

The Lower Yangtze River of China has been identified as an independent center of rice domestication, but tracing the earliest evidence for rice cultivation practices has been challenging. Here we report the first evidence for rice harvesting, based on use-wear and phytolith residue analyses of 52 flaked stone tools (10000–7000 BP) from the Shangshan and Hehuashan sites. The tools reflect two harvesting methods: reaping the panicles at the top and cutting the stalk near the base. Thus, our research provides a new method for investigating prehistoric cereal cultivation, and the data lend support to the evidence of rice domestication in the early Holocene. The results also show the complexity of rice harvesting strategies several millennia before the emergence of full-fledged agriculture in the Lower Yangtze.
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0278200

TEGENU GOSSA & ERELLA HOVERS – Continuity and change in lithic techno-economy of the early Acheulian on the Ethiopian highland: A case study from locality MW2; the Melka Wakena site-complex

Recent research has made great strides clarifying the chronology, temporal span, and geographic and technological patterning of the Acheulian in eastern Africa. However, highland occurrences of the Acheulian remain under-represented and their relationship to cultural dynamics in the Rift are still poorly understood. Recently, a stratified sequence of four archaeological layers, recording Acheulian occupations dated between ~1.6 Ma and ~1.3 Ma, has been discovered in locality MW2 of the Melka Wakena site-complex (south-central Ethiopian highlands). This database enabled a systematic exploration of the question of tempo and mode of technological changes at a local sequence, allowing, for the first time, comparison with other highland sites as well as in the Rift. The detailed techno-economic study presented in this study shows that the early Acheulian at the locality was characterized by the co-existence of lithic reduction sequences for small debitage and for flake-based Large Cutting Tool production. In the early, ~1.6 Ma assemblage, a strategy of variable raw material exploitation and technological emphasis on small debitage were coupled with production of few crude bifacial elements. These shifted at ~1.4 Ma towards a preferential and intensive exploitation of a highly knappable glassy ignimbrite and emphasis on Large Cutting Tool production, including higher investment in their techno-morphological aspects. The MW2 sequence tracks lithic technological trends observed in the Rift, with only a short time lag. Diachronic changes in the raw material economy and land use patterns may have occurred at MW2 earlier than previously reported for the Acheulian on the highlands. The behavioral dynamics gleaned from the early Acheulian assemblages at MW2 are important for our understanding of the diachronic changes in the abilities of Acheulian hominins to exploit the diverse geographic and ecological habitats of eastern Africa and beyond.
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0277029

XIAOJIE TIAN et al – Jumping is not just about height: Biosocial becomings as an integrative approach in understanding contextualized jump performance in Maasai society

Studies focused on jumping performance in humans have so far investigated either its biological or sociocultural significance, with very little attentions paid to the inseparable relations of these two aspects in daily life of people. Integrating both ethnographic and biomechanical methods, this research investigated the biosocial features of the jump performance of

Maasai youth in its most well observed context, the wedding ceremony. Ethnographic data were used to explain the social status of participants, the physical movements and singing tempo of performers, and their interactions. Biomechanical methods were applied to assess the heights and frequencies of identified repetitive double-legged vertical jumps (n = 160, from 15 male youths). All youth performers followed a certain posture pattern, paying specific attention to their final landing. Large variations exist in their jumping heights [coefficient of variation (CV) = 0.237]; however, the frequency in jump repetitions were maintained with the least variations (CV = 0.084). Cheering interactions were confirmed, but with no significant difference in height between the cheered and non-cheered groups. These results indicate that the Maasai youths did not compete for jump height during local ceremonies. Rather, they emphasized the rhythmical retention of jumps, corresponding to other youth mates who were singing alongside. In the broader context of human behaviors, the analysis addresses the diverse meanings of motor performances in different daily contexts that reject the generalized sports regime of "higher/faster-the-better".
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0278547

SERHIY KANDUL & OLEXANDR NIKOLAYCHUK – I win it's fair, you win it's not. Selective heeding of merit in ambiguous settings
One's willingness to accept an outcome or even to correct it depends on whether the underlying procedure is deemed legitimate. We examine a modified version of the dictator game, where dictatorship is assigned by a fair procedure that is linked to the participant actions but in effect is completely random, to illustrate that this belief is not independent of the outcome and is self-serving in its nature. We also discuss the perceptions of fairness and merit as potential drivers of the observed behavioral phenomenon.
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0279865

PNAS

ARTICLES

RICHARD G. KLEIN – Profile of Svante Pääbo: 2022 Nobel laureate in physiology of medicine
No Summary.
https://www.pnas.org/doi/abs/10.1073/pnas.2217025119

JULIA FISCHER – Aging rhesus monkeys stick to friends and family
No Summary.
https://www.pnas.org/doi/abs/10.1073/pnas.2219062120

Royal Society Open Science

PAPERS

SUSKA NOLTE, ELISABETH H. M. STERCK & EDWIN J. C. VAN LEEUWEN – Does tolerance allow bonobos to outperform chimpanzees on a cooperative task? A conceptual replication of Hare et al., 2007
Across various taxa, social tolerance is thought to facilitate cooperation, and many species are treated as having species-specific patterns of social tolerance. Yet studies that assess wild and captive bonobos and chimpanzees result in contrasting findings. By replicating a cornerstone experimental study on tolerance and cooperation in bonobos and chimpanzees (Hare et al. 2007 Cur. Biol.17, 619–623 (doi:10.1016/j.cub.2007.02.040)), we aim to further our understanding of current discrepant findings. We tested bonobos and chimpanzees housed at the same facility in a co-feeding and cooperation task. Food was placed on dishes located on both ends or in the middle of a platform. In the co-feeding task, the tray was simply made available to the ape duos, whereas in the cooperation task the apes had to simultaneously pull at both ends of a rope attached to the platform to retrieve the food. By contrast to the published findings, bonobos and chimpanzees co-fed to a similar degree, indicating a similar level of tolerance. However, bonobos cooperated more than chimpanzees when the food was monopolizable, which replicates the original study. Our findings call into question the interpretation that at the species level bonobos cooperate to a higher degree because they are inherently more tolerant.
https://royalsocietypublishing.org/doi/10.1098/rsos.220194

JASMIN SOWERBY GREENALL et al – Age, empathy, familiarity, domestication and call features enhance human perception of animal emotion expressions
Vocalizations constitute an effective way to communicate both emotional arousal (bodily activation) and valence (negative/positive). There is strong evidence suggesting that the convergence of vocal expression of emotional arousal among animal species occurs, hence enabling cross-species perception of arousal, but it is not clear if the same is true for emotional valence. Here, we conducted a large online survey to test the ability of humans to perceive emotions in the contact calls of several wild and domestic ungulates produced in situations of known emotional arousal (previously validated using either heart rate or locomotion) and valence (validated based on the context of production and behavioural indicators of emotions). Participants (1024 respondents from 48 countries) were able to rate above chance levels the arousal level of vocalizations of three of the six ungulate species and the valence of four of them. Percentages of correct ratings did not differ

a lot across species for arousal (49–59%), while they showed much more variation for valence (33–68%). Interestingly, several factors such as age, empathy, familiarity and specific features of the calls enhanced these scores. These findings suggest the existence of a shared emotional system across mammalian species, which is much more pronounced for arousal than valence.
https://royalsocietypublishing.org/doi/10.1098/rsos.221138

Science

NEWS

Deadly sharp points found in Idaho could be first American-made tools
Spear-tip techniques may have made their way from Japan more than 16,000 years ago.
https://www.science.org/content/article/deadly-sharp-points-found-idaho-could-be-first-american-made-tools

Science Advances

PAPERS

RICHARD J. WANG et al – Human generation times across the past 250,000 years
The generation times of our recent ancestors can tell us about both the biology and social organization of prehistoric humans, placing human evolution on an absolute time scale. We present a method for predicting historical male and female generation times based on changes in the mutation spectrum. Our analyses of whole-genome data reveal an average generation time of 26.9 years across the past 250,000 years, with fathers consistently older (30.7 years) than mothers (23.2 years). Shifts in sex-averaged generation times have been driven primarily by changes to the age of paternity, although we report a substantial increase in female generation times in the recent past. We also find a large difference in generation times among populations, reaching back to a time when all humans occupied Africa.
https://www.science.org/doi/full/10.1126/sciadv.abm7047

Trends in Cognitive Sciences

PAPERS

EDWINA R. ORCHARD et al – Matrescence: lifetime impact of motherhood on cognition and the brain
Profound environmental, hormonal, and neurobiological changes mark the transition to motherhood as a major biosocial life event. Despite the ubiquity of motherhood, the enduring impact of caregiving on cognition and the brain across the lifespan is not well characterized and represents a unique window of opportunity to investigate human neural and cognitive development. By integrating insights from the human and animal maternal brain literatures with theories of cognitive ageing, we outline a framework for understanding maternal neural and cognitive changes across the lifespan. We suggest that the increased cognitive load of motherhood provides an initial challenge during the peripartum period, requiring continuous adaptation; yet when these demands are sustained across the lifespan, they result in increased late-life cognitive reserve.
https://www.cell.com/trends/cognitive-sciences/fulltext/S1364-6613(22)00302-3

JOSEPH M. BARNBY, PETER DAYAN & VAUGHAN BELL – Formalising social representation to explain psychiatric symptoms
Recent work in social cognition has moved beyond a focus on how people process social rewards to examine how healthy people represent other agents and how this is altered in psychiatric disorders. However, formal modelling of social representation has not kept pace with these changes, impeding our understanding of how core aspects of social cognition function, and fail, in psychopathology. Here, we suggest that belief-based computational models provide a basis for an integrated sociocognitive approach to psychiatry, with the potential to address important but unexamined pathologies of social representation, such as maladaptive schemas and illusory social agents.
https://www.cell.com/trends/cognitive-sciences/fulltext/S1364-6613(22)00321-7

MITSUHIKO ISHIKAWA & ATSUSHI SENJU – Action value calculations in social context from infancy
Infants adaptively modulate their social behaviours, such as gaze-following, to social context. We propose that such modulations are based on infants' social decision-making, to achieve the most valuable outcome. We propose an 'action value calculator model', which formulates the cognitive mechanisms underlying, and the development of, the decision-making process during interactions.
https://www.cell.com/trends/cognitive-sciences/fulltext/S1364-6613(22)00322-9

JENNIFER L. COOK & GENE E. ROBINSON – Comparative genomics and the roots of human behavior
Comparative studies have long been used by cognitive scientists to shed light on questions about the roots of human behavior by looking for comparable behaviors in diverse species. However, establishing similarities between disparate species is an ongoing challenge beset by problems, including the anthropomorphization of nonhuman behavior. Recent advances in comparative genomics provide tools to test whether similar behaviors in distinct species have statistically similar brain transcriptomic signatures. Indeed, a succession of recent studies has highlighted similar transcriptomic profiles for

vocal learning in songbirds and humans; monogamy across vertebrates; sociability in humans and bees; and responses to social challenge across mice, fish, and bees.
https://www.cell.com/trends/cognitive-sciences/fulltext/S1364-6613(22)00329-1

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