EAORC BULLETIN 1,162 – 21 September 2025

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NOTICES

FORMATTED VERSION OF THIS BULLETIN
A pdf formatted version of this Bulletin is available for download at martinedwardes.me.uk/eaorc/eaorc_bulletins.htm.

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.

EDITORIAL INTERJECTIONS
Comments in curly brackets are editorial interjections. The Editor reserves the right to be wrong, and doesn't object to being called out on it.

NEWS

NATURE BRIEFING – What we see in octopus eyes
Octopuses are a fascinating combination of intelligence and otherworldliness that can tempt us to turn to them for insights into ourselves, writes author Verlyn Klinkenborg in his review of five recent books on the eight-armed muse. "If you've ever met one in the wild, you know that an octopus doesn't just look at you. It considers you," writes Klinkenborg. "To encounter an octopus is to be implicated in a question about being that engulfs you both."
https://www.nybooks.com/articles/2025/10/09/such-flexible-intensity-of-life-living-on-earth-metazoa-amphibious-soul/

NEWS FROM SCIENCE – World's oldest human mummies made by hunter-gatherers with smoke and time
Ancient people across Southeast Asia gradually dried out and preserved their dead over a low fire.
https://www.science.org/content/article/world-s-oldest-human-mummies-made-hunter-gatherers-using-smoke-and-time

NEWS FROM SCIENCE – Smart dogs have a humanlike knack for naming new objects

In games with toys, "gifted" dogs can extend names to new objects with the same purpose as known ones.
https://www.science.org/content/article/smart-dogs-have-humanlike-knack-naming-new-objects

SAPIENS – How Societies Morph With the Seasons

An evolutionary anthropologist details seasonal changes among foraging communities—and distills how the fixed political structures of industrialized societies are an outlier in human history.
https://www.sapiens.org/biology/foragers-seasonality-social-change-flexibility-societies/

SCIENCEADVISER – World's oldest human mummies made by hunter-gatherers using smoke and time

More than 5000 years before ancient Egyptians started embalming their elite, hunter-gatherers across Southeast Asia were preserving their dead as mummies—by slowly smoking them over a low fire. This practice, reported earlier this week in the Proceedings of the National Academy of Sciences, reveals the oldest known examples of a human mummification process anywhere in the world.

Some examples date to thousands of years before nomadic hunter-gatherers began shifting to more agrarian and sedentary lifestyles. This form of mummification endured for millennia: dozens of bodies buried across Southeast Asia dated to between 4000 and 12,000 years old show signs of having been exposed to low heat for weeks to months at a time.

Today, some Indigenous groups in the New Guinea Highlands mummify their dead this way, tightly binding a body into a crouched position and then smoking it until the skin shrinks and blackens. "The fact that smoke-dried mummification spread across such a vast area and endured for more than 12,000 years among Indigenous groups is remarkable," co-author and archaeologist Hsiao-chun Hung told Science News. "The results show that a unique combination of technique, tradition, culture, and above all, a deep belief and enduring love for the ancestors has persisted for an astonishing length of time and spread across a vast region, from the Paleolithic era to the present," she told New Scientist.
https://www.pnas.org/doi/10.1073/pnas.2515103122

SCIENCEADVISER – Chimps have a daily drink

People who have a beer or a glass of wine with dinner aren't the only primates downing a drink a day. New research finds chimps consume about 1.4 standard drinks' worth of ethanol daily in the fruit they eat.

Researchers collected the ripe pulp from fruits that chimpanzees eat regularly in Côte d'Ivoire and Uganda, and tested their ethanol levels. When the team tallied up the amount of fruit eaten, they calculated that the animals consume an average of 14 grams of ethanol a day. Though Aleksey Maro, lead author on the new paper, was quick to point out this consumption rate is much slower than if you or I sip a cocktail. It's "like drinking a beer and a half over the course of breakfast, lunch, and dinner," he told ScienceAdviser. "You probably wouldn't feel much!"

Intriguingly, the team found no notable difference in the amount of alcohol in fruits commonly eaten from trees and those that the chimps usually snag from the ground—a behavior researchers earlier this year dubbed "scrumping." That means "naturally occurring dietary alcohol is inseparable from food," Maro said—which may help explain why our species is so fond of the stuff. "During periods of food scarcity, a physiological tolerance for dietary ethanol could have been crucial for survival, leading towards a fondness for ethanol that persists to this day," he said.
https://www.science.org/doi/10.1126/sciadv.adw1665

SCIENCEADVISER – Finches classify their calls by meaning

Researchers who study animal communication often lump vocalizations into categories—certain sounds are used as alarms, others to entice a mate, and so on. But do the animals themselves categorize the noises they make in the same way? That was the question a team of researchers asked of zebra finches, small songbirds commonly kept as pets. And, spoiler alert: According to a new paper in Science, they do.

While people have presumed the meanings of calls based on the context in which they're made and how others respond to them, "we can't directly ask those species … whether our categorization of their sounds matches their own interpretations of the meanings associated with them," Science Editor Sacha Vignieri writes in her summary of the work. So, the researchers had to get creative: They trained finches to push buttons to play 6-second clips of different calls. The birds quickly learned to earn a reward of seeds by letting the full clip play when a call belonged to the category being tested. When a call didn't belong to that category, they hit the button again to interrupt it and cue up another clip. Not only could they categorize calls, but they categorized them based on meaning: The birds were more likely to mess up categorizing calls used in similar behavioral contexts than would be predicted based on the acoustic similarity of the sounds.

"Thus, zebra finches organize their calls into categories and create a mental representation of the meaning of these sounds," the team wrote—something previously only ascribed to primates.
https://www.science.org/doi/10.1126/science.ads8482

SCIENCEADVISER – Smart dogs have a humanlike knack for naming new objects

Some dogs are what animal psychologists call "gifted word learners," with a remarkable ability to pick up the names of people, other dogs, and objects. These dogs are so skilled, in fact, that they have helped reveal a previously unknown ability among canines: They can apply the name of a category of toy to a new toy that shares the same purpose, even though they've never heard the name used for the new toy before. It's the canine equivalent of a toddler using the word "cup" for both their favorite sippy cup and a teacup they've seen for the first time.

Researchers uncovered this skill by recruiting 10 gifted word-learner dogs around the world, whose owners filmed experimental play sessions with eight new dog toys. First, the toys were randomly split into two groups—"Pull" and "Fetch"—with the toys' appearance giving no clues about how the toy should be used. Over four weeks, owners named each toy either "Pull" or "Fetch" while playing with the dog, depending on whether it was used for tug-of-war or fetch. When dogs showed they could learn the "Pull" and "Fetch" labels, the experiment moved into another phase: New toys were randomly assigned to either game, but this time, the owners couldn't mention "Pull" or "Fetch." The dogs would have to make that association themselves.

When the dogs were then asked to bring a "Pull" or "Fetch" toy, they chose the correct one two-thirds of the time, despite never having heard those words applied to their new toys. The findings suggest that the dogs use their object labels in a surprisingly human way, says study co-author Claudia Fugazza. "These sounds seem to have a meaning," she said," that can be expanded to other items that look completely different but have the same function."

https://www.science.org/content/article/smart-dogs-have-humanlike-knack-naming-new-objects

PUBLICATIONS

Current Biology

PAPERS

CLAUDIA FUGAZZA, ANDREA SOMMESE & ÁDÁM MIKLÓSI – Dogs extend verbal labels for functional classification of objects

The relationship between language and human thought is an ongoing debate, and it has been proposed that language shapes object categorization. Words play an instrumental role in early perceptual categorization, but the capacity to preferentially utilize object function over perceptual similarity in guiding the extension of novel words emerges later, in toddlers and preschoolers. It is debated whether non-humans' ability to categorize objects is limited to perceptual features. Only a few studies have investigated the extension of labels to categories, and these relied on a small number of extensively trained individuals who acquired a basic use of labels. However, this differs markedly from how human infants naturally acquire language and adopt words as category markers. We capitalized on the discovery of dogs with an outstanding ability to form a vocabulary of object verbal labels during spontaneous, natural interactions with their owners to reveal that they generalize these labels to items that share only functional properties without sharing perceptual similarities. During naturalistic-like playful interactions, the dogs classified novel objects based on functional object use rather than mere shared perceptual attributes. This reveals functional classification beyond perceptual features connected to verbal label learning in a non-linguistic species in naturalistic setups. Such functional label generalization was only documented in a few individual animals after extensive formal training. The results provide insights into the diverse evolution of basic language-related skills and their relationship with other cognitive abilities.

{A fascinating paper, but … the summary? 21 footnotes in 233 words – about one every eleven words. Somewhere along the way, we have lost contact with what a reader wants from a summary/abstract. Or perhaps it's just me. Either way, I'm going to carry on removing footnotes – if I leave them in then either I have to provide all the references, or they are just meaningless strings of numbers.}

https://www.cell.com/current-biology/fulltext/S0960-9822(25)01079-6

Frontiers in Psychology

PAPERS

THURSTON LACALLI – Scaling up from sentience: modularity, conscious broadcast, and a constitutive solution to the combination problem

Complexity in biology typically has less complex evolutionary antecedents which, for consciousness, begs the question of how a fully elaborated and unified consciousness, as we experience it, would have been scaled up from what we can assume to have been simpler, or at least different, beginnings. This poses difficulties for some theories, but is much simplified if the contents of consciousness combine in a constitutive way, so the balance between contents can be adjusted by natural selection incrementally as required, across generations, in evolutionary time. This contrasts with theories postulating an integrative solution to the combination problem, and is easiest to conceptualize by supposing that conscious sensations arise from the action of modular entities, each of which, regardless of spatial location, contributes separately to the total experience. There are, in consequence, two very different models for consciousness: that it is (1) non-modular, non-local and fully integrated at a conscious level, the more conventional view, or (2) modular, local, and constitutive, so that integrative processes operating at scale are carried out largely if not exclusively in a non-conscious mode. For a modular/constitutive

model that depends on a broadcast mechanism employing a signal, what may be most important is the amplitude of the signal at its source rather than how far it is propagated, in which case each module must be structured so its output has precisely controlled characteristics and adequate amplitude. A model based on signal amplitude rather than propagation over distance would still require that conscious sensations adapted to serve memory accompany cognitive functions over which they exert only indirect control, including language and thought, but fails to explain how a localized signal comes to be perceived as pervasive and global in character. In contrast, the problem with integrative models is the assumption that consciousness acts globally and only globally, which risks misdirecting attention, both in theory and experiment, to anatomical structures and neurophysiological processes that may have little to do with the processes by which conscious sensations are produced or how brains come to be aware of them.
https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2025.1648930/full

iScience

PAPERS

GÁBOR P. HÁDEN, BRIGITTA TÓTH & ISTVÁN WINKLER – Longitudinal study of functional brain networks for processing infant-directed and adult-directed speech during the first year

Infant-directed speech (IDS) plays a central role in early communication, initially expressing emotion and later supporting language development. This study examined how the brain's functional network organization responds to infant-directed speech (IDS) versus adult-directed speech (ADS) during early infancy. Electroencephalography (EEG) data were collected from 49 healthy infants at 0, 4, and 9 months as they listened to the same fairy tale spoken in both IDS and ADS. Brain connectivity was assessed using phase lag synchronization across six frequency bands, and network topology was characterized using minimum spanning tree analysis. The delta network showed greater hierarchical and cost-efficient organization in response to IDS, particularly over frontal regions, with these differences becoming more pronounced with age. Over time, network integration increased and shifted toward the left hemisphere. These findings highlight how functional brain networks dynamically adapt to socially relevant speech input, reflecting the evolving communicative function of IDS during the first year of life.
https://www.cell.com/iscience/fulltext/S2589-0042(25)01844-9

WILLIAM J. O'HEARN et al – Meat transfer patterns reflect the multi-level social system of Guinea baboons

Multi-level societies, characterized by stable subunits nested within higher-order social levels, occur in humans and several other taxa. In hunter-gatherers, resource sharing, particularly meat, is considered a key driver of multi-level social organization. Despite its importance in humans, patterns of resource transmission in non-human multi-level societies remain largely unexplored. Using Guinea baboons, Papio papio, as a model, we examined how meat, a high-quality, shareable resource, is transmitted through their multi-level society. We combined records of 109 meat-eating events with nine years of behavioral and demographic data to test how relationship strength and stratified social levels affect meat sharing. Meat transfers were more likely to occur along stronger social relationships, and tolerant transfer types were most common at the society's base, decreasing with each higher social level. This pattern resembles that of some hunter-gatherer societies, suggesting convergent outcomes of multi-level social organization on the transmission of high-quality shareable resources.
https://www.cell.com/iscience/fulltext/S2589-0042(25)01880-2

Journal of Linguistics

PAPERS

FELICIA BISNATH et al – Deconstructing notions of morphological 'complexity': Lessons from creoles and sign languages

Ideas about morphological complexity have been used to classify languages and to link complexity to language age and social structure. Creoles and sign languages are often framed as younger and structurally simpler than other languages. Concurrently, sign language morphology has been described as paradoxical, as both simple and complex. This paper is a critical examination of claims about morphological complexity and its relationship to language age and social structure. We show that the theoretical and empirical foundations of claims that sign language morphology is paradoxical are flawed. Specifically, argumentation and evidence supporting analogies between creole and sign language complexity adopt theoretically contested and ideologically problematic assumptions about creoles and uncritically apply them to sign languages. We identify four flaws in argumentation: (i) use of limited morphological data to generate claims about global complexity, (ii) association of binary language categories with categorical complexity differences, (iii) use of language age to motivate predictions about morphological complexity, and (iv) extrapolating from creole complexity to sign language complexity. Based on these flaws, we develop nine theoretical and practical recommendations for working with morphological complexity and discuss uncritical cross-disciplinary transfer of ideas.
https://www.cambridge.org/core/journals/journal-of-linguistics/article/deconstructing-notions-of-morphological-complexity-lessons-from-creoles-and-sign-languages/DD56E0A4F6BDFEC4FE01D3BB14694216

Language and Cognition
PAPERS

IVANA BIANCHI, CARITA PARADIS & JOOST VAN DE WEIJER – Perceptual structure of opposites across sensory modalities

Situated at the junction of Cognitive Semantics and Experimental Phenomenology, this study investigates how participants perceive the structure of 18 perceptual dimensions of opposites across the visual, auditory, tactile, gustatory and olfactory sensory modalities. The structures include three components: two poles (high; low) and an intermediate (neither high nor low). Participants were asked to provide examples of contexts for each dimension for which they could experience the five sensory modalities and then describe their experiences of the structures with respect to whether the poles were experienced as a single property (Point), or a range of properties with or without a precise limit (Bounded Range or Unbounded Range respectively). For the intermediate region, they described if they experienced a single property (Point) or many (Range) or none (No Intermediates). The study centres on two main questions. Is the perceptual structure invariant across the sensory modalities? If not, how do the structures differ? The study shows that the overall structure of all dimensions was stable in at least two of the modalities, and many structures were stable across more than two modalities. Stability was particularly pertinent across the visual and tactile modalities, and the gustatory and olfactory modalities.
https://www.cambridge.org/core/journals/language-and-cognition/article/perceptual-structure-of-opposites-across-sensory-modalities/E56E8BFB5B714DDD730E2CCAE900499F

MARK SCOTT & TOMMI TSZ-CHEUNG LEUNG – I'm whispering a white Christmas: masking relations in hallucinatory speech

Auditory verbal hallucinations are a common phenomenon in the general population, with many people without psychological issues reporting the experience. In the 'White Christmas' method to induce auditory hallucinations, participants are told that they will be played a portion of the song 'White Christmas' and are asked to report when they hear it. Participants are presented only with stochastic noise; still, a large proportion of participants report hearing the song. The experiments reported here investigate how masking relationships modulate verbal hallucinations in the White-Christmas effect. Specifically, we tested how the effect is modulated by different kinds of maskers (multi-talker babble versus spectrally matched speech-shaped stochastic noise) and different kinds of expectation of the speech being masked (expecting a 'normal' modal voice versus a whispered voice behind the masking). The White Christmas effect was replicated, and the rate of verbal hallucinations was higher for multi-talker babble than for spectrally-matched speech-shaped stochastic noise. In addition, a trend for a higher rate of hallucination for whispered voices was found. These results confirm the role of masking relations in the White Christmas effect and reinforce the similarity between the White Christmas effect and continuity illusions such as phoneme restoration.
https://www.cambridge.org/core/journals/language-and-cognition/article/im-whispering-a-white-christmas-masking-relations-in-hallucinatory-speech/BDA4E578B24201C79A45F5780688A8F7

Nature
ARTICLES

RACHEL FIELDHOUSE – AI is helping to decode animals' speech. Will it also let us talk with them?

The complexity of vocal communication in some primates, whales and birds might approach that of human language.
https://www.nature.com/articles/d41586-025-02917-9

Nature Computational Science
PAPERS

EVA PORTELANCE & MASOUD JASBI – On the compatibility of generative AI and generative linguistics

Chomsky's generative linguistics has made substantial contributions to cognitive science and symbolic artificial intelligence. With the rise of neural language models, however, the compatibility between generative artificial intelligence and generative linguistics has come under debate. Here we outline three ways in which generative artificial intelligence aligns with and supports the core ideas of generative linguistics. In turn, generative linguistics can provide criteria to evaluate and improve neural language models as models of human language and cognition.

{I personally think that science has come to the same solution that nature used to generate language in the first place: throw large, complex and unspecialised computational devices at it. The growing evidence that language-like behaviours are common throughout nature points toward a system which is neither species-specific nor "magical".}
https://www.nature.com/articles/s43588-025-00861-2

CHANGJIANG GAO et al – Increasing alignment of large language models with language processing in the human brain

Transformer-based large language models (LLMs) have considerably advanced our understanding of how meaning is represented in the human brain; however, the validity of increasingly large LLMs is being questioned due to their extensive training data and their ability to access context thousands of words long. In this study we investigated whether instruction tuning—another core technique in recent LLMs that goes beyond mere scaling—can enhance models' ability to capture

linguistic information in the human brain. We compared base and instruction-tuned LLMs of varying sizes against human behavioral and brain activity measured with eye-tracking and functional magnetic resonance imaging during naturalistic reading. We show that simply making LLMs larger leads to a closer match with the human brain than fine-tuning them with instructions. These finding have substantial implications for understanding the cognitive plausibility of LLMs and their role in studying naturalistic language comprehension.
https://www.nature.com/articles/s43588-025-00863-0

Nature Humanities & Social Sciences Communications
PAPERS
GUY A. LAVENDER FORSYTH – Language endangerment in Vanuatu: Bislama likely does pose a threat in the world's most language-diverse country
A quarter of a century has passed since the late Terry Crowley summed up the academic consensus that the creole language Bislama poses no immediate threat to any of Vanuatu's Indigenous languages. Does this remain true today? Since that time, evidence both quantitative and qualitative has been accumulating that indicates Bislama is indeed gaining ground at the expense of Vanuatu's Indigenous languages. In a targeted review of this evidence, this article brings together and assesses the insights of linguists, ethnographers, and others on the causal mechanisms that explain an ongoing shift towards Bislama. It thereby provides both a critical analysis of the current state of knowledge and a provisional causal framework for understanding current threats, predicting future threats and, potentially, intervening to prevent future threats. Language endangerment and extinction is a global issue with devastating implications for communities worldwide—one which Vanuatu, the world's most linguistically diverse country, has thus far remained resilient in the face of. However, this review of the available evidence warns that Bislama will continue to disrupt intergenerational transmission of Indigenous languages unless a suite of inter-related mechanisms can be counteracted.
https://www.nature.com/articles/s41599-025-05866-w

Nature NPJ Heritage Science
PAPERS
WEIYA LI et al – Lithic technology and potential functions of quartz flakes used by early farmers in Central China
Chipped stone tools can reveal past human activities and movements, but have received less attention than ground stone tools in studies of early farming societies in China. This study addresses this gap by examining quartz chipped stone tools from Jiahu, one of the earliest farming communities in Central China. Apart from typo-technological analysis, experimental archaeology was employed to replicate quartz cores and flakes using similar raw materials, shedding light on the knapping techniques used at Jiahu and evaluating the functional potential of the tools. Combined with a preliminary use-wear study, the results suggest that this quartz assemblage likely played a role in Neolithic craft production. These findings provide valuable data for future comparative research on technological choices across early agricultural societies, thereby contributing to deeper investigations into the origins and development of the earliest farming communities in Central China.
https://www.nature.com/articles/s40494-025-02023-z

New Scientist
NEWS
Does this sculpted head show an ancient hunter-gatherer's hairstyle?
A carved figure found in northern France, dated to 27,000 years ago, may reflect how hair was styled in a culture that disappeared during the last glacial maximum.
https://www.newscientist.com/article/2494661-does-this-sculpted-head-show-an-ancient-hunter-gatherers-hairstyle/

Early Neanderthals hunted ibex on steep mountain slopes
Ancient remains from a cave in Serbia show that Neanderthals were hunting mountain goats 300,000 years ago, adding to evidence of their ability to adapt to different environments.
https://www.newscientist.com/article/2495962-early-neanderthals-hunted-ibex-on-steep-mountain-slopes/

30,000-year-old toolkit shows what ancient hunter carried in a pouch
A set of 29 stone tools, including blades and points for hunting, butchering and cutting wood, were found neatly arranged as if carried in a leather pouch that decayed.
https://www.newscientist.com/article/2496225-30000-year-old-toolkit-shows-what-ancient-hunter-carried-in-a-pouch/

REVIEWS
MICHAEL MARSHALL – Steven Pinker's new book shows how he's become a contradictory figure
Steven Pinker's new book When Everyone Knows That Everyone Knows makes a compelling case for common knowledge. Shame the politics muddies the waters.
Review of 'When Everyone Knows That Everyone Knows' by Steven Pinker, Allen Lane (2025).

PLoS Biology

PAPERS

IAN M. TRANIELLO et al – Genetic variation influences food-sharing sociability in honey bees

Individual variation in sociability is a central feature of every society. This includes honey bees, with some individuals well connected and sociable, and others at the periphery of their colony's social network. However, the genetic and molecular bases of sociability are poorly understood. Trophallaxis—a behavior involving sharing liquid with nutritional and signaling properties—comprises a social interaction and a proxy for sociability in honey bee colonies: more sociable bees engage in more trophallaxis. Here, we identify genetic and molecular mechanisms of trophallaxis-based sociability by combining genome sequencing, brain transcriptomics, and automated behavioral tracking. A genome-wide association study (GWAS) identified 18 single nucleotide polymorphisms (SNPs) associated with variation in sociability. Several SNPs were localized to genes previously associated with sociability in other species, including in the context of human autism, suggesting shared molecular mechanisms of sociability. Variation in sociability also was linked to differential brain gene expression, particularly genes associated with neural signaling and development. Using comparative genomic and transcriptomic approaches, we also detected evidence for divergent mechanisms underpinning sociability across species, including those related to reward sensitivity and encounter probability. These results highlight both potential evolutionary conservation of the molecular roots of sociability and points of divergence.

https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.3003367

MONAMI NISHIO et al – Humans have a longer period of cortical maturation across depth and hierarchy than macaques

Postnatal brain development in primates involves prolonged structural maturation of the cortex, laying the foundation for advanced perceptual and cognitive functions. In humans, cortical development is thought to progress along a hierarchical gradient from early-maturing sensorimotor regions to later-developing association areas. However, developmental changes across cortical depth, which contribute to both local computation and large-scale network integration, have been largely unexplored. It also remains unclear which features of these maturational trajectories are conserved across primates and how they may have been further extended or modified in humans. Using the T1-weighted/T2-weighted (T1w/T2w) MRI ratio as a noninvasive measure of cortical microarchitecture, we systematically compared depth-dependent and regional developmental trajectories in humans and macaques. We identified a conserved "inside-out" gradient of maturation, with deeper cortical depths exhibiting steeper increases in T1w/T2w ratio and earlier plateaus than superficial depths. This depth-dependent pattern was embedded within a broader hierarchical gradient of maturation across the cortical surface, extending from sensorimotor regions to association cortex. While the spatial structure of these gradients was shared across species, humans exhibited markedly prolonged development across the entire cortical hierarchy, including both sensory and association cortices, and across cortical depths. These findings suggest that conserved developmental gradients are elaborated in humans to support an extended window of postnatal plasticity, enabling the experience-dependent refinement of cortical circuits that underlie the complex, integrative functions central to human perception and cognition.

https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.3003378

PLoS One

PAPERS

BENJAMIN SCHÜRCH, SVENJA SCHRAY & NICHOLAS J. CONARD – Reconstructing flexible pathways of Aurignacian blade and bladelet production at Vogelherd

The beginning of the Upper Paleolithic represents a key period in human history. At this time, we can grasp the technological concepts that Homo sapiens used in the early Upper Paleolithic. The age of the Aurignacian in combination with the three-dimensional ivory artworks, musical instruments and personal ornaments in the Swabian Jura sites emphasize the importance of this region for understanding and defining the Upper Paleolithic. During that time blade and bladelet production became the central interest of lithic production. The study of these lithic reduction sequences is essential for understanding technological inventions and socio-economic behaviors of early anatomically modern humans in Central Europe. So far, however, the lithic technology from the Aurignacian of the Swabian Jura has only been studied in detail at the site of Geißenklösterle. In this paper, we provide an exhaustive study based on the rich lithic assemblage from Vogelherd Cave combining both the chaîne opératoire approach and attribute analysis. This work highlights the importance of carefully sorting minimal raw material units and engaging in systematic refitting. These observations allow us to reconstruct entire reduction sequences including the biographies of both cores and tools. The source and physical characteristics of lithic raw materials greatly influenced decision-making during the reduction process. As in many other Paleolithic contexts, Aurignacian knappers thoroughly exploited imported raw materials while exhausting low quality local material to a lesser degree. Comparisons with other assemblages from the region help to facilitate the characterization of the Swabian Aurignacian. This comparison allows us to separate regional adaptations from more site-specific behaviors.

https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0331921

SALVADOR PARDO-GORDÓ et al – The timing of the Castelnovisation of southwestern Europe: A Bayesian modelling insight from the Romagnano Loc III rock shelter sequence (Trento, Italy)
This paper provides a review of the Mesolithic sequence at the Romagnano loc III site through Bayesian modelling, combining the radiocarbon dates obtained in the 1970s with more recent 14C dates. The results suggest a chronology associated with the Castelnovian complex that predates those identified in other areas of Southwestern Europe, thus offering a new working hypothesis regarding the origin of this complex. Finally, these findings are discussed within the broader context of the origin and expansion of the Blade Trapeze Complex in Southwestern Europe indicating that the emergence of this new complex was a multifaceted process that can only be fully understood through a comprehensive global approach.
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0331392

Science
ARTICLES

CATHLEEN O'GRADY – Smart dogs have a humanlike knack for naming new objects
In games with toys, "gifted" dogs can extend names to new objects with the same purpose as known ones.
https://www.science.org/content/article/smart-dogs-have-humanlike-knack-naming-new-objects

PAPERS

JULIE E. ELIE et al – Categorical and semantic perception of the meaning of call types in zebra finches
Vocal communication in social animals involves the production and perception of various calls that ethologists categorize into call types based on their acoustical structure and behavioral context. Whether these categories indicate distinct meanings for the animals remains unknown. The zebra finch, a gregarious songbird, uses ~11 call types that are known to communicate hunger, danger, or social conflict and to establish social contact and bonding. Using auditory discrimination tasks, we show that the birds both discriminate and categorize all the call types in their vocal repertoire. In addition, systematic errors were more frequent between call types used in similar behavioral contexts than could be expected from their acoustic similarity. Thus, zebra finches organize their calls into categories and create a mental representation of the meaning of these sounds.
https://www.science.org/doi/10.1126/science.ads8482

Science Advances
PAPERS

ALEKSEY MARO et al with ROMAN M. WITTIG & JOHN C. MITANI – Ethanol ingestion via frugivory in wild chimpanzees
Human attraction to alcohol may derive from an evolutionary association between ethanol and fruits consumed by animals in nature. Fermentative yeasts are widespread in the terrestrial biosphere, and simple carbohydrates underpinning ethanol production are commonplace within fruits. We determined ethanol concentrations within fruits representing a substantial portion of the diet of our closest living relatives, the chimpanzees. Ripe fruit pulp from 20 angiosperm species in Côte d'Ivoire and Uganda contained an average value of 0.31 (± 0.21 SD) and 0.32% (± 0.20) ethanol (weight/weight), respectively, as scaled by annual chimpanzee feeding time per species at each site. Chimpanzees typically eat ~4.5 kilograms of fruit per day, corresponding to an estimated ethanol ingestion of 14 grams (±9), or the equivalent of 1.4 (±0.9) standard drinks by international standards. These findings are consistent with the hypothesis that ethanol is widespread within tropical fruits and that modern predisposition to alcohol consumption derives from ancestral exposure to this psychoactive substance among frugivorous primates.
https://www.science.org/doi/10.1126/sciadv.adw1665

MICHAEL S. TOTTY et al – Transcriptomic diversity of amygdalar subdivisions across humans and nonhuman primates
The amygdaloid complex mediates learning, memory, and emotions. Understanding cellular and anatomical features specialized in the primate amygdala versus other mammals requires a systematic, anatomically resolved molecular analysis of neuron types. We analyzed five nuclear subdivisions of the primate amygdala with single-nucleus RNA sequencing in macaques, baboons, and humans to examine gene expression profiles for excitatory and inhibitory neurons. Integrated analyses across species identified diverse subtypes of glutamatergic and GABAergic neurons that are highly conserved across primates. Compositional analyses revealed that subdivisions of the primate basolateral complex contain distinct classes of glutamatergic neurons and divergent gene expression profiles for parvalbumin and somatostatin GABAergic neurons. Referencing primate neuron types to transcriptomic atlases of the murine amygdala highlighted primate-specific specializations for glutamatergic neurons and identified which neuron types are conserved across mammals and amygdalar subdivisions. Understanding the molecular heterogeneity of anatomically resolved amygdalar neuron types provides a cellular framework for improving models of how amygdalar circuits contribute to cognition and mental health.
https://www.science.org/doi/10.1126/sciadv.adw1029

Trends in Cognitive Sciences
ARTICLES

SHIHUI HAN – Culture and in-group favoritism in social decision-making
Although cultural differences in cognition and behavior are well-documented, collecting data from multiple cultural samples to explore relevant cognitive processes remains challenging. Rahal and Schulze Spüntrup address this by applying webcam-based eye-tracking to adults from 20 countries, revealing cultural variations in the cognitive processes underlying in-group favoritism during social decision-making.
https://www.cell.com/trends/cognitive-sciences/abstract/S1364-6613(25)00243-8

HARRIET DEMPSEY-JONES – Why were the textbooks wrong about brain plasticity?
Schone and colleagues reveal surprising stability in the brain's body map, challenging textbook notions of dramatic remapping. But why were the textbooks wrong? Because what was interpreted as plasticity was only half of the story. In fact, missing limb representations do persist, awaiting the right probe.
https://www.cell.com/trends/cognitive-sciences/abstract/S1364-6613(25)00242-6

PAPERS

ANDREW R. DYKSTRA et al – Testing circuit-level theories of consciousness in humans
Our understanding of the neural basis of consciousness is mostly restricted to large-scale brain activity patterns as measured by methods such as functional magnetic resonance imaging (fMRI) and magneto/electro-encephalography (M/EEG). In contrast, we lack even basic understanding of circuit-level mechanisms supporting consciousness – particularly in humans – despite the fundamental role that such mechanisms likely play in instantiating larger-scale brain activity patterns supporting conscious states and contents. Here, we review what progress has been made on circuit-level theories of consciousness (e.g., apical amplification theory, dendritic integration theory) and argue that such theories can be tested in humans using recently developed, state-of-the-art methods. Doing so will further facilitate translation of consciousness science into clinical settings and strengthen the bridge between circuit- and network-level theories of consciousness.
https://www.cell.com/trends/cognitive-sciences/fulltext/S1364-6613(25)00237-2

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