EAORC BULLETIN 1,152 – 13 July 2025

CONTENTS

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.

ACADEMIA.EDU – Archaeology and cognitive evolution

Behavioral and Brain Sciences 25, 389-438 (2002).

THOMAS WYNN – Archaeology and cognitive evolution

Archaeology can provide two bodies of information relevant to the understanding of the evolution of human cognition – the timing of developments, and the evolutionary context of these developments. The challenge is methodological. Archaeology must document attributes that have direct implications for underlying cognitive mechanisms. One example of such a cognitive archaeology is found in spatial cognition. The archaeological record documents an evolutionary sequence that begins with ape-equivalent spatial abilities 2.5 million years ago and ends with the appearance of modern abilities in the still remote past of 400,000 years ago. The timing of these developments reveals two major episodes in the evolution in spatial ability, one, 1.5 million years ago and the other, one million years later. The two episodes of development in spatial cognition had very different evolutionary contexts. The first was associated with the shift to an open country adaptive niche that occurred early in the time range of Homo erectus. The second was associated with no clear adaptive shift, though it does appear to have coincided with the invasion of more hostile environments and the appearance of systematic hunting of large mammals. Neither, however, occurred in a context of modern hunting and gathering.
https://www.academia.edu/3788112/The_explanatory_limits_of_cognitive_archaeology

NEWS

GUARDIAN SCIENCE – Cramps, fatigue and hallucinations in a Paleolithic canoe from Taiwan to Japan

The team battled a notoriously strong current and used the stars as their guide to reach an island in an unstable vessel made of Japanese cedar.
https://www.theguardian.com/world/2025/jul/04/cramps-fatigue-and-hallucinations-paddling-200km-in-a-paleolithic-canoe-from-taiwan-to-japan

NATURE BRIEFING – Paper-mill plagued journal hits pause

Scientific publisher Taylor & Francis has paused submissions to its journal Bioengineered so that its editors can investigate around 1000 of the title's papers that have been flagged as possibly manipulated or originating from paper mills — companies that sell illegitimate manuscripts. The hallmarks of paper mill involvement in the title's papers were exposed in a preprint in March, in which the authors suggested that the publisher wasn't taking sufficient action. The pause "feels like a big win for the scientific record", says biomedical scientist and research-integrity sleuth Reńe Aquarius, who co-authored the preprint.

https://www.science.org/content/article/journal-plagued-problematic-papers-likely-paper-mills-pauses-submissions

NATURE BRIEFING – Are emoji language?

"☎️👴✌️⛵🐬" is a sentence familiar to many of us — sort of. It is an emoji version of "Call me Ishmael", the first line of Moby Dick. The little images might be thought of as an emerging system analogous to hieroglyphics, which also started as a collection of pictures, but it lacks some key features of language, writes Keith Houston in an excerpt from his new book, Face with Tears of Joy: A Natural History of Emoji. With a little help from singer and emoji-virtuoso Cher, Houston argues that emoji are "insurgents within language, a colorful and symbiotic virus whose symptoms we have only haltingly understood".
https://longreads.com/2025/07/01/emoji-language-keith-houston/

NEWS FROM SCIENCE – Elephants gesture to signal what they want—just like us

New experiments show elephants use a wide range of movements to express their desires.
https://www.science.org/content/article/elephants-gesture-signal-what-they-want-just-us

NEWS FROM SCIENCE – Journal plagued with problematic papers (from paper mills?) pauses submissions

The halt will let Taylor & Francis focus on checking Bioengineered's papers for fraudulent works and paid authorships.
https://www.science.org/content/article/journal-plagued-problematic-papers-likely-paper-mills-pauses-submissions

RADICAL ANTHROPOLOGY GROUP – Nonuniversality of inflammaging across human populations

Inflammaging, an age-associated increase in chronic inflammation, is considered a hallmark of aging. But a comparison of two industrialised societies with two Indigenous, nonindustrialized populations: the Tsimane from the Bolivian Amazon and the Orang Asli from Peninsular Malaysia, showed it was by no means universal.
https://www.facebook.com/RadicalAnththropologyGroup/posts/pfbid021xJqyiajDU1siWJx1rPcSksAAigst5XGStMaFWkoAGiEiYLP6ofVYkbZWtoDJDM4l

SAPIENS – Neanderthal Legs and Feet—Suited to Sprinting

The Neanderthal leg proportions and tendons, along with their genes, made our ancient cousins designed for short bursts of speed.
https://www.sapiens.org/biology/neanderthal-locomotion/

SCIENCEADVISER – Can an old brain learn new tricks?

For decades, neuroscientists have wrestled with—and regularly fought over—a seemingly basic question about the human brain: Do we make new neurons as adults? Now, an AI-powered study may finally have settled the debate by identifying neural progenitor cells in adult hippocampi.

More than a century ago, Santiago Ramon y Cajal—the "father of neuroscience"—declared that nerve cells are "fixed, ended, and immutable" after development. Ever since, scientists have generally assumed that he was correct and that neurogenesis stopped abruptly after childhood. The few people who suggested data showed otherwise were ridiculed, and their work was largely ignored by the field.

In the 1990s and 2000s, even more research challenged this assumption, finding what appeared to be actively dividing cells—known as neural progenitors—in the adult human brain. Still, some neuroscientists remained unpersuaded.

But the tools for spotting cells have changed a lot in the last 25 years. So, neuroscientist Jonas Frisen and his team used machine learning and transcriptomics to analyze nearly 300,000 neurons in the brains of 14 adults; they found 354 neural progenitor cells. However, the team found that neurogenesis occurs at a much lower rate than in childhood—and may not happen at all in some adults. Still, the work offers evidence that the adult brain can create new nerve cells.

Critics, like neuroscientist Shawn Sorrells, say that the results suggest neural progenitors are likely "rare or nonexistent in most individuals," he says, and it's possible "that the cells [the authors] identify are noise or some other cell type altogether." But Frisen and his colleagues are eager to put the long-running debate behind. "Hopefully this doesn't create more controversy, but rather some unification."
https://www.science.org/doi/10.1126/science.adu9575

SCIENCEADVISER – 300,000-year-old digging sticks reveal an ancient veggie diet

Our understanding of ancient toolmaking and tool use suffers from survival bias: We know most about instruments made from durable materials like stone and bone. But we humans are a creative lot; our species and its close relatives fashioned implements from a wide range of materials, many of which have been lost to the archaeological record. But thanks to the preservative properties of a boggy ancient lakeshore in southern China, scientists have a rare chance to analyze prehistoric wooden tools.

Though they were first excavated in the 1980s, the thousands of sharpened wooden pieces went decades without being convincingly dated due to natural limits of radiocarbon dating. In 2018, new techniques allowed researchers to date the tools

as about 300,000 years old. And a new analysis out in Science suggests they were digging sticks, primarily used to pry carbohydrate-rich tubers and roots from the soft ground. “It’s the first time we’ve found such an old site with evidence of hominins exploiting an underground food resource,” says geochronologist Bo Li, co-author of the study. “This group of hominins knew what plants were edible or not, and were specifically looking for these plants with wooden tools.”
While it’s not clear which species of hominin made them—candidates include the human relative, Homo erectus, as well as the mysterious cousin to modern humans and Neanderthals, Denisovans—the finding suggests these people’s diets were more varied than most scientists thought. “Our narratives about past diets focus really heavily on stories about hunting and meat-eating,” archaeologist Amanda Henry notes. “It’s nice to get more and more archaeological data to push back against the ‘man the hunter’ narrative.”
https://www.science.org/doi/10.1126/science.adr8540

SCIENCEADVISER – Sailing the ocean blue in a Stone Age canoe

More than 30,000 years ago, seafarers from what is now Taiwan traveled across the sea to the present-day Ryukyu Islands, located off the coast of southwestern Japan. These ancient mariners, who braved the 220-kilometer voyage without the help of maps or modern navigational tools, somehow managed to navigate the perilous Kuroshio ocean current—one of the strongest on Earth. How did they do it?
Several years ago, a team of researchers led by anthropologist Yousuke Kaifu became determined to solve the mystery. While the earliest human settlers on the Japanese islands left behind stone tools and other artifacts (including the world’s oldest known fishhooks), the vessels that first carried them across the water—along with the techniques used to build them—have since been lost to history.
Kaifu’s team initially attempted the crossing on rafts made from bundles of dried reeds, cut by hand using seashells. Although these boats were relatively stable in the water, they proved too slow to overcome the intense ocean currents, which ultimately knocked the voyagers off course. The researchers then turned to bamboo, sawing down thick stalks with stone blades and lashing them together with rattan. But these rafts, like their predecessors, were simply no match for the Kuroshio. “Through those failed experiments we gradually learned the difficulty of the crossing, but at the same time we knew the Palaeolithic people were on the island,” Kaifu tells The Guardian. “They had succeeded, so there must be a resolution which we just hadn’t found.”
https://www.science.org/doi/10.1126/sciadv.adv5507

SCIENCEADVISER – If you give an elephant an apple, it will gesture for more

For elephants, communication is a complicated affair. These massive mammals bellow, trumpet, and rumble at frequencies we humans can’t hear. They detect one another’s seismic waves, touch each other with their trunks, and secrete chemicals from specialized glands. They even address each other with specific, name-like calls and combine visual signals—such as ear-flapping, trunk-swinging, and tail-waggling—with vocalizations when greeting in the wild.
Researchers haven’t confirmed, however, whether these prodigious pachyderms use their gestures to deliberately communicate what they want—a type of behavior known as goal-directed intentionality, which has previously only been observed in primates. To find out, the authors of a new study presented semi-captive African savannah elephants with two trays: one empty, the other full of apples. The animals ended up using a wide range of gestures, which they only performed when an experimenter was present and looking at them; the animals repeated and elaborated their movements when they failed to receive the desired treats. “It was clear that they wanted the apples,” says lead study author Vesta Eleuteri. “They’re very expressive.”
The findings reflect what other researchers have seen while studying wild populations and suggest that elephants, like humans and other primates, are capable of goal-directed intentionality. “We’re not the only ones using gestures and language to communicate very sophisticated things,” notes Caitlin O’Connell-Rodwell, a conservation biologist and elephant expert who wasn’t involved in the new study.
https://www.science.org/content/article/elephants-gesture-signal-what-they-want-just-us

SCIENCENEWS – A drowned landscape held clues to the lives of ancient human relatives

The remains of extinct Homo erectus dredged from the seabed off Java, along with thousands of animal fossils, are revealing a long-lost ecosystem.
https://www.sciencenews.org/article/seafloor-clues-ancient-human-relatives

PUBLICATIONS

American Journal of Biological Anthropology

PAPERS

PETER A. STAMOS et al – Technical Note: Using Machine Learning to Predict Locomotor Behavior in Great Apes and Humans From Femur Metaphyseal Shape

The morphology of the hominoid distal femoral metaphyseal surface has been demonstrated to reflect locomotor behavior throughout ontogeny. Here, we quantify metaphyseal surface morphology to evaluate its predictive relationship to locomotor behavioral modes in hominoids.

We collected three-dimensional (3D) surface laser scans of the femora of 177 human and great ape individuals representing all subadult stages of development. We used the landmark-free Global Point Signature (GPS) method to quantify the shape of the morphologically complex but amorphous metaphyseal surface. We then analyzed the GPS quantifications of shape using support vector machines (SVMs), a machine learning technique, to evaluate the predictive relationships between metaphyseal surface morphology and locomotor behavior in hominoids.

We found that metaphyseal surface morphology is a strong predictor of locomotor behavior in hominoids. Our SVM, which relates nonambulation, bipedal walking, knuckle-walking, and climbing behavior with metaphyseal surface morphology, exhibits ~84% out-of-sample predictive accuracy.

Our quantitative analyses confirm what has previously been qualitatively described—the metaphyseal surface of the distal femur is highly predictive of the locomotor behavior performed by hominoids during different stages of their lives. These results suggest that this region of the skeleton is suitable for reconstructing the locomotor behavior of extinct hominoid taxa.

https://onlinelibrary.wiley.com/doi/full/10.1002/ajpa.70066

NEYSA GRIDER-POTTER et al – Occipital Condyle Development in Extant Hominids and Australopithecus afarensis

Variation in the position and orientation of the occipital condyles is well documented in hominids and has been linked to differences in positional behavior, especially upright posture in bipedal hominins. Less is known about the curvature of the condylar joint surfaces. This study examines the ontogeny of condylar curvature in extant hominids and Australopithecus afarensis.

Condylar curvature was quantified in 147 chimpanzees, gorillas, humans, orangutans, and five specimens of A. afarensis. Specimens were grouped into juvenile, adolescent, and adult dental age categories. We used resampling methods to test for differences among age groups within genera, and among genera at each developmental stage. We also recorded the timing of fusion of the occipital synchondroses to link ontogenetic changes in curvature to structurally important developmental events.

Condylar curvature increases through ontogeny in all taxa. Adult Homo and Gorilla have flatter condyles than Pan and Pongo. Juvenile morphologies do not predict the adult pattern of similarities and differences. Periods of rapid change in curvature occur prior to complete fusion of the intraoccipital synchondroses in Gorilla and Pongo. A. afarensis specimens suggest a Pan-like morphology and developmental pattern.

Taxonomic and developmental patterns of variation do not align with differences in posture and locomotion. The similarity of A. afarensis to Pan suggests that the flatter condyles of humans and gorillas are convergent. The Pan-like morphology of A. afarensis is also consistent with other evidence indicating that the cervico-occipital region remained plesiomorphic in many ways following the shift to obligate bipedality in early hominins.

https://onlinelibrary.wiley.com/doi/full/10.1002/ajpa.70076

AARON A. SANDEL – The Search for Love in Human Evolution: Primate Social Bonds and a New Science of Emotion

Love defines the human experience but often defies scientific study. Biological anthropologists flirt with the topic of love by studying monogamy and affiliative relationships. The interest in monogamy, I argue, is misplaced. But the interest in affiliative relationships is productive and deserves greater theoretical and methodological innovation. Social bonds have been carefully described for decades by primatologists, but I suggest that we still lack conceptual clarity and the crucial data needed to distinguish them from other types of relationships. A deeper understanding of social bonds, and pair bonds in particular, will be possible through the application of new methods to study affective states, or “emotions,” in wild primates and other animals. By studying the emotions that underly various relationships, we will make progress toward answering prevailing questions about the origins and future of love, romance, and friendship.

https://onlinelibrary.wiley.com/doi/full/10.1002/ajpa.70078

DORA BIRO et al with SUSANA CARVALHO – West Side Story: Regional Inter-Troop Variation in Baboon Bark-Stripping at Gorongosa National Park, Mozambique

Baboons possess sophisticated physical and social cognitive abilities; hence, the lack of evidence to date of large-scale behavioral variation in these primates is puzzling. Here we studied a candidate for such variation—the stripping of bark from Acacia robusta trees for consumption of the sap and soft tissue underneath—in Gorongosa National Park, Mozambique.

We surveyed an area inhabited by ~60 troops of chacma baboons, recording the availability and characteristics of the target trees, as well as the presence or absence of bark-stripping at 45 habitat plots distributed across a grid covering an area of ~300 km2.
Camera traps confirmed the presence of baboons at all habitat plots, and we identified regional clumping in the distribution of the behavior, a pattern consistent across two consecutive years. Proportion and mean height/width of A. robusta did not predict whether bark-stripping behavior was present at a given site, nor did broader ecological variables such as habitat type and distance to the nearest water source. However, stripping sites had significantly higher numbers of A. robusta than non-stripping sites, and within a given bark-stripping site, baboons preferred to strip taller and wider trees among those available. The prominent geographical clustering we uncovered may have been driven by opportunity (i.e., the prevalence of A. robusta at a given site), but is also consistent with a possible (non-mutually exclusive) cultural interpretation. We propose avenues for future research on Gorongosa's baboons to better quantify the relative contributions of ecology, genetics, and social learning to the prevalence of bark stripping. We also briefly consider the potential relevance of baboon bark stripping to elucidating early hominin foraging strategies.
https://onlinelibrary.wiley.com/doi/abs/10.1002/ajpa.70057

GIADA CORDONI et al – Functional and Morphological Differences in the Play Face and Full Play Face in Lowland Gorillas, a Hominid Species: Implications for the Evolutionary Roots of Smile and Laugh Face

Play Face (PF) and Full Play Face (FPF) in the great apes—homologous to human smile and laugh-face—have been considered a single phenomenon. However, if natural selection has preserved two expressions, probably their adaptive value differs.
We collected video data on play interactions in two lowland gorilla groups (N = 21; Gorilla gorilla gorilla) housed at La Vallée des Singes and the ZooParc de Beauval (France). Lacking a tool tailored for gorillas during this study, we analyzed facial action-unit activation via chimpFACS and OpenFace.
We found that PF and FPF activated partly different action units as it occurs for chimpanzees and humans' PF/FPF. We detected the rapid replication (Rapid Facial Mimicry [RFM]) of either PF or FPF that was associated with longer play sessions. Not-mimicked PF was linked to increased play session variability (different types of play patterns) measured via the Shannon Index, whereas not-mimicked FPF was associated with increased play asymmetry (imbalance between offensive/defensive patterns) measured via the Play Asymmetry Index.
Lowland gorillas may use PF to manage sessions that are more complex in terms of pattern types and FPF—a more salient signal—to prevent misunderstandings when the session is imbalanced. RFM of both expressions may favor the prolongation of play sessions by increasing player synchronization and possibly emotional sharing. Our study opens the door to further comparative studies on playful expressions in humans and other primates as a way to fine-tune possible emotional communication and delineate potential evolutionary roots of Hominidae facial communication.
https://onlinelibrary.wiley.com/doi/full/10.1002/ajpa.70061

JIAMING HUI, XIUJIE WU & ANTOINE BALZEAU – Reappraisal of the Morphological Affinities of the Maba 1 Cranium: New Evidence from Internal Cranial Anatomy

Maba 1 is a critical fossil from the late Middle Pleistocene Asia. It is well-known for the Neanderthal-like face, while its neurocranium shows affinities with many hominin taxa, which makes the taxonomic status of Maba 1 controversial. Beyond the limited information from the external surface, we investigate in detail its internal structures, which are largely unexplored.
We reconstructed and described its frontal sinuses, diploic vessels, endocast, and bone thickness, using micro-CT data. Linear measurements were applied for the frontal sinuses and endocast, and the latter was also analyzed through geometric morphometrics. A comparison is made after considering the preservation of Maba 1 and the availability of comparative specimens.
The linear discriminant analyses for the frontal sinus cluster Maba 1 with Homo neanderthalensis. The Maba 1 diploic vessels anastomosed with the parietal foramen, a rare trait among H. neanderthalensis. The Maba 1 endocast differs from Homo erectus in the frontal lobe, but it was generally closer to H. erectus than to H. neanderthalensis and Homo sapiens. Generally, Maba 1 shares higher resemblances with other debated specimens, including LH18, Djebel Irhoud, and Broken Hill 1. The bregmatic thickness of Maba 1 differed from most H. erectus, while patterns in other areas share similarities with H. neanderthalensis and some H. erectus.
The internal structures of Maba 1 show a combination of morphological features found in various species. These findings further evidence the high morphological variability among Asian hominins in the late Middle Pleistocene. Maba 1 currently cannot be definitely classified in any known hominin taxon.
https://onlinelibrary.wiley.com/doi/abs/10.1002/ajpa.70064

ORIOL MONCLÚS-GONZALO et al – A Dryopithecine Talus from Abocador de Can Mata (Vallès-Penedès Basin, NE Iberian Peninsula): Morphometric Affinities and Evolutionary Implications for Hominoid Locomotion

The functional interpretation of postcranial remains of Middle Miocene great apes from Europe (dryopithecines) suggests a combination of quadrupedalism and orthograde behaviors without modern analogs. We provide further insights based on an

isolated dryopithecine talus (IPS85037) from the Middle Miocene (11.7 Ma) Abocador de Can Mata locality ACM/C8-B* (Vallès-Penedès Basin, NE Iberian Peninsula), which represents the most complete one known to date.
We compare the specimen with an extant anthropoid sample (n = 68) and the stem hominoid Ekembo heseloni (KMN RU 2036, ~18 Ma, Kenya) using 3D geometric morphometrics. For the two fossil tali, we assess their phenetic affinities using a between-group principal components analysis (bgPCA), estimate body mass based on centroid size, and make locomotor inferences using a partial least-squares regression (PLSR) between talar shape and locomotor repertoire.
Its large inferred body mass (~38 kg) and the possession of several modern hominoid-like features (albeit combined with more plesiomorphic traits) support the attribution of IPS85037 to a male dryopithecine. The bgPCA indicates that IPS85037 falls close to the extant hominoid variation and is less cercopithecoid-like than that of Ekembo, whose inferred locomotor repertoire is vastly dominated by quadrupedalism (81%). In contrast, the locomotor repertoire inferred from IPS85037 combines important quadrupedal (32%) and vertical climbing/clambering (50%) components with only moderate suspension (10%).
Our results align with previous inferences derived from other postcranial elements of Middle Miocene dryopithecines and, given their classification as crown hominoids, support the hypothesis that certain suspensory adaptations shared by extant hylobatids and hominids likely evolved independently.
https://onlinelibrary.wiley.com/doi/full/10.1002/ajpa.70043

WILLIAM D. AGUADO et al – Nutritional Importance of a Liana Species for a Population of Bornean Orangutans
Temporal variation in food availability can pose nutritional challenges to primates. Characterizing the nutritional content of the non-preferred foods that primates switch to, termed fallback foods, is useful for identifying the nutritional challenges of lean periods, the nutritional limits of what primates can subsist on, and physiological adaptations. We explored the temporal patterning and the nutritional contribution of food items for Bornean orangutans (Pongo pygmaeus wurmbii) at Tuanan, Indonesia, with particular attention to the liana, Bowringia callicarpa.
We quantified the nutritional contribution of food items to the diet of wild orangutans over 18 years. We modeled the relationship between preferred food availability and the nutritional contribution of Bowringia.
Bowringia played an outsize role in the feeding time and nutritional intake of orangutans. It can be characterized as a fallback food because it is increasingly consumed when preferred tree fruits are less available. Its immature leaves are particularly important as the greatest source of protein and energy. However, the nonprotein energy-to-protein ratio of Bowringia is extremely low, and overreliance on it would bring orangutans away from their estimated nutritional intake target.
Despite its high energy and protein content, Bowringia is a nutritionally imbalanced food. Fallback food quality should thus be evaluated based on the ability to bring an animal toward its nutritional goal rather than nutrient density. We propose that orangutans are preadapted to falling back on protein-dense foods and the great abundance of Bowringia has contributed to the high population density of orangutans at Tuanan.
https://onlinelibrary.wiley.com/doi/full/10.1002/ajpa.70042

PHILIPPA HAMMOND et al with DORA BIRO & SUSANA CARVALHO – Landscape-Scale Effects of Season and Predation Risk on the Terrestrial Behavior of Chacma Baboons (Papio ursinus)
“Terrestrial” primates are not common nor well defined across the order. In those species that do use the ground, terrestriality is rarely documented outside daylight hours. Predation risk is thought to have shaped conserved behaviors like primates' selection of arboreal sleep sites, but it is less clear—particularly at the landscape scale—how predation risk interacts with other ecological and seasonal variables to drive terrestriality. This camera trapping study investigates patterns in terrestrial behavior both spatially and temporally across neighboring populations of chacma baboons.
We use camera trap data from two terrestrial grids, one established within and one outside the boundaries of Gorongosa National Park, Mozambique. We model how baboon terrestrial activity varies with woody cover, proximity to water, season, anthropogenic variables, as well as predation risk. We also model how terrestrial activity varies across the diel cycle and use overlap analyses to explore differences in the baboon populations' activity patterns.
We find no significant predictors of geospatial variation in the terrestrial activity of baboons across each grid but do find evidence of higher terrestrial activity in the late dry season. We also find significantly different diel patterns of baboon activity detected across each grid.
Baboons likely use the ground more in the dry season for accessing water and resources when arboreal foods are less abundant. Diel variation between the two populations suggests that baboons might utilize the ground more during “riskier” crepuscular and nocturnal hours where leopards are not present.
https://onlinelibrary.wiley.com/doi/full/10.1002/ajpa.70052

DANY COUTINHO-NOGUEIRA, HÉLÈNE COQUEUGNIOT & ANNE-MARIE TILLIER – Understanding the Origin of Superficial Bone Changes in Qafzeh 9 Skull (Middle Paleolithic, Southwestern Asia): Contribution of Three-Dimensional Imaging
Deciphering the origins of bone alterations is crucial in paleoanthropology for understanding biological variation and distinguishing between taphonomy, normal anatomy, growth-related changes, and pathological conditions.

Qafzeh 9, an early anatomically modern human from Lower Galilee, exhibits three alterations on its frontal bone: a circular lacuna, two parallel grooves, and a flattening near the superior temporal line. Micro-CT images and 3D reconstructions complement macroscopic observations to determine the etiologies of these features.
Our analysis reveals that one of them, the flattening near the superior temporal line, is associated with changes in the diploë. Data from four recent modern human samples show that this feature is present in all non-adult individuals and suggests that the flattening and thinning of the diploë may be related to growth patterns and dental changes. Our results bring new insights for the development of methodologies for age estimation based on frontal bone. This study also enhances our understanding of intra-site variability at Qafzeh and provides a better understanding of the biological diversity and growth patterns among early anatomically modern humans.
https://onlinelibrary.wiley.com/doi/abs/10.1002/ajpa.70051

FRANÇOIS DRUELLE et al – Analyzing Instantaneous Energy in Bipedal Walking of Baboons: A Model for Exploring the Evolutionary Transition Toward Efficient Bipedalism in Hominins
Non-human primates exhibit bipedal walking with a typical "bent-hip, bent-knee" posture, incurring additional energy costs as shown by studies using electromyography and mechanical analysis. During the evolution of habitual bipedalism in hominins, this mode underwent a gradual refinement, culminating in the genus Homo. To explore energy conservation mechanisms and the influence of kinematics during occasional bipedal walking, we investigated energy dynamics within different body segments in an ontogenetic sample of baboons.
Kinematic and morphometric data from 17 baboons, including mature and immature individuals, were initially collected at the CNRS Primatology station (France). We calculated the potential and kinetic (rotational and translational) energies of various body segments over 40 strides, followed by a comparison with human data.
Age-related kinematic differences influence energy recovery percentages in baboons, particularly in the shank and trunk segments. While significant differences can be observed between baboons and humans, such as in the trunk, arm, and foot segments, similarities exist in the thigh and shank segments, with the thigh being the primary segment for substantial energy transfer. Unlike humans, baboons lack an optimal speed range for energy recovery.
We present a model for energy recovery in flexed bipedal walking. While baboon bipedalism is inefficient in energy recovery, minor trunk motion adjustments could greatly enhance efficiency. These subtle refinements have the potential to increase energy recovery rates, making bipedalism more practical for regular use. From an evolutionary perspective, such improvements would be particularly noteworthy considering other challenging activities like climbing and arboreal quadrupedalism.
https://onlinelibrary.wiley.com/doi/abs/10.1002/ajpa.70056

CORRECTIONS

PATRICK MAHONEY et al with LEE BERGER – Correction to "Human-like enamel growth in Homo naledi"
In the Acknowledgements the text "The participation of MCO was supported by the ERC under the Horizon 2020-MSCA-IF-2020 (grant agreement No. 101026776)" was imprecise. This should have read: "This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Sklodowska-Curie grant agreement No 101026776 to MCO." We apologize for this error.
https://onlinelibrary.wiley.com/doi/full/10.1002/ajpa.25066
{Original Paper [EAORC Bulletin 1,074]: PATRICK MAHONEY et al with LEE BERGER – Human-like enamel growth in Homo naledi}
https://onlinelibrary.wiley.com/doi/full/10.1002/ajpa.24893

British Dental Journal

ARTICLES

J. LI – Dental calculus revealing our past
Dental calculus holds remarkable significance in archaeological research, serving as a miniature time capsule that preserves traces of ancient human life. It provides insights into diet, lifestyle, migration, and environmental interactions. Analysis of its microfossils, chemical components, and molecular markers reveals transitions from foraging to farming, the development of early agriculture, and dietary differences between Neanderthals and modern humans. Yet, its complex methodology and interpretive challenges demand careful consideration.
https://www.nature.com/articles/s41415-025-8957-z

eLife

PAPERS

ISAÏH SCHWAB-MOHAMED et al – Bridging verbal coordination and neural dynamics
Reviewed Preprint
Our use of language, which is profoundly social in nature, essentially takes place in interactive contexts and is shaped by precise coordination dynamics that interlocutors must observe. Thus, language interaction is highly demanding on fast

adjustment of speech production. Here, we developed a real-time coupled-oscillators virtual partner that allows - by changing the coupling strength parameters - to modulate the ability to synchronise speech with a virtual speaker. Then, we recorded the intracranial brain activity of 16 patients with drug-resistant epilepsy while they performed a verbal coordination task with the virtual partner (VP). More precisely, patients had to repeat short sentences synchronously with the VP. This synchronous speech task is efficient to highlight both the dorsal and ventral language pathways. Importantly, combining time-resolved verbal coordination and neural activity shows more spatially differentiated patterns and different types of neural sensitivity along the dorsal pathway. More precisely, high-frequency activity in left secondary auditory regions is highly sensitive to verbal coordinative dynamics, while primary regions are not. Finally, while bilateral engagement was observed in the high-frequency activity of the IFG BA44—which seems to index online coordinative adjustments that are continuously required to compensate deviation from synchronisation— interpretation of right hemisphere involvement should be approached cautiously due to relatively sparse electrode coverage. These findings illustrate the possibility and value of using a fully dynamic, adaptive and interactive language task to gather deeper understanding of the subtending neural dynamics involved in speech perception, production as well as their interaction.
https://elifesciences.org/reviewed-preprints/99547

Evolutionary Anthropology

PAPERS

FRANCESCO RIGOLI, JACK LENNON – Cultural Incentive Learning: How Culture Shapes Acquisition of Values
Although research on human values is abundant, it has so far neglected a crucial question: what are the psychological mechanisms whereby culture shapes people's values? To address this, the manuscript introduces a framework examining how culture shapes the acquisition of values, a process referred to as cultural incentive learning. The proposal is that cultural incentive learning mediates the influence exerted by the structure of society upon people's values. According to the framework, when the social structure changes, certain forms of learning (i.e., conditioned reinforcement) are elicited which promote value change. Simultaneously, other forms of learning, which are based on imitating other people's behavior, pull toward the preservation of previous values, ensuring that value change is not too precipitous and that group cooperation is maintained. Applying these principles to cultural evolution, the paper develops a theory of how values evolve over history, a process we label Value Evolution.
https://onlinelibrary.wiley.com/doi/full/10.1002/evan.70005

iScience

PAPERS

AMAR D'ADAMO et al – Sound effects on body perception vary with the social support network of individuals
Mental body representations are malleable and can be influenced by auditory cues. In the "Footsteps illusion," real-time alterations of walking sounds simulate those produced by heavier or lighter bodies, affecting perceptions of body weight, speed, and gender traits, and triggering emotional, behavioral and physiological changes. While body illusions are known to affect social attitudes, less is known about how social factors influence body perception malleability. We investigated whether social support networks modulate this malleability using the "Footsteps illusion," given the social relevance of body weight. 105 participants experienced three footstep sound conditions (heavier, lighter, control). We collected demographic, behavioral, physiological, and subjective data, along with body image and eating disorder questionnaires. Results showed that larger social support networks correlated with higher body image satisfaction and fewer eating disorder symptoms. Notably, the illusion had a stronger effect on those with smaller social networks, highlighting the moderating role of social support.
https://www.cell.com/iscience/fulltext/S2589-0042(25)01352-5

Mind & Language

PAPERS

PHILIPPE SCHLENKER et al – Anti-Babel: Three degrees of interspecies comprehension
While recent "animal linguistics" treats call form as arbitrary, various results suggest that some animals use a biological code to understand the calls of unrelated/unfamiliar species. To clarify matters, we distinguish among three degrees of interspecies comprehension. In the first ("Understand thy neighbor"), a species understands the calls of a neighboring species through exposure. In the second ("call convergence"), it understands the calls of an unrelated/unfamiliar species through evolutionary convergence and resemblance to familiar calls. In the third degree ("featural interpretation"), it uses a rule associating a meaning to a specific acoustic feature—hence a new road to (featural) compositionality.
https://onlinelibrary.wiley.com/doi/abs/10.1111/mila.12529

Nature

PAPERS

DANIEL R. GREEN et al – Eighteen million years of diverse enamel proteomes from the East African Rift

Research into the palaeobiology of extinct taxa through ancient DNA and proteomics has been mostly limited to Plio-Pleistocene fossils due to molecular breakdown over time, which is exacerbated in tropical settings. Here we sample small proteomes from the interior enamel of fossils at palaeontological sites from the Pleistocene to the Oligocene in the Turkana Basin, Kenya, which has produced a rich record of Cenozoic mammalian evolution. Through a mass-spectrometry-based proteomic workflow, and using criteria to locate diagenetiforms derived from enamel, we recover fragments of enamelin, ameloblastin, matrix metalloprotease-20 and dentin matrix acidic phosphoprotein 1 from an Early Miocene rhinocerotid and several proboscideans collected from the sites of Buluk (16 million years ago; Ma) and Loperot (18 Ma). Diagenetiform counts decline in progressively older fossils, and we observe variability in Early Miocene preservation across sites. Phylogenetic analyses reveal the contribution of these sequences to the systematic placement of extinct taxa, although we caution that this approach must account for sparse fragments, uncertainty in fragment identification and possible sequence diagenesis. We identify likely modifications that support the ancient age of these proteins, and some of the oldest examples of advanced glycation end-products yet known. The discovery of protein sequences within dense enamel tissues in one of the persistently warmest regions on Earth promises the discovery of much older proteomes that will aid in the study of the palaeobiology and evolutionary relationships of extinct taxa.

https://www.nature.com/articles/s41586-025-09040-9

Nature Communications

PAPERS

ALESSANDRA GERACI et al – Human newborns spontaneously attend to prosocial interactions

Humans establish and maintain complex cooperative interactions with unrelated individuals by exploiting various cognitive mechanisms, for instance empathic reactions and a preference for prosocial actions and individuals over antisocial ones. The key role played by these features across human sociomoral systems suggests that core processes underpinning them may be evolved adaptations. Initial evidence consistent with this view came from studies on preverbal infants, which found a preference for prosocial over antisocial individuals. In this study, 5-day-old neonates were shown pairs of looping video interactions in which a prosocial event (approach in Experiment 1, helping in Experiments 2 and 3) appeared on one side of the display and an antisocial event (avoidance in Experiment 1, hindering in Experiments 2 and 3) appeared on the other; newborns' attention to each event type was measured. Across 3 experiments, newborns consistently looked longer at the prosocial than the antisocial events, but only during socially interactive versions of the stimuli. Together, these findings suggest that basic mechanisms to distinguish simple prosocial versus antisocial acts, and to prefer prosocial ones, emerge with very limited experience.

https://www.nature.com/articles/s41467-025-61517-3

CHARLOTTE GROSSE WIESMANN et al – The self-reference memory bias is preceded by an other-reference bias in infancy

One of the most established biases in human memory is that we remember information better when it refers to ourselves. We investigated the development of this self-reference effect and its relationship with the emergence of a self-concept. We presented 18-month-old infants with objects that were assigned either to them, or to another agent. Infants were then tested on their memory for the objects by presenting them with an image of each object, alongside a modified version of it. Mirror self-recognition served as an index of self-concept emergence. Infants who recognize themselves in the mirror remember objects assigned to themselves better than those assigned to the other. In contrast, non-self-recognizers only remember the objects assigned to the other rather than themselves. This difference is not explained by differences in infants' age or inhibitory abilities. This suggests that the self-reference effect emerges with the development of self-concept in the second year. Prior to the emergence of a self-concept, however, infants instead seem to exhibit an other-reference effect. This reversal of the classic self-reference effect suggests that early in life, when infants are heavily reliant on others for information, they may be biased towards encoding the world as it relates to others.

https://www.nature.com/articles/s41467-025-61642-z

DOMINIK MACAK et al with SVANTE PÄÄBO – Muscle AMP deaminase activity was lower in Neandertals than in modern humans

The enzyme AMPD1 is expressed in skeletal muscle and is involved in ATP production. All available Neandertal genomes carry a lysine-to-isoleucine substitution at position 287 in AMPD1. This variant, which occurs at an allele frequency of 0–8% outside Africa, was introduced to modern humans by gene flow from Neandertals. Here, we show that the catalytic activity of the purified Neandertal AMPD1 is ~25% lower than the ancestral enzyme, and when introduced in mice, it reduces AMPD activity in muscle extracts by ~80%. Among present-day Europeans, another AMPD1 variant encoding a stop codon occurs at an allele frequency of 9–14%. Individuals heterozygous for this variant are less likely to be top-performing athletes in various sports,

but otherwise reduced AMPD1 activity is well tolerated in present-day humans. While being conserved among vertebrates, AMPD1 seems to have become less functionally important among Neandertals and modern humans.
https://www.nature.com/articles/s41467-025-61605-4

WENJIAO LYU et al – Functional development of the human cerebellum from birth to age five
Despite the cerebellum's crucial role in brain function, its early development, particularly in relation to the cerebrum, remains poorly understood. Here, we examine cerebellocortical connectivity using over 1000 high-quality resting-state functional MRI scans from children between birth and five years of age. By mapping cerebellar topography with fine temporal granularity, we unveil the hierarchical organization of cerebellocortical functional connectivity from infancy. We observe dynamic shifts in cerebellar functional topography, which become more focal with age while largely maintaining stable anchor regions similar to adults, highlighting the cerebellum's evolving yet organized role in functional integration during early development. Our findings demonstrate cerebellar connectivity to higher-order networks at birth, which generally strengthen with age, emphasizing the cerebellum's early role in cognitive processing beyond sensory and motor functions. Our study provides insights into early cerebellocortical interactions, reveals functional asymmetry and sex-specific patterns in cerebellar development, and lays the groundwork for future research on cerebellum-related disorders in children.
https://www.nature.com/articles/s41467-025-61465-y

MAYUKH MONDAL et al – Resolving out of Africa event for Papua New Guinean population using neural network
The demographic history of the Papua New Guinean (PNG) population is a subject of interest due to its early settlement in New Guinea, its relative isolation and substantial Denisovan ancestry. Previous research suggested an admixture with an early diverged out of African population. This study re-examines the PNG population using newly published samples. Our findings demonstrate that the observed shifts in Relative Cross Coalescent Rate (RCCR) curves are driven by strong bottleneck and slower population growth rate of the PNG population, rather than the contributions from an earlier out of Africa population. Although a small contribution from the early out of Africa population cannot be ruled out, it is no longer needed to explain the observed results. Our analysis positions them as a sister group to other East Asian populations. This study provides insights on the PNG population and highlights the impact of population-specific demography on interpreting RCCR curves.
https://www.nature.com/articles/s41467-025-61661-w

Nature Communications Biology

PAPERS

JOSÉ M. LÓPEZ-REY et al – Fossil ribcages of Homo sapiens provide new insights into modern human evolution
Recent research on the Nariokotome Boy's ribcage suggests the slender thorax of modern H. sapiens is a derived condition. However, since digital ribcage reconstructions of fossil H. sapiens are not available yet, it is unknown whether these individuals would have had a primitive or derived thorax. To address this issue, we first reconstructed the ribcages of Nazlet Khater 2, Ohalo II H2, Dolní Věstonice 13, and Ötzi. We used geometric morphometrics to compare them to 59 recent H. sapiens and three other Homo fossils (Nariokotome Boy, Kebara 2, Shanidar 3). Fossil H. sapiens ribcages exhibit the typical globular proportions of recent humans. Additionally, size and shape seem to be climate-dependent: smaller, cylindrical ribcages in warmer and more temperate climates (Nazlet Khater 2, Ohalo II H2) contrasted with larger, broader ribcages in colder climates (Dolní Věstonice 13). The ribcage of Ötzi presented mixed features, something that could have been beneficial for seasonal alpine transhumance. This suggests H. sapiens ribcage morphology encompasses both slender and stockier forms, highlighting that human anatomical variation might be more complex and context-dependent than previously thought.
https://www.nature.com/articles/s42003-025-08472-3

Nature Communications Psychology

PAPERS

KATIE HOEMANN et al with DIRK GEERAERTS – The construction of emotional meaning in language
The experience of emotion is a form of meaning-making: it reveals one's relationship to the circumstances. Often, the emphasis is on the emotions explicitly named or subjective feelings conveyed. In this perspective, we argue that psychology should use a broader set of tools to study emotional meaning in language. We put forward three sets of language features that capture: the contextual features or aspects of experience salient at each moment (attention); the conceptual vantage point which from events are viewed (construal); the evaluation of events along relevant dimensions (appraisal). We explain how each of these language features can be used to answer specific questions about emotional meaning-making and how it varies based on situation, person, and culture. Our interdisciplinary approach—grounded in socio-, cognitive, and computational linguistics as well as discursive, cognitive, and emotion psychology—seeks to move the field to a higher-dimensional, dynamical account of emotional meaning.
https://www.nature.com/articles/s44271-025-00255-0

Nature Neuroscience

COMMENTARIES

HENRIETTA HOWELLS – Decoding dialogue is a matter of time

Human conversation requires integration of language production and comprehension. However, the neural mechanisms at play during real-time conversations remain largely unexplored. A study by Yamashita and colleagues in Nature Human Behaviour has investigated the neural representation of conversational content across multiple timescales and across the brain. Participants lay in an MRI scanner engaging in conversations about 27 topics with the experimenter while functional MRI was recorded. The authors extracted contextual embeddings from conversation transcriptions — using a GPT model fine-tuned for interactive language tasks — and these were used to predict changes brain activity. Neural linguistic representations were partially shared between speech production and comprehension, but the topographic organization of these shared representations was modulated by timescales. Representations of words and single sentences (1–4 s long) were localized in association cortices, whereas those of longer contexts (16–32 s) were more unique and widespread. For language production, mean variance across regions was best explained by shorter context lengths, whereas longer contexts were best for language comprehension. These findings suggest that language production and comprehension have distinct temporal integration processes, reflecting the need for production to operate dynamically, whereas comprehension integrates linguistic input with broader contextual information.

https://www.nature.com/articles/s41593-025-02017-x

{Original Paper [EAORC Bulletin 1,148]: MASAHIRO YAMASHITA, RIEKO KUBO & SHINJI NISHIMOTO – Conversational content is organized across multiple timescales in the brain}

https://www.nature.com/articles/s41562-025-02231-4

Nature Reviews Urology

PAPERS

R. CLAYTON EDENFIELD et al – Non-human primates as a translational model for the study of male reproductive health

Male fertility is complex and influenced by genetic, hormonal, environmental and lifestyle factors. However, limitations to human studies necessitate the use of reliable preclinical models to better understand the underlying mechanisms of male fertility. Rhesus macaques (Macaca mulatta), with their close genetic and physiological similarities to humans, offer an invaluable model for male reproductive health studies. The suitability of rhesus macaques for studying male infertility is based on similarities in spermatogenesis, hormonal cycles and the way in which assisted reproductive technologies can be applied, and key differences and similarities between human and rhesus macaque sperm structure, function and cryopreservation techniques highlight the translational potential of findings derived from macaque models. Furthermore, insights into the epigenetic and proteomic characteristics of sperm in both species improve understanding of how these findings can help to advance clinical diagnostics, male contraception and fertility preservation and illuminate the regulatory omics of normal reproduction. Thus, the rhesus macaque model offers critical insights into male fertility and studies in this species could contribute to advances in therapies for male infertility.

https://www.nature.com/articles/s41585-025-01062-2

Nature Scientific Reports

PAPERS

ALINA SCHULTE et al – Vibrotactile speech cues are associated with enhanced auditory processing in middle and superior temporal gyri

Combined auditory and tactile stimuli have been found to enhance speech-in-noise perception both in individuals with normal hearing and in those with hearing loss. While behavioral benefits of audio-tactile enhancements in speech understanding have been repeatedly demonstrated, the impact of vibrotactile cues on cortical auditory speech processing remains unknown. Using functional near-infrared spectroscopy (fNIRS) with a dense montage setup, we first identified a region-of-interest highly sensitive to auditory-only speech-in-quiet. In the same region, we then assessed the change in activity ('audio-tactile gains') when presenting speech-in-noise together with a single-channel vibratory signal to the fingertip, congruent with the speech envelope's rate of change. In data from 21 participants with normal hearing, audio-tactile speech elicited on average 20% greater hemodynamic oxygenation changes than auditory-only speech-in-noise within bilateral middle and superior temporal gyri. However, audio-tactile gains did not exceed the sum of the unisensory responses, providing no conclusive evidence of true multisensory integration. Our results support a metamodal theory for the processing of temporal speech features in the middle and superior temporal gyri, providing the first evidence of audio-tactile speech processing in auditory areas using fNIRS. Top-down modulations from somatosensory areas or attention networks likely contributed to the observed audio-tactile gains through temporal entrainment with the speech envelope's rate of change. Further research is needed to understand the neural responses in concordance with their behavioral relevance for speech perception, offering future directions for developing tactile aids for individuals with hearing impairments.

https://www.nature.com/articles/s41598-025-07718-8

IRENE DE LA CRUZ-PAVÍA et al – The role of syllabic rhythm in speech perception across languages

The insertion of silences at regular intervals restores the intelligibility of English utterances that have been accelerated beyond comprehension, as long as the duration of the resulting speech-silence chunks falls within the theta rhythm of natural speech, i.e. the temporal modulation associated to the syllabic rate. We test whether such a rhythmic strategy works in languages rhythmically different from English, a stress-timed language. Thus, we assess whether comprehension of time-compressed Semantically Unpredictable Sentences (SUS) is restored in the syllable-timed language French and the mora-timed language Japanese, when silences re-establishing theta rhythm are inserted. Restoring the theta rhythm also improved intelligibility in French, but not in Japanese, in which best performance was instead achieved at faster rhythms, which suggests that modulation at the rate of a language's basic rhythmic unit plays a key role in understanding speech. In a second experiment, French speakers listened to SUS with speech-silence chunks adapted to the range of the temporal modulations of the delta, gamma, and high gamma rhythms, which correspond to the rate of prosodic phrases, phonemes, and subsegmental features, respectively. Unlike the theta rhythm, we found no restorative effects, providing further evidence for the special status of the theta rhythm in speech comprehension.
https://www.nature.com/articles/s41598-025-07053-y

AMÉLIE BEAUDET et al – New insights into the first cervical vertebrae of Otavipithecus and Nacholapithecus

Fossil hominoids are crucial to understand the selection pressures that played a role in the emergence of modern hominoid positional behaviors. Here we investigate the morphology of the atlas of Otavipithecus namibiensis (GSN BA 104'91, Namibia) and Nacholapithecus kerioi (KNM-BG 35250BE, Kenya) for identifying potential positional-related signals and discussing functional and evolutionary implications. Published data from GSN BA 13'21, a second Otavipithecus atlas from Namibia, were integrated. For comparative material, 105 atlases of extant catarrhines and platyrrhines were included. In addition to standard linear measurements, the morphology of GSN BA 104'91 and KNM-BG 35250BE was investigated by landmark-based geometric morphometric (GM) method and statistical analyses. The dimensions of the Miocene specimens fall within, or closely approximate to, the range of variation of Pan and Hylobates. Our GM analyses indicate that GSN BA 104'91 is more similar to Pan. When the right lateral mass only is considered, GSN BA 104'91 and KNM-BG 35250BE show similarities with hominoids and cercopithecoids. Our results possibly support a positional repertoire in Otavipithecus that would have been partly similar with extant hominoids, and in particular with Pan (e.g., terrestrial quadrupedalism, climbing), and the presence of a mix of hominoid-like and cercopithecoid-like traits in the axial skeleton of Nacholapithecus.
https://www.nature.com/articles/s41598-025-09006-x

ANTIGONE UZUNIDIS et al – Neandertal predation agenda reveals seasonal strategies during MIS 5–4 transition in Axlor, northatlantic Iberia

As hunter-gatherers, neandertal groups were mobile, moving within their territory based on the availability of targeted resources. Their mobility was an integral part of their subsistence strategies. Level D of the Axlor site is an ideal assemblage for reconstructing human habitats and seasonal mobility, as the accumulation of animal carcasses is predominantly of anthropogenic origin. The study of dental remains shows that 99.3% of the remains belong to herbivores. The most common taxa are red deer, Iberian ibex, and steppe bison. Also present are horse, roe deer, chamois and narrow-nosed rhinoceros. The analysis of herbivore diets, using dental mesowear and microwear, indicates that regional and local habitats were dominated by dicots, corresponding to heathlands or forests with some grassy areas. In this context, bison were reconstructed as predominantly grazers while the other herbivorous taxa were mainly browsers. Estimates of mortality periods and duration show that the site was occupied in the warm season, either for long or short repeated stays. Wild goats were hunted throughout the warm season, supplemented by horses and red deer in summer and autumn, and bison in spring and autumn, with occasional predation on chamois, roe deer and rhinoceros. The site was probably geographically located at the intersection of the seasonal movements of several ungulate species, especially in autumn. The ecological characteristics of Axlor Level D were therefore particularly favourable for the procurement of animal-derived resources by Neandertals.
https://www.nature.com/articles/s41598-025-08314-6

New Scientist

NEWS

Killer gifts

For the first time, killer whales have been documented apparently giving gifts of dead prey to humans. Marine scientist Jared Tower first experienced this when he was filming orcas as they snacked on sea birds. Two of the whales approached Tower and deposited dead sea birds in front of him, as if making an offering. Tower has now gone on to collect other instances of similar behaviour, which may be a sign that orcas engage in altruism and can recognise sentience in other species. Although, as Penny Sarchet and Rowan Hooper discuss on the podcast this week, there's also a small chance that the behaviour is a trap to lure prey closer.
https://www.newscientist.com/article/2486216-orcas-are-bringing-humans-gifts-what-does-it-mean/

ARTICLES

JONATHAN R. GOODMAN – Evolution has made humans both Machiavellian and born socialists
Humanity's innate treachery is behind social ills ranging from inequality to abuse of power. Lessons from our ancestors can help defeat the enemy within.
https://www.newscientist.com/article/2486089-evolution-has-made-humans-both-machiavellian-and-born-socialists/

TAYLOR MITCHELL BROWN – 'Hybrid' skull may have been a child of Neanderthal and Homo sapiens
The skull of a 5-year-old girl who lived 140,000 years ago has similarities with modern Homo sapiens and Neanderthals, suggesting her parents might have belonged to different species.
https://www.newscientist.com/article/2487213-hybrid-skull-may-have-been-a-child-of-neanderthal-and-homo-sapiens/

GRAHAM LAWTON – Rapid bursts of ageing are causing a total rethink of how we grow old
Suddenly feeling old? Evidence now suggests that rather than a long, steady decline, we dramatically age around three specific times in our lives. Might it be possible to stay younger for longer?
https://www.newscientist.com/article/2485338-rapid-bursts-of-ageing-are-causing-a-total-rethink-of-how-we-grow-old/

Physics of Life Reviews

COMMENTARIES

SIMONE BATTAGLIA, PHILIPPE SERVAJEAN & KARL J. FRISTON – The Paradox of the Self-Studying Brain: Timescales, Self-Representation, and Roots of Consciousness. Reply to Comments on 'The paradox of the self-studying brain
https://www.sciencedirect.com/science/article/abs/pii/S1571064525001034
{Original Paper [EAORC Bulletin 1,126]: SIMONE BATTAGLIA, PHILIPPE SERVAJEAN & KARL J. FRISTON – The Paradox of the Self-Studying Brain}
https://www.sciencedirect.com/science/article/pii/S1571064524001787

PLoS One

PAPERS

KARI BRITT SCHROEDER, LAURA NELSON DARLING & PETER R. BLAKE – Children adjust behavior in novel social environment to reflect local prosocial norms inferred from brief exposure
Stark cultural variation in prosocial behavior, as elicited with economic experiments, is evident despite the high mobility of humans. Conformity to local norms has been posited to play an integral role in the maintenance of this variation. Experiments suggest that adults indeed rapidly infer pro- and antisocial norms in new or altered social environments and adjust their behavior to reflect the inferred norms. Studies of the ontogeny of prosocial behavior show that by middle childhood, children's prosocial behavior conforms to that of local adults. Furthermore, by this stage, children are susceptible to the manipulation of explicit normative information. However, their propensity to extract or infer normative information from the environment and change their behavior accordingly has not been investigated. Here, we assess whether children 1) rapidly infer local prosocial norms in a novel, realistic social environment, 2) extend these inferences to norms for unobserved behaviors, and 3) alter their behavior in the novel environment to align with the inferred norms while still 4) maintaining their baseline prosocial behavior outside of the novel environment. We used questionnaires to measure children's perceived pro- and antisocial descriptive norms in their Own Neighborhoods as well as in a novel "Neighborhood X," to which they were introduced via a slideshow. Norms for Neighborhood X diverged drastically dependent upon which slideshow they witnessed (Prosocial or Antisocial condition), a result robust to the exclusion of questions about norms for behaviors observed in the slideshow. Children's perceptions of prosocial norms in their Own Neighborhoods predicted their prosocial behavior (Dictator Game) in their Own Neighborhood. Moreover, even though information about giving behavior was not presented in the slideshow, inferred norms for Neighborhood X predicted children's prosocial behavior in that neighborhood as well. These changes in prosocial behavior were transitory and specific to Neighborhood X; prosocial behavior in a separate "Helping Task" was best predicted by prosocial norms within the children's Own Neighborhoods. Our results are consistent with the hypothesis that humans have a propensity to rapidly infer and conform to local prosocial norms, thus maintaining group differences in prosocial behavior, and further indicate that this propensity is in operation by middle childhood.
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0325984

JEMMA FORMAN, JORDAN S. ROWE & DAVID A. LEAVENS – Object permanence in domestic cats (Felis catus) using violation-of-expectancy by owner and stranger
Object permanence, the understanding that objects continue to exist while out of sight, is a key part of the sensorimotor stage of cognitive development. Cats have been shown to reach Stage 5 object permanence by passing successive visible displacement tests, but their understanding of Stage 6 object permanence is less clear. We tested 18 domestic cats on their understanding of Stage 4 and Stage 6 of object permanence in their home environment. Additionally, we investigated how person familiarity may influence study engagement. In single visible displacement (SVD) tests, the box manipulator (owner or

researcher) hid a toy in one of two cardboard boxes for the cat to find. In invisible displacement (IVD) tests, we implemented a violation-of-expectancy procedure in which the box manipulator showed a toy re-appearing out of either a) the same box it was hidden in (consistent trials) or b) the box it was not hidden in (violation trials). Approximately half of the cats (56%) did not find the hidden toy in SVD trials, with 42% of these cats not attempting to find the toy, despite previous research demonstrating that cats can retrieve hidden objects in successive SVD tests. None of our predictors significantly influenced whether cats found the toy, or which box was checked first (toy or empty box). In IVD trials, we unexpectedly found that cats were more likely to play with the toy and displayed more toy box-directed behaviours in consistent trials than violation trials. Similarly, we found that cats were more likely to display box-directed behaviours in trials where the researcher acted as the box manipulator. Breed, outdoor access, cat sex, and the first person to act as the box manipulator also influenced toy-directed behaviours. We discuss the complexity of person familiarity in research contexts and highlight some methodological challenges in studying cat cognition.

{So cats don't like spookiness: they prefer the familiar over being the familiar.}

https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0312225

FRANCISCO ROCABADO, NATASHA ALONSO-BERNAL & JON ANDONI DUÑABEITIA – Word recognition during movement under simulated weather conditions

Processing linguistic materials while driving is essential for ensuring road safety; however, adverse weather conditions can compromise our ability to read at ease. Here we rely on Virtual Reality (VR) to recreate real-world perceptual disfluency, allowing us to investigate the effects of differing weather scenarios—such as sunny and rainy—on word recognition while in movement. Participants navigated a realistic VR driving environment and performed a word identification and naming task, with linguistic materials displayed on road signs encountered along the route. Results showed that high-frequency words were recognized better than low-frequency counterparts, reaffirming the strength of the frequency effect, even under dynamic situations. Additionally, reaction times were slower in rainy compared to sunny conditions, indicating that adverse weather impairs processing speed but not overall recognition accuracy. The negative effect of rain also increased progressively over time, suggesting a potential accumulation of perceptual fatigue or diminished visual adaptation. The lack of a significant interaction between the weather conditions and word frequency suggests that these effects were independent, with no significant interaction between frequency and weather condition. These findings demonstrate the utility of VR as an ecologically valid framework to investigate the complex interplay between environmental context and reading comprehension. In conclusion, the current study provides insights into how varying environmental conditions affect word recognition during movement.

https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0326945

HOLLY RADFORD et al – "There is just too much going on there": Nonverbal communication experiences of autistic adults

Atypical nonverbal communication is required for a diagnosis of autism, yet little is known about how autistic adults use gestures, facial expressions, and other nonverbal behaviours in social interactions, especially from autistic adults' perspectives. The objectives of this study were to understand: (1) autistic adults' experiences of using nonverbal communication in interactions, (2) how nonverbal communication impacts autistic people's lives, and (3) how autistic adults manage nonverbal communication differences.

27 threads from the internet discussion forum wrongplanet.net, all containing dialogue focused on nonverbal communication, were subjected to qualitative analysis. Inductive and deductive coding were used to identify excerpts relevant to miscommunication experiences, communication strengths, and compensatory strategies. A total of 362 excerpts were coded (kappa = .79). Coded excerpts were then extracted and examined for themes, using member checking.

Major themes included: (1) Cognitive differences resulting in autistic adults requiring more time and energy to manage nonverbal communication in interactions; (2) Miscommunication related to nonverbal communication is bilateral; (3) Nonverbal communication differences can negatively impact the lives and wellbeing of autistic adults; (4) autistic adults use a range of skills and strategies to manage nonverbal communication; and (5) Autistic adults demonstrate variability in the production and interpretation of nonverbal cues.

Several of our themes, including mutual miscommunication and negative impacts of atypical communication, are consistent with previous qualitative work on communication experiences of autistic adults. The current findings provide new insight into the internal and external factors influencing the nonverbal communication experiences of autistic adults, in particular the cognitive processes involved. We advocate for solutions that shift the responsibility for effective communication onto all members of society. For example, sharing and accepting preferred communication modalities, and checking in about whether a message was received correctly instead of making assumptions.

https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0325465

PNAS

PAPERS

CHRISTOPHER WELKER et al – Self-views converge during enjoyable conversations

Based on current research, it is evident that the way people see themselves is shaped by their conversation partners. Historically, this literature focuses on how one individual's expectations can shape another person's self-views. Given the reciprocal nature of conversation, we wondered whether conversation partners' self-views may mutually evolve. Using four-person round-robin conversation networks, we found that participants tended to have more similar self-views post-conversation than pre-conversation, an effect we term "inter-self alignment." Further, the more two partners' self-views aligned, the more they enjoyed their conversation and were inclined to interact again. This effect depended on both conversation partners becoming aligned. These findings suggest that the way we see ourselves is coauthored in the act of dialogue and that as shared self-views develop, the desire to continue the conversation increases.
https://www.pnas.org/doi/abs/10.1073/pnas.2321652121

COMMENTARIES

KEISE IZUMA & KYOSUKE KAKINUMA – Not only self-views but also any ratings converge without conversations due to reduced noise bias

A recent study by Welker et al. found that people's self-views tend to become more similar after just a 10-min conversation, a process the authors termed "inter-self alignment (ISA)." However, the study lacked a control condition (e.g., a no-conversation condition), leaving open the possibility that the observed ISA could occur without any social interaction. Here, through simulations and empirical studies, we demonstrate that significant ISA can arise solely due to a statistical artifact—specifically, a reduction in rating noise across successive rating sessions within a short interval. Our simulation (Fig. 1) showed that even when true self-views remain unchanged, ISA can emerge under two conditions: i) rating noise decreases over successive rating tasks, and ii) participants' ratings are positively correlated. Notably, we directly communicated with the authors (1) and confirmed that both assumptions held in the original data.
https://www.pnas.org/doi/full/10.1073/pnas.2505968122

CHRISTOPHER WELKER, THALIA WHEATLEY & MEGHAN MEYER – Reply to Izuma and Kakinuma: Conversation aligns self-views above and beyond noise reduction

Izuma and Kakinuma demonstrate that repeated sampling reduces variability in self-reports, which can create the appearance of convergence over time. They raise an important point, and we are grateful to address it here. Our data show that the conversation-induced alignment we observed—what we called inter-self alignment (ISA)—persists above and beyond this artifact. We compared our conversation condition to the data reported by Izuma and Kakinuma and a new control group that paralleled our original design, but without conversation. In both cases, conversation produced significantly greater alignment, indicating that the ISA effect cannot be explained by noise reduction alone. Data and analysis code are available at https://osf.io/8x5g2/.
https://www.pnas.org/doi/full/10.1073/pnas.2508437122

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COMMENTARIES

RICHARD MOORE – Information-seeking in humans and great apes: a commentary on Kliesch (2025)

Kliesch's postnatal dependency hypothesis argues that differences in the social attention of human and non-human great apes are a product of our social interactions in the first year of life [1]. These differences stem from humankind's secondary altriciality, which is characterized by a unique combination of precocious cognitive development and slow-developing motor skills. Curious young chimpanzees are mobile enough to explore their environment alone. In contrast, preverbal infants undergo a period of restricted mobility that constrains their attention, leading them to focus on their caregivers. During this time, a key source of learning about the world is by attending to their caregivers' interactions with and responses to it. These different patterns of infant attention predispose humans and great apes to different kinds of learning, which persist into later life—hypersocial in the case of humans and more individualistic in the case of great apes.
https://royalsocietypublishing.org/doi/10.1098/rspb.2025.1072
{Original Paper [EAORC Bulletin 1,140]: CHRISTIAN KLIESCH – Postnatal dependency as the foundation of social learning in humans}
https://royalsocietypublishing.org/doi/full/10.1098/rspb.2024.2818

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PAPERS

VESTA ELEUTERI et al with CATHERINE HOBAITER – Investigating intentionality in elephant gestural communication

A crucial feature of language is the ability to communicate cognitive goals to a specific audience, i.e. goal-directed intentionality. Core criteria for this ability include (i) audience directedness: signalling in the presence of an attentive audience, (ii) persistence: continuing signalling until goals are met, and (iii) elaboration: using new signals following

communicative failure. While intentional use has been demonstrated in individual gestures in some non-primates, primates—in particular apes—show this ability across many gestures. But is goal-directed intentionality across many gestures restricted to primates? We explored whether savannah elephants use many gestures with goal-directed intentionality. We presented semi-captive elephants with desired and non-desired items, recording their communicative attempts when an experimenter met, partially met or failed to meet their goal of getting the desired item. Elephants used 38 gesture types almost exclusively when a visually attentive experimenter was present, demonstrating audience directedness. They persisted in gesturing more when their goal was partially as compared with fully met but showed no difference in persistence when the goal was met or not met. Elephants elaborated their gesturing when their goal was not met. We find goal-directed intentionality across many elephant gestures and reveal that elephants, like apes, assess the communicative effectiveness of their gesturing.
https://royalsocietypublishing.org/doi/10.1098/rsos.242203

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