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NOTICES

PUBLICATION ALERTS

If you have had a paper or book published, or you see something which would be of interest to the group, do 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, do let me know.

And if you have any other ideas for extending the “EAORC experience”, please contact me.

SCIENCE NEWS – ‘Lucy’s baby’ suggests famed human ancestor had a primitive brain

In 1974, the world was stunned by the discovery of “Lucy,” the partial skeleton of a human ancestor that walked upright—and still spent time in the trees—3.2 million years ago. Later discoveries revealed her species, scattered throughout eastern Africa, had brains bigger than chimpanzees. But a new study of an ancient toddler finds that the brains of Lucy’s kind were organized less like those of humans and more like those of chimps. That suggests the brains of our ancestors expanded before they reorganized in the ways that let us engage in more complex mental behaviors such as making tools and developing language. The remains also suggest Lucy’s species had a relatively long childhood—similar to modern humans—and that they would have needed parenting longer than their chimp relatives.

https://www.sciencemag.org/news/2020/04/lucy-s-baby-suggests-famed-human-ancestor-had-primitive-brain?utm_campaign=news_daily_2020-04-01&et rid=17774313&et cid=3269576#

SCIENCE NEWS – Mysterious human ancestor finds its place in our family tree

When it comes to deciphering our ancient family tree, DNA from fossils is the new gold standard. But after about half a million years, even the best-preserved DNA degrades into illegibility, leaving the story of our early evolution shrouded in mystery. A new study of proteins taken from the tooth of an enigmatic human ancestor reveals their rough place in the family tree—and shows how ancient proteins can push beyond the limits of DNA.

https://www.sciencemag.org/news/2020/04/mysterious-human-ancestor-finds-its-place-our-family-tree?utm_campaign=news_daily_2020-04-01

SCIENCE NEWS – Dolphin ‘gangs’ protect their females by vocalizing in sync

Males resort to all sorts of desperate measures when fertile females are scarce, including banding together to guard a potential mate. Now, researchers have discovered that such bands of bottlenose dolphins may coordinate their actions with unique “popping” calls—the first evidence that animals other than humans can synchronize themselves using vocal signals.

https://www.sciencemag.org/news/2020/03/dolphin-gangs-protect-their-females-vocalizing-sync?utm_campaign=news_daily_2020-04-01&et rid=17774313&et cid=3269576#

SOCIETY FOR SCIENCE – Neandertals’ extensive seafood menu rivals that of ancient humans

Finds from a coastal cave in Portugal reveal repeated ocean foraging for this European hominid.

<http://click.societyforscience-email.com/?qs=23cd8ef0343b0e858a1edea82beea12b3410c729d3fab3dc04af9620f68fe70c6564ad352d0632f68df10b876b02bee2c85a17586d709268>

SOCIETY FOR SCIENCE – Lucy's species heralded the rise of long childhoods in hominids

Australopithecus afarensis had prolonged brain growth before the Homo genus appeared, but it still resulted in brains with chimplike neural structure.

<http://click.societyforscience-email.com/?qs=ff998a83aff9276cde1cad34fce369bbb17526f4035d214213aad2432b4d9a3e806ab43b31837e12defba0ea8952fb08f5bd43e3c199454a>

SOCIETY FOR SCIENCE – This 300,000-year-old skull may be from an African 'ghost' population

The age of the mysterious Broken Hill fossil suggests it came from a hominid that lived around the same time as both Homo sapiens and H. naledi.

<http://click.societyforscience-email.com/?qs=ff998a83aff9276cca1551b16b8cc3545b5f56187e1aa9e8c7b5e60aaa53b0ac3fdd4d6dc20ef813cecc0a6b06b60e10cc4a8e0c2f72ff47>

SOCIETY FOR SCIENCE – Southern Africa may have hosted a hominid transition 2 million years ago

Braincases excavated from the Drimolen caves suggest Homo erectus and Paranthropus robustus may have coexisted in southern Africa.

<http://click.societyforscience-email.com/?qs=fd6aa0caa1e532d55acf73201e45cad8c54a4dbc66b96478a0a646a2662edda00603ad11ae9e2463bc130313582c6a9e257f6eb827997967>

BREAKING SCIENCE – Homo sapiens Interbred with Various Neanderthal Populations, Study Says

Modern humans in Eurasia carry genetic material inherited from Altai Neanderthals, according to a study published in the journal Genetics. This is noteworthy because past research has shown that Neanderthals connected to a different location — the Vindija Cave in Croatia — have also contributed DNA to modern-day Eurasian populations.

http://feedproxy.google.com/~r/BreakingScienceNews/~3/-HkUZDzA1RU/homo-sapiens-interbred-various-neanderthal-populations-08292.html?utm_source=feedburner&utm_medium=email

BREAKING SCIENCE – Australopithecus afarensis Had Ape-Like Brains, But Brain Growth Like Humans

Human brains are three times larger, are organized differently, and mature for a longer period of time than those of our closest living relatives, the chimpanzees. Together, these characteristics are important for human cognition and social behavior, but their evolutionary origins remain unclear.

http://feedproxy.google.com/~r/BreakingScienceNews/~3/an3b608rxxA/australopithecus-afarensis-brain-08289.html?utm_source=feedburner&utm_medium=email

BREAKING SCIENCE – Homo erectus Existed 200,000 Years Earlier than Previously Thought

An international team of paleoanthropologists has unearthed a 2-million-year-old skull of Homo erectus, the first of our ancestors to be nearly human-like in their anatomy and aspects of their behavior, in the fossil-rich Drimolen cave system north of Johannesburg, South Africa.

http://feedproxy.google.com/~r/BreakingScienceNews/~3/Oi_HmP8fz0U/drimolen-homo-erectus-08294.html?utm_source=feedburner&utm_medium=email

SCIENCE DAILY – How animals understand numbers influences their chance of survival

While they can't pick out precise numbers, animals can comprehend that more is, well, more. A neurobiologist explored the current literature on how different animal species comprehend numbers and the impact on their survival, arguing that we won't fully understand the influence of numerical competence unless we study it directly.

<https://www.sciencedaily.com/releases/2020/03/200330110339.htm>

SCIENCE DAILY – Homo naledi juvenile remains offers clues to how our ancestors grew up

A partial skeleton of Homo naledi represents a rare case of an immature individual, shedding light on the evolution of growth and development in human ancestry, according to a study.

<https://www.sciencedaily.com/releases/2020/04/200401150827.htm>

SCIENCE DAILY – Modern humans, Neanderthals share a tangled genetic history, study affirms

A new study reinforces the concept that Neanderthal DNA has been woven into the modern human genome on multiple occasions as our ancestors met Neanderthals time and again in different parts of the world.

<https://www.sciencedaily.com/releases/2020/04/200401150821.htm>

SCIENCE DAILY – Oldest ever human genetic evidence clarifies dispute over our ancestors

Genetic information from an 800,000-year-old human fossil has been retrieved for the first time. The results shed light on one of the branching points in the human family tree, reaching much further back in time than previously possible.

<https://www.sciencedaily.com/releases/2020/04/200401111657.htm>

SCIENCE DAILY – Cooperative male dolphins match the tempo of each other's calls

When it comes to working together, male dolphins coordinate their behavior just like us. New findings provide insight into the importance of physical and vocal coordination in alliance forming animals.

<https://www.sciencedaily.com/releases/2020/03/200331194427.htm>

SCIENCE DAILY – Regular climbing behavior in a human ancestor

A new study has found evidence that human ancestors as recent as two million years ago may have regularly climbed trees.

<https://www.sciencedaily.com/releases/2020/03/200330152157.htm>

SCIENCE DAILY – Lucy had an ape-like brain

A new study led by paleoanthropologists reveals that Lucy's species Australopithecus afarensis had an ape-like brain.

However, the protracted brain growth suggests that -- as is the case in humans -- infants may have had a long dependence on caregivers.

<https://www.sciencedaily.com/releases/2020/04/200403092009.htm>

SCIENCE DAILY – When three species of human ancestor walked the Earth

Scientists share details of the most ancient fossil of Homo erectus known and discuss how these new findings are forcing us to rewrite a part of our species' evolutionary history.

<https://www.sciencedaily.com/releases/2020/04/200402155736.htm>

NATURE BRIEFING – Protein pinpoints our ancient ancestor

The enigmatic hominin Homo antecessor has found its place in our family tree thanks to the 800,000-year-old proteins in fossil teeth. Researchers used mass spectrometry to analyse a sliver of enamel from a molar found in Spain's Gran Dolina cave. The tooth reveals that H. antecessor was a close relative of the last common ancestor of humans, Neanderthals and Denisovans. "We see that antecessor falls as a sister group — close, very close — to the branch that leads to us," says geneticist Enrico Cappellini.

<https://nature.us17.list-manage.com/track/click?u=2c6057c528fdc6f73fa196d9d&id=1999d8feb4&e=1db4b9a19b>

ACADEMIA.EDU – The Evolution of Speech and Language

Ivor JANKOVIĆ & Tena ŠOJER – The Evolution of Speech and Language

Opvscvla archaeologica, 37/38:1, 11-48 (2014).

The paper deals with the topic of the evolution of speech and language and aims to, through a multidisciplinary approach and based on different material and available data and results, answer the question of the appearance of modern language and speech. Especially interesting is the question of whether modern language appeared through the process of saltation or in combination with some other elements of “modernity” (the so called “Human revolution model” or “Cognitive revolution model”) or if it is a result of a longer evolutionary development in which certain conditions and elements necessary for the development of speech and language appeared before others did. The authors attempted to answer these questions through the results of comparative research done on our closest evolutionary cousins, apes, through comparative anatomy, fossil material and archaeological material sensu stricto, that is, through remains of material culture. Based on available material, we conclude that modern language is a result of a long evolutionary development and that different elements appeared at different times during the evolutionary history of the tribe hominini.

https://www.academia.edu/15300526/The_evolution_of_speech_and_language?email_work_card=view-paper

ACADEMIA.EDU – Reinterpretation of Neandertal linguistic capacities and its consequences

DAN DEDIU & STEPHEN C. LEVINSON – On the antiquity of language: the reinterpretation of Neandertal linguistic capacities and its consequences

Frontiers in Psychology 4:397 (2013)

It is usually assumed that modern language is a recent phenomenon, coinciding with the emergence of modern humans themselves. Many assume as well that this is the result of a single, sudden mutation giving rise to the full “modern package.” However, we argue here that recognizably modern language is likely an ancient feature of our genus pre-dating at least the common ancestor of modern humans and Neandertals about half a million years ago. To this end, we adduce a broad range of evidence from linguistics, genetics, paleontology, and archaeology clearly suggesting that Neandertals shared with us something like modern speech and language. This reassessment of the antiquity of modern language, from the usually quoted 50,000–100,000 years to half a million years, has profound consequences for our understanding of our own evolution in general and especially for the sciences of speech and language. As such, it argues against a saltationist scenario for the evolution of language, and toward a gradual process of culture-gene co-evolution extending to the present day. Another consequence is that the present-day linguistic diversity might better reflect the properties of the design space for language and not just the vagaries of history, and could also contain traces of the languages spoken by other human forms such as the Neandertals.

https://www.academia.edu/15639843/On_the_antiquity_of_language_the_reinterpretation_of_Neandertal_linguistic_capacities_and_its_consequences?email_work_card=view-paper

ACADEMIA.EDU – Homo sapiens Is as Homo sapiens Was

JOHN J. SHEA – Homo sapiens Is as Homo sapiens Was: Behavioral Variability versus “Behavioral Modernity” in Paleolithic Archaeology

Current Anthropology 52:1, February 2011

Paleolithic archaeologists conceptualize the uniqueness of Homo sapiens in terms of “behavioural modernity,” a quality often conflated with behavioral variability. The former is qualitative, essentialist, and a historical artifact of the European origins of Paleolithic research. The latter is a quantitative, statistically variable property of all human behavior, not just that of Ice Age Europeans. As an analytical construct, behavioral modernity is deeply flawed at all epistemological levels. This paper outlines the shortcomings of behavioral modernity and instead proposes a research agenda focused on the strategic sources of human behavioral variability. Using data from later Middle Pleistocene archaeological sites in East Africa, this paper tests and falsifies the core assumption of the behavioral-modernity concept—the belief that there were significant differences in behavioral variability between the oldest H. sapiens and populations younger than 50 kya. It concludes that behavioral modernity and allied concepts have no further value to human origins research. Research focused on the strategic underpinnings of human behavioral variability will move Paleolithic archaeology closer to a more productive integration with other behavioral sciences.

https://www.academia.edu/2619520/John_J._Shea_2011_Homo_sapiens_Is_as_Homo_sapiens_Was_Behavioral_Variability_vs._Behavioral_Modernity_in_Paleolithic_Archaeology._Current_Anthropology_52_1_1-35?email_work_card=view-paper

OTHER NEWS – BBC – Three human-like species lived side-by-side in ancient Africa

Two million years ago, three different human-like species were living side-by-side in South Africa, a study shows.

<https://www.bbc.co.uk/news/science-environment-52133534>

OTHER NEWS – Prospect – Do you speak Dog?

CAL FLYN – Want to talk to your dog? Science is finding a way

Prospect, 287, May 2020, 38-42

A few promising—if somewhat salacious—experiments with apes and dolphins in the 60's didn't amount to much. Recent breakthroughs using machine learning, however, offer us fresh prospects of decoding animal languages.

<https://www.prospectmagazine.co.uk/magazine/talking-to-animals-will-we-ever-dogs-communication-science>

PUBLICATIONS

Biology Letters

PAPERS

GONÇALO S. FARIA AND ANDY GARDNER – Does kin discrimination promote cooperation?

Genetic relatedness is a key driver of the evolution of cooperation. One mechanism that may ensure social partners are genetically related is kin discrimination, in which individuals are able to distinguish kin from non-kin and adjust their behaviour accordingly. However, the impact of kin discrimination upon the overall level of cooperation remains obscure. Specifically, while kin discrimination allows an individual to help more-related social partners over less-related social partners, it is unclear whether and how the population average level of cooperation that is evolutionarily favoured should differ under kin discrimination versus indiscriminate social behaviour. Here, we perform a general mathematical analysis in order to assess whether, when and in which direction kin discrimination changes the average level of cooperation in an evolving population. We find that kin discrimination may increase, decrease or leave unchanged the average level of cooperation, depending upon whether the optimal level of cooperation is a convex, concave or linear function of genetic relatedness. We develop an extension of the classic 'tragedy of the commons' model of cooperation in order to provide an illustration of these results. Our analysis provides a method to guide future research on the evolutionary consequences of kin discrimination.

<https://royalsocietypublishing.org/doi/full/10.1098/rsbl.2019.0742>

Current Anthropology

PAPERS

ELISE BERMAN – Avoiding Sharing: How People Help Each Other Get out of Giving

Anthropologists frequently treat giving and sharing as primordial prosocial acts—the building blocks of society. Avoiding sharing appears as negative and antisocial. But in the Republic of the Marshall Islands, avoiding sharing is just as social and as important to relationships as sharing. First, any act of sharing involves avoiding sharing. Second, successfully avoiding sharing is a collaborative process in which interlocutors construct one another as people who do not need to share. These avoiding-sharing interactions are ubiquitous but often invisible. Social life thus takes places through silence as well as speech, inaction as well as action. Avoiding sharing is as central to economic and social life as sharing itself.

{Good paper on cooperation in action. And you don't need to go to the Marshall Islands to see this: there's the neighbour who says, "I've overbaked again, can you help me get rid of these pastries?"}

<https://www.journals.uchicago.edu/doi/abs/10.1086/708068>

BURTON VOORHEES, DWIGHT READ & LIANE GABORA – Identity, Kinship, and the Evolution of Cooperation

Extensive cooperation among biologically unrelated individuals is uniquely human. It would be surprising if this uniqueness were not related to other uniquely human characteristics, yet current theories of human cooperation tend to ignore the human aspects of human behavior. This paper presents a theory of cooperation that draws on social, cultural, and psychological aspects of human uniqueness for which current theories have little or no explanation. We propose that the evolution of human cooperative behavior required (1) a capacity for self-sustained, self-referential thought manifested as an integrated worldview, including a sense of identity and point of view, and (2) the cultural formation of kinship-based social organizational systems within which social identities can be established and transmitted through enculturation. Human cooperative behavior arose, we argue, through the acquisition of a culturally grounded social identity that included the expectation of cooperation among kin. This identity is linked to basic survival instincts by emotions that are mentally experienced as culture-laden feelings. As a consequence, individuals are motivated to cooperate with those perceived culturally as kin, while deviations from expected social behavior are experienced as a threat to one's social identity, leading to punishment of those seen as violating cultural expectations regarding socially proper behavior.

<https://www.journals.uchicago.edu/doi/abs/10.1086/708176>

Journal of Language Evolution

PAPERS

EVA MARIA LUEF et al with SIMONE PIKA – The 'culture of two': Communication accommodation in ravens' (*Corvus corax*) nonvocal signaling

The theory of communication accommodation refers to linguistic processes through which human interactants—consciously or subconsciously—shift their speech and gesture styles to resemble those of their conversation partners. This phenomenon represents a crucial feature of human language and is particularly pronounced in affiliative and/or strong relationships. Communication accommodation is suggested to reflect a need for social integration or identification with other individuals and, as such, plays an important role in communication within closely-knit social units and in particular monogamous

relationships. Concerning nonhuman animals, the phenomenon of communication accommodation has received relatively little research attention. Here, we tested whether common ravens (*Corvus corax*), which are known for their sophisticated communicative skills and lifelong monogamous pair bonds, accommodate their nonvocal signals within a relationship (i.e., pair-partners). Specifically, we investigated whether the nonvocal signals exchanged within pairs become synchronized over time. Our results provided evidence that raven pairs matched their repertoires, with recipients reciprocating the signals of their communication partners in relation to time spent together. This study thus strengthens the hypothesis that the motives to form and maintain affiliate relationships may have been crucial in boosting not only cognitive but also communicative abilities, and provides insight into the role social bonding might have played in the evolution of communicative plasticity. <https://academic.oup.com/jole/article-abstract/5/1/1/5693719?redirectedFrom=fulltext>

Nature ARTICLES

RAINER GRÜN et al with CHRIS STRINGER – Dating the skull from Broken Hill, Zambia, and its position in human evolution

The cranium from Broken Hill (Kabwe) was recovered from cave deposits in 1921, during metal ore mining in what is now Zambia. It is one of the best-preserved skulls of a fossil hominin, and was initially designated as the type specimen of *Homo rhodesiensis*, but recently it has often been included in the taxon *Homo heidelbergensis*. However, the original site has since been completely quarried away, and—although the cranium is often estimated to be around 500 thousand years old—its unsystematic recovery impedes its accurate dating and placement in human evolution. Here we carried out analyses directly on the skull and found a best age estimate of 299 ± 25 thousand years (mean $\pm 2\sigma$). The result suggests that later Middle Pleistocene Africa contained multiple contemporaneous hominin lineages (that is, *Homo sapiens*, *H. heidelbergensis*/*H. rhodesiensis* and *Homo naledi*), similar to Eurasia, where *Homo neanderthalensis*, the Denisovans, *Homo floresiensis*, *Homo luzonensis* and perhaps also *Homo heidelbergensis* and *Homo erectus* were found contemporaneously. The age estimate also raises further questions about the mode of evolution of *H. sapiens* in Africa and whether *H. heidelbergensis*/*H. rhodesiensis* was a direct ancestor of our species.

<https://www.nature.com/articles/s41586-020-2165-4>

FRIDO WELKER et al with ESKE WILLERSLEV – The dental proteome of *Homo antecessor*

The phylogenetic relationships between hominins of the Early Pleistocene epoch in Eurasia, such as *Homo antecessor*, and hominins that appear later in the fossil record during the Middle Pleistocene epoch, such as *Homo sapiens*, are highly debated. For the oldest remains, the molecular study of these relationships is hindered by the degradation of ancient DNA. However, recent research has demonstrated that the analysis of ancient proteins can address this challenge. Here we present the dental enamel proteomes of *H. antecessor* from Atapuerca (Spain) and *Homo erectus* from Dmanisi (Georgia), two key fossil assemblages that have a central role in models of Pleistocene hominin morphology, dispersal and divergence. We provide evidence that *H. antecessor* is a close sister lineage to subsequent Middle and Late Pleistocene hominins, including modern humans, Neanderthals and Denisovans. This placement implies that the modern-like face of *H. antecessor*—that is, similar to that of modern humans—may have a considerably deep ancestry in the genus *Homo*, and that the cranial morphology of Neanderthals represents a derived form. By recovering AMELY-specific peptide sequences, we also conclude that the *H. antecessor* molar fragment from Atapuerca that we analysed belonged to a male individual. Finally, these *H. antecessor* and *H. erectus* fossils preserve evidence of enamel proteome phosphorylation and proteolytic digestion that occurred *in vivo* during tooth formation. Our results provide important insights into the evolutionary relationships between *H. antecessor* and other hominin groups, and pave the way for future studies using enamel proteomes to investigate hominin biology across the existence of the genus *Homo*.

<https://www.nature.com/articles/s41586-020-2153-8>

Nature Scientific Reports PAPERS

HANS RUTGER BOSKER, MATTHIAS J. SJERPS & EVA REINISCH – Temporal contrast effects in human speech perception are immune to selective attention

Two fundamental properties of perception are selective attention and perceptual contrast, but how these two processes interact remains unknown. Does an attended stimulus history exert a larger contrastive influence on the perception of a following target than unattended stimuli? Dutch listeners categorized target sounds with a reduced prefix “ge-” marking tense (e.g., ambiguous between *gegaan-gaan* “gone-go”). In ‘single talker’ Experiments 1–2, participants perceived the reduced syllable (reporting *gegaan*) when the target was heard after a fast sentence, but not after a slow sentence (reporting *gaan*). In ‘selective attention’ Experiments 3–5, participants listened to two simultaneous sentences from two different talkers, followed by the same target sounds, with instructions to attend only one of the two talkers. Critically, the speech rates of attended and unattended talkers were found to equally influence target perception – even when participants could watch the attended talker speak. In fact, participants’ target perception in ‘selective attention’ Experiments 3–5 did not differ from participants who were explicitly instructed to divide their attention equally across the two talkers (Experiment 6). This suggests that contrast effects of speech rate are immune to selective attention, largely operating prior to attentional stream segregation in the auditory processing hierarchy.

<https://www.nature.com/articles/s41598-020-62613-8>

MICHELA BALCONI & GIULIA FRONDA – The “gift effect” on functional brain connectivity. Inter-brain synchronization when prosocial behavior is in action

The gift exchange represents a moment that characterizes interpersonal interactions. In particular, research in psychological and neuroscientific fields aimed to observe the social function of gift exchange. Specifically, the present study aimed to investigate the effects of prosocial behavior, experienced during gift exchange, on individuals' cognitive performance and brain activity. To this aim, behavioral performance and neural activity of 15 dyads of participants, with a consolidated friendship, were collected during the execution of an attentional cooperative task before or after a gift exchange. Individuals' brain activity was recorded through the use of Functional Near Infrared Spectroscopy (fNIRS) in hyperscanning. Results showed an increase of perceived cooperation and cognitive performance, in terms of accuracy (ACC), after gift exchange. The increase of interpersonal tuning and cooperation was also shown by neural activity with an increase of oxygenated hemoglobin (O2Hb) intra-brain and inter-brain connectivity in the dorsolateral prefrontal cortex (DLPFC) following the gift exchange. Moreover, from ConIndex analysis emerged an increase of inter-brain connectivity compared to intra-brain in DLPFC area. The present study, therefore, highlights how prosocial behavior can have positive effects on cognitive performance improvement and interpersonal relationships and neural coordination strengthen, increasing intra and inter-brain connectivity mechanisms.

<https://www.nature.com/articles/s41598-020-62421-0>

New Scientist

NEWS

Farming and art arose in New Guinea at same time as Europe and Asia

People on the island of New Guinea began farming, practising arts and crafts and making complex tools around the same time as their European and Asian counterparts.

<https://www.newscientist.com/article/2238546-farming-and-art-arose-in-new-guinea-at-same-time-as-europe-and-asia/#ixzz6ITswEVSn>

ARTICLES

GRAHAM LAWTON – Human evolution: The astounding new story of the origin of our species

Forget the simple out-of-Africa idea of how humans evolved. A huge array of fossils and genome studies has completely rewritten the story of how we came into being.

<https://www.newscientist.com/article/mg24532760-800-human-evolution-the-astounding-new-story-of-the-origin-of-our-species/#ixzz6ITgGUNIK>

PLoS Biology

PAPERS

PEDRO TIAGO MARTINS & CEDRIC BOECKX – Vocal learning: Beyond the continuum

Vocal learning is the ability to modify vocal output on the basis of experience. Traditionally, species have been classified as either displaying or lacking this ability. A recent proposal, the vocal learning continuum, recognizes the need to have a more nuanced view of this phenotype and abandon the yes–no dichotomy. However, it also limits vocal learning to production of novel calls through imitation, moreover subserved by a forebrain-to-phonatory-muscles circuit. We discuss its limitations regarding the characterization of vocal learning across species and argue for a more permissive view.

<https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.3000672>

PLoS One

PAPERS

DEBRA R. BOLTER et al with LEE R. BERGER – Immature remains and the first partial skeleton of a juvenile *Homo naledi*, a late Middle Pleistocene hominin from South Africa

Immature remains are critical for understanding maturational processes in hominin species as well as for interpreting changes in ontogenetic development in hominin evolution. The study of these subjects is hindered by the fact that associated juvenile remains are extremely rare in the hominin fossil record. Here we describe an assemblage of immature remains of *Homo naledi* recovered from the 2013–2014 excavation season. From this assemblage, we attribute 16 postcranial elements and a partial mandible with some dentition to a single juvenile *Homo naledi* individual. The find includes postcranial elements never before discovered as immature elements in the sub-equatorial early hominin fossil record, and contributes new data to the field of hominin ontogeny.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0230440>

MARION PRÉVOST & YOSSI ZAIDNER – New insights into early MIS 5 lithic technological behavior in the Levant: Neshet Ramla, Israel as a case study

Interpreting human behavioral patterns during the Middle Paleolithic in the Levant is crucial for better understanding the dispersals and evolution of Homo sapiens and their possible interactions with other hominin groups. Here, we reconstruct the technological behavior, focusing on the centripetal Levallois method at Neshet Ramla karst sinkhole, Israel. Neshet Ramla karst sinkhole is dated to the Marine Isotope stages (MIS) 6 and 5 and represents one of the oldest occurrences of the centripetal Levallois reduction strategy in the Near East. The Levallois centripetal technology is often seen as a marker of human dispersals and adaptations in the Middle Paleolithic/Middle Stone Age of Africa and the Near East. This technology is documented in East African sites as early as 300 kya and in the Levant as early as 130 kya. However, the degree of similarity between African and Levantine centripetal technology and whether it originates from the same source remain under debate. In this paper, we focus on describing the lithic organization at Unit III of Neshet Ramla (dated to MIS 5), which is dominated by the centripetal Levallois method in association with other reduction sequences. Both preferential and recurrent centripetal Levallois modes were used at the site to produce oval and rectangular flakes. Other minor reduction sequences include unidirectional convergent method for Levallois points production and a specific method for the manufacture of naturally backed knives. The lithic data from Unit III of Neshet Ramla is further used in inter-site comparisons suggesting that the mid-Middle Paleolithic sites in the Near East possess common technological characteristics, especially the use of the centripetal Levallois method as predominant reduction strategy. This trend differs from what is usually observed in Africa and Europe, where the centripetal Levallois method is modestly represented during MIS 5 and is accompanied by other, more dominant, reduction strategies.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0231109>

JOHANNES STRICKER et al – Scientific abstracts and plain language summaries in psychology: A comparison based on readability indices

Findings from psychological research are usually difficult to interpret for non-experts. Yet, non-experts resort to psychological findings to inform their decisions (e.g., whether to seek a psychotherapeutic treatment or not). Thus, the communication of psychological research to non-expert audiences has received increasing attention over the last years. Plain language summaries (PLS) are abstracts of peer-reviewed journal articles that aim to explain the rationale, methods, findings, and interpretation of a scientific study to non-expert audiences using non-technical language. Unlike media articles or other forms of accessible research summaries, PLS are usually written by the authors of the respective journal article, ensuring that research content is accurately reproduced. In this study, we compared the readability of PLS and corresponding scientific abstracts in a sample of 103 journal articles from two psychological peer-reviewed journals. To assess readability, we calculated four readability indices that quantify text characteristics related to reading comprehension (e.g., word difficulty, sentence length). Analyses of variance revealed that PLS were easier to read than scientific abstracts. This effect emerged in both included journals and across all readability indices. There was only little evidence that this effect differed in magnitude between the included journals. In sum, this study shows that PLS may be an effective instrument for communicating psychological research to non-expert audiences. We discuss future research avenues to increase the quality of PLS and strengthen their role in science communication.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0231160>

LAURENT BOUBY et al – Early Neolithic (ca. 5850–4500 cal BC) agricultural diffusion in the Western Mediterranean: An update of archaeobotanical data in SW France

Farming economy was first introduced to the coastal areas of Southern France by Impressa groups (ca. 5850–5650 cal BC), originating from Italy, and subsequently spread to the hinterland by Cardial/Epicardial communities (ca. 5400–4500 cal BC). Fruit and seed remains preserved in archaeological sites provide direct evidence of the botanical resources cultivated and collected by these ancient social groups. But the transition from hunter-gathering to agricultural subsistence strategies is still poorly known in the area, due to insufficient and sometimes outdated archaeobotanical studies. Here we present new results and a critical review of all the available archaeobotanical data, in order to characterize food plant resources, cultivation practices and their variations in time and space. The archaeological dataset is composed of 19 sites (20 site/phases) mostly located in the Mediterranean lowlands. Our results demonstrate that farming economy of the Impressa groups was focused on the cultivation of hulled wheats, with only slight differences compared to their South Italian origins. The contribution of naked cereals increased in the Cardial/Epicardial agriculture, in agreement with the situation in other areas of the Western Mediterranean. The subsistence economy of hinterland sites seems to include a wider contribution of wild fruits and more limited contribution of crops. However, the poor evidence of cultivation activities in the hinterland is likely due first to the difficulties to find and excavate the sites and perform large-scale archaeobotanical sampling. It is likely that agriculture played a significant but variable role between sites and territories.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0230731>

PNAS

PAPERS

LEONI GEORGIU et al with JEAN-JACQUES HUBLIN – Evidence for habitual climbing in a Pleistocene hominin in South Africa

Bipedalism is a defining trait of the hominin lineage, associated with a transition from a more arboreal to a more terrestrial environment. While there is debate about when modern human-like bipedalism first appeared in hominins, all known South African hominins show morphological adaptations to bipedalism, suggesting that this was their predominant mode of locomotion. Here we present evidence that hominins preserved in the Sterkfontein Caves practiced two different locomotor repertoires. The trabecular structure of a proximal femur (StW 522) attributed to *Australopithecus africanus* exhibits a modern human-like bipedal locomotor pattern, while that of a geologically younger specimen (StW 311) attributed to either *Homo* sp. or *Paranthropus robustus* exhibits a pattern more similar to nonhuman apes, potentially suggesting regular bouts of both climbing and terrestrial bipedalism. Our results demonstrate distinct morphological differences, linked to behavioral differences between *Australopithecus* and later hominins in South Africa and contribute to the increasing evidence of locomotor diversity within the hominin clade.

<https://www.pnas.org/content/early/2020/03/25/1914481117.abstract?etoc>

Science

ARTICLES

SUSAN C. ANTÓN – All who wander are not lost

Today's humans can learn a thing or two about life from *Homo erectus*, our most likely direct ancestor. Dispersed across Africa and Asia, *H. erectus* survived for more than 1.5 million years, enduring climatic, geographical, and ecosystem variability while coexisting with other closely related ancestral-human species and diverse animal populations. On page 47 of this issue, Herries et al. provide geochronological context for two new hominin cranial fossils (DNH 134 and DNH 152) that reveals some early habits of *H. erectus*.

<https://science.sciencemag.org/content/368/6486/34>

PAPERS

ANDY I. R. HERRIES et al – Contemporaneity of *Australopithecus*, *Paranthropus*, and early *Homo erectus* in South Africa

Drimolen is one of several ancient caves located in the Hominid Caves of South Africa United Nations Educational, Scientific, and Cultural Organization (UNESCO) World Heritage Area in South Africa. Between ~2.3 million and ~1.8 million years ago, there were major climatic changes and faunal turnovers in the region, including the last occurrence of the genus *Australopithecus* and the first occurrence of *Paranthropus* and *Homo*, as well as the first occurrence of stone and bone tools. However, the exact nature of these changes has been hard to elucidate because of past difficulties in dating caves of this age and their perceived geological complexity. Unlike in eastern Africa, where volcanic material is available for dating, the South African caves have been dated with a variety of evolving methods that have often given conflicting age estimates. This means that South Africa's early human record and its relationship to east African hominin species have been difficult to determine. This is especially problematic given that each record is distinct in terms of hominin species until perhaps the origin and early evolution of the genus *Homo*. Although many fragmentary fossil specimens in South Africa have been attributed to early *Homo*, there is no consensus regarding species attribution.

<https://science.sciencemag.org/content/368/6486/eaaw7293>

Science Advances

PAPERS

PHILIPP GUNZ et al with DEAN FALK – *Australopithecus afarensis* endocasts suggest ape-like brain organization and prolonged brain growth

Human brains are three times larger, are organized differently, and mature for a longer period of time than those of our closest living relatives, the chimpanzees. Together, these characteristics are important for human cognition and social behavior, but their evolutionary origins remain unclear. To study brain growth and organization in the hominin species *Australopithecus afarensis* more than 3 million years ago, we scanned eight fossil crania using conventional and synchrotron computed tomography. We inferred key features of brain organization from endocranial imprints and explored the pattern of brain growth by combining new endocranial volume estimates with narrow age at death estimates for two infants. Contrary to previous claims, sulcal imprints reveal an ape-like brain organization and no features derived toward humans. A comparison of infant to adult endocranial volumes indicates protracted brain growth in *A. afarensis*, likely critical for the evolution of a long period of childhood learning in hominins.

https://advances.sciencemag.org/content/6/14/eaaz4729?utm_campaign=toc_advances_2020-04-03&et rid=17774313&et cid=3272245

Trends in Cognitive Sciences

ARTICLES

MEHMET FIŞEK & MICHAEL HÄUSSER – Are Human Dendrites Different?

The first patch-clamp recordings from the dendrites of human neocortical neurons have recently been reported by Beaulieu-Laroche et al. and Gidon et al. These studies have shown that human dendrites are electrically excitable, exhibiting backpropagating action potentials and fast dendritic calcium spikes. This new frontier highlights the potential for interspecies differences in the biophysics of dendritic computation.

[https://www.cell.com/trends/cognitive-sciences/fulltext/S1364-6613\(20\)30069-3?dgcid=raven_jbs_aip_email](https://www.cell.com/trends/cognitive-sciences/fulltext/S1364-6613(20)30069-3?dgcid=raven_jbs_aip_email)

Trends in Ecology and Evolution

ARTICLES

ANDREAS NIEDER – The Adaptive Value of Numerical Competence

Evolution selects for traits that are of adaptive value and increase the fitness of an individual or population. Numerical competence, the ability to estimate and process the number of objects and events, is a cognitive capacity that also influences an individual's survival and reproduction success. Numerical assessments are ubiquitous in a broad range of ecological contexts. Animals benefit from numerical competence during foraging, navigating, hunting, predation avoidance, social interactions, and reproductive activities. The internal number representations determine how animals perceive stimulus magnitude, which, in turn, constrains an animal's spontaneous decisions. These findings are placed in a framework to provide for a more quantitative analysis of the adaptive value and selection pressures of numerical competence.

[https://www.cell.com/trends/ecology-evolution/fulltext/S0169-5347\(20\)30055-0?dgcid=raven_jbs_aip_email](https://www.cell.com/trends/ecology-evolution/fulltext/S0169-5347(20)30055-0?dgcid=raven_jbs_aip_email)

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