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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.

### ACADEMIA.EDU – Early Human Evolution in the Western Palaeartic: Ecological Scenarios

*Quaternary Science Reviews* 30, 1281-1295 (2011).

#### JOSÉ S. CARRIÓN, JAMES ROSE & CHRIS STRINGER – Early Human Evolution in the Western Palaeartic: Ecological Scenarios

This review presents the themes of a special issue dealing with environmental scenarios of human evolution during the Early Pleistocene (2.6-0.78 Ma; MIS 103-MIS 19) and early Middle Pleistocene (0.78-0.47 Ma; MIS 19-base of MIS 12) within the western Palaeartic. This period is one of dramatic changes in the climates and the distribution of Palaeartic biota. These changes have played their role in generating adaptive and phyletic patterns within the human ancestry, involving several species such as Homo habilis, “Homo georgicus”, Homo erectus, Homo antecessor and Homo heidelbergensis. In the archaeological record, these species include the Oldowan (Mode 1) and Acheulian (Mode 2) lithic technologies. Taphonomic considerations of palaeoecological research in hominin-bearing sites are provided and evaluated. Syntheses are provided for north Africa, western Asia, the Mediterranean Basin, Britain, and continental Europe. Palaeoenvironmental reconstructions based on multidisciplinary data are given for Ain Boucherit, Ain Hanech and El-Kherba in Algeria, Dmanisi in Georgia, Atapuerca, Cueva Negra, and the Orce Basin in Spain, Monte Poggiolo and Pirro Nord in Italy, Pont-de-Lavaud in France, and Mauer in Germany. The state of the art with the Out of Africa 1 dispersal model is reviewed. A source-sink dynamics model for Palaeolithic Europe is described to explain the morphological disparity of H. heidelbergensis (we will sometimes use the informal name “Heidelberg”) and early Neanderthals. Other aspects debated here are the selective value of habitat mosaics including reconstructions based on mammal and avian databases, and the role of geological instability combined with topographic complexity. This review is completed by addressing the question of whether the appearance of evolutionary trends within hominins is concentrated in regions of highest worldwide biological diversity (biodiversity hotspots). It is concluded that the keys for the activation of evolutionary change in hominins may have been geological instabilities, and a shifting physiographical heterogeneity combined with high biodiversity and ecological interaction.

[https://www.academia.edu/4994296/Early\\_Human\\_Evolution\\_in\\_the\\_Western\\_Palaeartic\\_Ecological\\_Scenarios](https://www.academia.edu/4994296/Early_Human_Evolution_in_the_Western_Palaeartic_Ecological_Scenarios)

## NEWS

### BREAKING SCIENCE – Australopithecus sediba Comfortably Walked on Two Legs, But Climbed Like Ape

Paleoanthropologists have discovered and examined the fossil lumbar vertebrae of Australopithecus sediba, a small hominin that lived about 2 million years ago. Their results suggest that Australopithecus sediba would have had an upright posture and comfortably walked on two legs, and the curvature of their lower back was similar to modern humans.

[http://www.sci-news.com/othersciences/anthropology/australopithecus-sediba-locomotion-10301.html?utm\\_source=feedburner&utm\\_medium=email](http://www.sci-news.com/othersciences/anthropology/australopithecus-sediba-locomotion-10301.html?utm_source=feedburner&utm_medium=email)

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### **BREAKING SCIENCE – 41,500-Year-Old Mammoth Ivory Pendant Found in Poland**

The 41,500-year-old oval-shaped pendant from Stajnia Cave in Poland is the oldest decorated jewelry found in Eurasia. The ancient pendant made from mammoth bone was found in 2010 along with a horse-bone tool known as an awl.

[http://www.sci-news.com/archaeology/stajnia-pendant-10309.html?utm\\_source=feedburner&utm\\_medium=email](http://www.sci-news.com/archaeology/stajnia-pendant-10309.html?utm_source=feedburner&utm_medium=email)

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### **SAPIENS – Do Things Have to Be This Way?**

Excerpt from 'The Dawn of Everything', in which archaeologist David Wengrow and the late anthropologist David Graeber question the West's most deeply entrenched—and often damaging—assumptions about human nature and society.

<https://www.sapiens.org/culture/dawn-of-everything-excerpt/>

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### **SCIENCE DAILY – Monkeys, guinea pigs & native English speakers have similar brain responses to speech**

Speech sounds elicit comparable neural responses and stimulate the same region in the brain of humans, macaques and guinea pigs, researchers report. The finding could help pave the way for better understanding and diagnosis of auditory processing deficits.

<https://www.sciencedaily.com/releases/2021/11/211119155501.htm>

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### **SCIENCE DAILY – Prehistoric mums may have cared for kids better than we thought**

A new study has revealed the death rate of babies in ancient societies is not a reflection of poor healthcare, disease and other factors, but instead is an indication of the number of babies born in that era.

<https://www.sciencedaily.com/releases/2021/11/211123131404.htm>

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### **SCIENCE DAILY – Australopithecus sediba 'walked like a human, but climbed like an ape'**

The recovery of new lumbar vertebrae from the lower back of a single individual of the human relative, Australopithecus sediba, and portions of other vertebrae of the same female from Malapa, South Africa, together with previously discovered vertebrae, form one of the most complete lower backs ever discovered in the early hominid record and give insight into how this ancient human relative walked and climbed.

<https://www.sciencedaily.com/releases/2021/11/211123130821.htm>

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### **SCIENCE DAILY – How people understand other people**

To successfully cooperate or compete with other people in everyday life, it is important to know what the other person thinks, feels, or wants. Researchers have explored which strategies people use to understand other people.

<https://www.sciencedaily.com/releases/2021/11/211122135433.htm>

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## **PUBLICATIONS**

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### **Animal Cognition**

#### **PAPERS**

#### **PETAR GABRIĆ – Overlooked evidence for semantic compositionality and signal reduction in wild chimpanzees (*Pan troglodytes*)**

Recent discoveries of semantic compositionality in Japanese tits have enlivened the discussions on the presence of this phenomenon in wild animal communication. Data on semantic compositionality in wild apes are lacking, even though language experiments with captive apes have demonstrated they are capable of semantic compositionality. In this paper, I revisit the study by Boesch (Hum. Evol. 6:81–89, 1991) who investigated drumming sequences by an alpha male in a chimpanzee (*Pan troglodytes*) community in the Taï National Park, Côte d'Ivoire. A reanalysis of the data reveals that the alpha male produced semantically compositional combined messages of travel direction change and resting period initiation. Unlike the Japanese tits, the elements of the compositional expression were not simply juxtaposed but displayed structural reduction, while one of the two elements in the expression coded the meanings of both elements. These processes show relative resemblance to blending and fusion in human languages. Also unlike the tits, the elements of the compositional expression did not have a fixed order, although there was a fixed distribution of drumming events across the trees used for drumming. Because the elements of the expression appear to carry verb-like meanings, the compositional expression also resembles simple verb-verb constructions and short paratactic combinations of two clauses found across languages. In conclusion, the reanalysis suggests that semantic compositionality and phenomena resembling paratactic combinations of two clauses might have been present in the communication of the last common ancestor of chimpanzees and humans, not necessarily in the vocal modality.

<https://link.springer.com/article/10.1007/s10071-021-01584-3>

**SCOTT A. WILLIAMS et al with LEE R. BERGER – New fossils of *Australopithecus sediba* reveal a nearly complete lower back**

Adaptations of the lower back to bipedalism are frequently discussed but infrequently demonstrated in early fossil hominins. Newly discovered lumbar vertebrae contribute to a near-complete lower back of Malapa Hominin 2 (MH2), offering additional insights into posture and locomotion in *Australopithecus sediba*. We show that MH2 possessed a lower back consistent with lumbar lordosis and other adaptations to bipedalism, including an increase in the width of intervertebral articular facets from the upper to lower lumbar column ('pyramidal configuration'). These results contrast with some recent work on lordosis in fossil hominins, where MH2 was argued to demonstrate no appreciable lordosis ('hypolordosis') similar to Neandertals. Our three-dimensional geometric morphometric (3D GM) analyses show that MH2's nearly complete middle lumbar vertebra is human-like in overall shape but its vertebral body is somewhat intermediate in shape between modern humans and great apes. Additionally, it bears long, cranially and ventrally oriented costal (transverse) processes, implying powerful trunk musculature. We interpret this combination of features to indicate that *A. sediba* used its lower back in both bipedal and arboreal positional behaviors, as previously suggested based on multiple lines of evidence from other parts of the skeleton and reconstructed paleobiology of *A. sediba*.

<https://elifesciences.org/articles/70447>

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**FRANCOIS ALEXI MARTEL et al – Why True Believers Make the Ultimate Sacrifice: Sacred Values, Moral Convictions, or Identity Fusion?**

Recent research has identified three promising candidates for predicting extreme behavior: sacred values, moral convictions, and identity fusion. Each construct is thought to motivate extreme behavior in unique ways: Sacred values trigger extreme actions when people are asked to compromise cause-related values for personal gain; moral convictions trigger extreme actions when a cause is aligned with one's moral compass; and identity fusion triggers extreme actions when a cause is inextricably associated ("fused") with the personal self. In six studies, we asked which of the three constructs (either alone or in combination) was most predictive of sacrifice for a cause. We measured all three constructs with respect to either of two causes: gun rights (Studies 1–3) or abortion rights (4–6). The outcome measure was endorsement of fighting and dying for the cause. Although all three constructs were significant predictors of the outcome measure when considered separately, identity fusion consistently emerged as the strongest predictor of endorsement of self-sacrifice when all three were considered simultaneously. This pattern occurred regardless of the target cause (gun or abortion rights), the participant's position on the cause (i.e., pro-gun or anti-gun, pro-choice, or pro-life), or nationality (American vs. Spanish). Also, there was no evidence that the predictors interacted to predict the outcome measure. Finally, a manipulation that threatened the validity of the personal self strengthened the relationship between endorsement of self-sacrifice and both (a) identity fusion and (b) moral convictions. The latter finding suggests that threats to the validity of one's self-views may amplify the extreme behaviors of true believers.

<https://www.frontiersin.org/articles/10.3389/fpsyg.2021.779120/full>

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**MARVIN LIESNER & WILFRIED KUNDE – Environment-Related and Body-Related Components of the Minimal Self**

Perceptual changes that an agent produces by efferent activity can become part of the agent's minimal self. Yet, in human agents, efferent activities produce perceptual changes in various sensory modalities and in various temporal and spatial proximities. Some of these changes occur at the "biological" body, and they are to some extent conveyed by "private" sensory signals, whereas other changes occur in the environment of that biological body and are conveyed by "public" sensory signals. We discuss commonalities and differences of these signals for generating selfhood. We argue that despite considerable functional overlap of these sensory signals in generating self-experience, there are reasons to tell them apart in theorizing and empirical research about development of the self.

<https://www.frontiersin.org/articles/10.3389/fpsyg.2021.712559/full>

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**ANDRÁS KORNAI – Vocabulary: Common or Basic?**

Neither linguistics nor psychology offers a single, unified notion of simplicity, and therefore the simplest "core" layer of vocabulary is hard to define in theory and hard to pinpoint in practice. In section 1 we briefly survey the main approaches, and distinguish two that are highly relevant to lexicography: we will call these common and basic. In sections 2 and 3 we compare these approaches, and in section 4 we point the reader to Kolmogorov complexity, unfamiliar as it may be to most working psychologists, lexicographers, and educators, as the best formal means to deal with core vocabulary.

<https://www.frontiersin.org/articles/10.3389/fpsyg.2021.730112/full>

## **CAIZHEN YUE – Valence of Temporal Self-Appraisals: A Comparison Between First-Person Perspective and Third-Person Perspective**

Mental time travel is one of the most remarkable achievements of mankind. On the one hand, people perceive past self, present self, and future self as a continuous unity; on the other hand, people have the ability to distinguish among the three types of temporal selves because there are different representations of them. In this study, we used an adapted temporal self-reference paradigm to explore the processing mechanism of different temporal selves. Temporal self-reference was performed from the first-person perspective in Experiment 1 and from the third-person perspective in Experiment 2. The results indicated that people showed a more positive bias toward future self compared with past self and present self no matter in the first-person perspective or third-person perspective. There was no difference in recognition rate among past self, present self, and future self. Compared with the first-person perspective, present self-processing in the third-person perspective was more abstract and generalized, which may reflect that the third-person perspective has the same distancing function as time. This study can deepen understandings on temporal self-appraisals from different perspectives.

<https://www.frontiersin.org/articles/10.3389/fpsyg.2021.778532/full>

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## **Human Nature**

### **PAPERS**

## **GURO LOVISE HOLE FISKTJØNMO, MARIUS WARG NÆSS & BÅRD-JØRGEN BÅRDSSEN – The Relative Importance of “Cooperative Context” and Kinship in Structuring Cooperative Behavior**

Kin relations have a strong theoretical and empirical basis for explaining cooperative behavior. Nevertheless, there is growing recognition that context—the cooperative environment of an individual—also shapes the willingness of individuals to cooperate. For nomadic pastoralists in Norway, cooperation among both kin and non-kin is an essential predictor for success. The northern parts of the country are characterized by a history of herder-herder competition exacerbating between-herder conflict, lack of trust, and subsequent coordination problems. In contrast, because of a history of herder-farmer competition, southern Norway is characterized by high levels of between-herder coordination and trust. This comparative study investigates the relative importance of “cooperative context” and kinship in structuring cooperative behavior using an experimental gift game. The main findings from this study were that in the South, a high level of cooperation around an individual pushes gifts to be distributed evenly among other herders. Nevertheless, kinship matters, since close kin give and receive larger gifts. In contrast, kinship seems to be the main factor affecting gift distribution in the North. Herders in the North are also concerned with distributing gifts equally, albeit limiting them to close kin: the level of intragroup cooperation drives gifts to be distributed evenly among other closely related herders. The observed regional contrasts in cooperative decisions fit with the different historical levels of conflict and trust in the two regions: whereas herders in the South are affected by both cooperative context and kinship, kinship seems to be the main determinant of cooperation in the North.

<https://link.springer.com/article/10.1007/s12110-021-09416-6>

## **WILLIAM BUCKNER – Disguises and the Origins of Clothing**

Thermoregulation is often thought to be a key motivating factor behind the origins of clothing. Less attention has been given, however, to the production and use of clothing across traditional societies in contexts outside of thermoregulatory needs. Here I investigate the use of disguises, modesty coverings, and body armor among the 10 hunter-gatherer societies in the Probability Sample Files (PSF) within the Human Relations Area Files (HRAF) World Cultures database, with a particular focus on disguise cases and how they compare with strategies of deception across other taxa. The employment of disguises—defined as altering one’s appearance for purposes of deceiving conspecifics or other animals—is noted for eight of the 10 societies, with their use occurring in contexts of hunting, religious or cult practices, and war or interpersonal violence. Most hunter-gatherer disguises demonstrated clear similarities to cases of visual deception found in other species, with the majority of examples fitting categories of animal mimicry, masquerading as plants, disruptive coloration (camouflage), or background matching (camouflage), while disguises unique to humans involved the impersonation of culture-specific “spirit-beings.” Clothing for modesty purposes (nine societies) and body armor (six societies) are also noted. I propose that strategic initiatives by individuals or groups to disguise or conceal themselves represents one possible initial pathway to the cultural evolution of clothing. There are likely multiple potential (nonexclusive) social and functional pathways to the emergence of clothing outside of thermoregulatory needs.

<https://link.springer.com/article/10.1007/s12110-021-09415-7>

## **MELVIN KONNER – Nine Levels of Explanation: A Proposed Expansion of Tinbergen’s Four-Level Framework for Understanding the Causes of Behavior**

Tinbergen’s classic “On Aims and Methods of Ethology” (*Zeitschrift für Tierpsychologie*, 20, 1963) proposed four levels of explanation of behavior, which he thought would soon apply to humans. This paper discusses the need for multilevel explanation; Huxley and Mayr’s prior models, and others that followed; Tinbergen’s differences with Lorenz on “the innate”; and Mayr’s ultimate/proximate distinction. It synthesizes these approaches with nine levels of explanation in three categories: phylogeny, natural selection, and genomics (ultimate causes); maturation, sensitive period effects, and routine environmental effects (intermediate causes); and hormonal/metabolic processes, neural circuitry, and eliciting stimuli (proximate causes), as a respectful extension of Tinbergen’s levels. The proposed classification supports and builds on Tinbergen’s multilevel model and Mayr’s ultimate/proximate continuum, adding intermediate causes in accord with

Tinbergen's emphasis on ontogeny. It requires no modification of Standard Evolutionary Theory or The Modern Synthesis, but shows that much that critics claim was missing was in fact part of Neo-Darwinian theory (so named by J. Mark Baldwin in *The American Naturalist* in 1896) all along, notably reciprocal causation in ontogeny, niche construction, cultural evolution, and multilevel selection. Updates of classical examples in ethology are offered at each of the nine levels, including the neuroethological and genomic findings Tinbergen foresaw. Finally, human examples are supplied at each level, fulfilling his hope of human applications as part of the biology of behavior. This broad ethological framework empowers us to explain human behavior—eventually completely—and vindicates the idea of human nature, and of humans as a part of nature.

<https://link.springer.com/article/10.1007/s12110-021-09414-8>

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## Nature

### NEWS

#### **Tracking the origin of Transeurasian languages**

A triangulation of linguistic, archaeological and genetic data suggests that the Transeurasian language family originated in a population of grain farmers in China around 9,000 years ago, and that agriculture underpinned its spread.

<https://www.nature.com/articles/d41586-021-03037-w>

### REVIEWS

#### **JOSIE GLAUSIUSZ – How dogs became humans' best friends: from Neanderthals to now**

Review of 'Our Oldest Companions: The Story of the First Dogs' by Pat Shipman Belknap (2021).

<https://www.nature.com/articles/d41586-021-03497-0>

### PAPERS

#### **MARTINE ROBBEETS et al – Triangulation supports agricultural spread of the Transeurasian languages**

The origin and early dispersal of speakers of Transeurasian languages—that is, Japanese, Korean, Tungusic, Mongolic and Turkic—is among the most disputed issues of Eurasian population history. A key problem is the relationship between linguistic dispersals, agricultural expansions and population movements. Here we address this question by 'triangulating' genetics, archaeology and linguistics in a unified perspective. We report wide-ranging datasets from these disciplines, including a comprehensive Transeurasian agropastoral and basic vocabulary; an archaeological database of 255 Neolithic–Bronze Age sites from Northeast Asia; and a collection of ancient genomes from Korea, the Ryukyu islands and early cereal farmers in Japan, complementing previously published genomes from East Asia. Challenging the traditional 'pastoralist hypothesis', we show that the common ancestry and primary dispersals of Transeurasian languages can be traced back to the first farmers moving across Northeast Asia from the Early Neolithic onwards, but that this shared heritage has been masked by extensive cultural interaction since the Bronze Age. As well as marking considerable progress in the three individual disciplines, by combining their converging evidence we show that the early spread of Transeurasian speakers was driven by agriculture.

<https://www.nature.com/articles/s41586-021-04108-8>

#### **EWOUT R. E. SCHMIDT et al – A human-specific modifier of cortical connectivity and circuit function**

The cognitive abilities that characterize humans are thought to emerge from unique features of the cortical circuit architecture of the human brain, which include increased cortico–cortical connectivity. However, the evolutionary origin of these changes in connectivity and how they affected cortical circuit function and behaviour are currently unknown. The human-specific gene duplication SRGAP2C emerged in the ancestral genome of the Homo lineage before the major phase of increase in brain size. SRGAP2C expression in mice increases the density of excitatory and inhibitory synapses received by layer 2/3 pyramidal neurons (PNs). Here we show that the increased number of excitatory synapses received by layer 2/3 PNs induced by SRGAP2C expression originates from a specific increase in local and long-range cortico–cortical connections. Mice humanized for SRGAP2C expression in all cortical PNs displayed a shift in the fraction of layer 2/3 PNs activated by sensory stimulation and an enhanced ability to learn a cortex-dependent sensory-discrimination task. Computational modelling revealed that the increased layer 4 to layer 2/3 connectivity induced by SRGAP2C expression explains some of the key changes in sensory coding properties. These results suggest that the emergence of SRGAP2C at the birth of the Homo lineage contributed to the evolution of specific structural and functional features of cortical circuits in the human cortex.

<https://www.nature.com/articles/s41586-021-04039-4>

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## Nature Ecology & Evolution

### PAPERS

#### **SAMANTHA BROWN et al with JANET KELSO & SVANTE PÄÄBO – The earliest Denisovans and their cultural adaptation**

Since the initial identification of the Denisovans a decade ago, only a handful of their physical remains have been discovered. Here we analysed ~3,800 non-diagnostic bone fragments using collagen peptide mass fingerprinting to locate new hominin remains from Denisova Cave (Siberia, Russia). We identified five new hominin bones, four of which contained sufficient DNA for mitochondrial analysis. Three carry mitochondrial DNA of the Denisovan type and one was found to carry mtDNA of the Neanderthal type. The former come from the same archaeological layer near the base of the cave's sequence and are the

oldest securely dated evidence of Denisovans at 200 ka (thousand years ago) (205–192 ka at 68.2% or 217–187 ka at 95% probability). The stratigraphic context in which they were located contains a wealth of archaeological material in the form of lithics and faunal remains, allowing us to determine the material culture associated with these early hominins and explore their behavioural and environmental adaptations. The combination of bone collagen fingerprinting and genetic analyses has so far more-than-doubled the number of hominin bones at Denisova Cave and has expanded our understanding of Denisovan and Neanderthal interactions, as well as their archaeological signatures.

<https://www.nature.com/articles/s41559-021-01581-2>

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## Nature Humanities & Social Sciences Communications

### PAPERS

#### **ABRAHAM RESLER et al – A deep-learning model for predictive archaeology and archaeological community detection**

Deep learning is a powerful tool for exploring large datasets and discovering new patterns. This work presents an account of a metric learning-based deep convolutional neural network (CNN) applied to an archaeological dataset. The proposed account speaks of three stages: training, testing/validating, and community detection. Several thousand artefact images, ranging from the Lower Palaeolithic period (1.4 million years ago) to the Late Islamic period (fourteenth century AD), were used to train the model (i.e., the CNN), to discern artefacts by site and period. After training, it attained a comparable accuracy to archaeologists in various periods. In order to test the model, it was called to identify new query images according to similarities with known (training) images. Validation blinding experiments showed that while archaeologists performed as well as the model within their field of expertise, they fell behind concerning other periods. Lastly, a community detection algorithm based on the confusion matrix data was used to discern affiliations across sites. A case-study on Levantine Natufian artefacts demonstrated the algorithm's capacity to discern meaningful connections. As such, the model has the potential to reveal yet unknown patterns in archaeological data.

<https://www.nature.com/articles/s41599-021-00970-z>

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## Nature Scientific Reports

### PAPERS

#### **SAHRA TALAMO et al with JEAN-JACQUES HUBLIN – A 41,500 year-old decorated ivory pendant from Stajnia Cave (Poland)**

Evidence of mobiliary art and body augmentation are associated with the cultural innovations introduced by Homo sapiens at the beginning of the Upper Paleolithic. Here, we report the discovery of the oldest known human-modified punctate ornament, a decorated ivory pendant from the Paleolithic layers at Stajnia Cave in Poland. We describe the features of this unique piece, as well as the stratigraphic context and the details of its chronometric dating. The Stajnia Cave plate is a personal 'jewellery' object that was created 41,500 calendar years ago (directly radiocarbon dated). It is the oldest known of its kind in Eurasia and it establishes a new starting date for a tradition directly connected to the spread of modern Homo sapiens in Europe.

<https://www.nature.com/articles/s41598-021-01221-6>

#### **LYSIANNA LEDOUX et al – Evidence of the use of soft footwear in the Gravettian cave of Cussac (Dordogne, France)**

Humans appear to have regularly worn footwear since at least the Early Upper Palaeolithic. However, due to the perishable nature of footwear, the archaeological record of its presence during the Pleistocene is poor. While footwear would have played an essential role in protecting the foot, it could also have been used as ornamentation and/or as a social marker. Footprints may provide the most relevant insight regarding the origin and function of footwear. Here we report the discovery of footprints in Cussac Cave (southwest France) at 28–31 ka cal BP and the results of a multi-focal approach, including experimentation, that demonstrate that Gravettian people most likely wore footwear while moving through the cave. These singular footprints would constitute one of the oldest cases of indirect evidence for this unusual practice in decorated Palaeolithic caves and reinforce the exceptional nature of Cussac already attested by the presence of monumental engravings and funerary deposits.

<https://www.nature.com/articles/s41598-021-02127-z>

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## New Scientist

### NEWS

#### **New Australopithecus sediba bones suggest extinct hominin was bipedal**

The discovery of new Australopithecus sediba fossils mean we can now reconstruct most of the spine of one individual, and strengthen the case that the species was bipedal at least some of the time.

<https://www.newscientist.com/article/2298635-new-australopithecus-sediba-bones-suggest-extinct-hominin-was-bipedal/#ixzz7DHEi0Hr3>

#### **UK visa scheme for prize-winning scientists receives no applications**

Exclusive: A fast-track visa route for Nobel prize laureates and other award-winners in science, engineering, the humanities and medicine has failed to attract any applicants.

<https://www.newscientist.com/article/2298455-uk-visa-scheme-for-prize-winning-scientists-receives-no-applications/#ixzz7DHEdZZfh>

## ARTICLES

### **KATE RAVILIOUS – Survival of the friendliest? Why Homo sapiens outlived other humans**

We once shared the planet with at least seven other types of human. Ironically, our success may have been due to our deepest vulnerability: being dependent on others.

<https://www.newscientist.com/article/mg25233625-000-survival-of-the-friendliest-why-homo-sapiens-outlived-other-humans/#ixzz7DHEq41rX>

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## PLoS One

### PAPERS

### **MICHELE M. MULHOLLAND et al – Are conspecific social videos rewarding to chimpanzees (*Pan troglodytes*)? A test of the social motivation theory**

Many claim that social stimuli are rewarding to primates, but few, if any, studies have explicitly demonstrated their reward value. Here, we examined whether chimpanzees would produce overt responses for the opportunity to view conspecific social, compared to dynamic (video: Experiment 1) and static (picture: Experiment 2) control content. We also explored the relationships between variation in social reward and social behavior and cognition. We provided captive chimpanzees with access to a touchscreen during four, one-hour sessions (two 'conspecific social' and two 'control'). The sessions consisted of ten, 15-second videos (or pictures in Experiment 2) of either chimpanzees engaging in a variety of behaviors (social condition) or vehicles, humans, or other animals engaged in some activity (control condition). For each chimpanzee, we recorded the number of responses to the touchscreen and the frequency of watching the stimuli. Independent t-tests revealed no sex or rearing differences in touching and watching the social or control videos ( $p > 0.05$ ). Repeated measures ANOVAs showed chimpanzees touched and watched the screen significantly more often during the social compared to control video sessions. Furthermore, although chimpanzees did not touch the screen more often during social than control picture sessions in Experiment 2, they did watch the screen more often. Additionally, chimpanzees that previously performed better on a task of social cognition and engaged in more affiliative behavior watched a higher percentage of social videos during the touchscreen task. These results are consistent with the social motivation theory, and indicate social stimuli are intrinsically rewarding, as chimpanzees made more overt responses for the opportunity to view conspecific social, compared to control, content.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0259941>

### **SARAH M. LEISTERER-PEOPLES et al – Games and enculturation: A cross-cultural analysis of cooperative goal structures in Austronesian games**

While most animals play, only humans play games. As animal play serves to teach offspring important life-skills in a safe scenario, human games might, in similar ways, teach important culturally relevant skills. Humans in all cultures play games; however, it is not clear whether variation in the characteristics of games across cultural groups is related to group-level attributes. Here we investigate specifically whether the cooperativeness of games covaries with socio-ecological differences across cultural groups. We hypothesize that cultural groups that engage in frequent inter-group conflict, cooperative sustenance acquisition, or that have less stratified social structures, might more frequently play cooperative games as compared to groups that do not share these characteristics. To test these hypotheses, we gathered data from the ethnographic record on 25 ethnolinguistic groups in the Austronesian language family. We show that cultural groups with higher levels of inter-group conflict and cooperative land-based hunting play cooperative games more frequently than other groups. Additionally, cultural groups with higher levels of intra-group conflict play competitive games more frequently than other groups. These findings indicate that games are not randomly distributed among cultures, but rather relate to the socio-ecological settings of the cultural groups that practice them. We argue that games serve as training grounds for group-specific norms and values and thereby have an important function in enculturation during childhood. Moreover, games might server an important role in the maintenance of cultural diversity.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0259746>

### **EVELYN FUCHS et al – Acoustic structure and information content of trumpets in female Asian elephants (*Elephas maximus*)**

Most studies on elephant vocal communication have focused on the low-frequency rumble, with less effort on other vocalization types such as the most characteristic elephant call, the trumpet. Yet, a better and more complete understanding of the elephant vocal system requires investigating other vocalization types and their functioning in more detail as well. We recorded adult female Asian elephants (*Elephas maximus*) at a private facility in Nepal and analyzed 206 trumpets from six individuals regarding their frequency, temporal and contour shape, and related acoustic parameters of the fundamental frequency. We also tested for information content regarding individuality and context. Finally, we recorded the occurrence of non-linear phenomena such as bifurcation, biphonation, subharmonics and deterministic chaos. We documented a mean fundamental frequency  $\pm$  SD of  $474 \pm 70$  Hz and a mean duration  $\pm$  SD of  $1.38 \pm 1.46$  s (Nindiv. = 6, Ncalls = 206). Our study reveals that the contour of the fundamental frequency of trumpets encodes information about individuality, but we found no

evidence for trumpet subtypes in greeting versus disturbance contexts. Non-linear phenomena prevailed and varied in abundance among individuals, suggesting that irregularities in trumpets might enhance the potential for individual recognition. We propose that trumpets in adult female Asian elephants serve to convey an individual's identity as well as to signal arousal and excitement to conspecifics.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0260284>

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## PNAS

### PAPERS

#### **MATTIA FOCESATO et al – Changing social inequality from first farmers to early states in Southeast Asia**

When the first rice farmers expanded into Southeast Asia from the north about 4,000 y ago, they interacted with hunter-gatherer communities with an ancestry in the region of at least 50 millennia. Rigorously dated prehistoric sites in the upper Mun Valley of Northeast Thailand have revealed a 12-phase sequence beginning with the first farmers followed by the adoption of bronze and then iron metallurgy leading on to the rise of early states. On the basis of the burial rituals involving interment with a wide range of mortuary offerings and associated practices, we identify, by computing the values of the Gini coefficient, at least two periods of intensified social inequality. The first occurred during the initial Bronze Age that, we suggest, reflected restricted elite ownership of exotic valuables within an exchange choke point. The second occurred during the later Iron Age when increased aridity stimulated an agricultural revolution that rapidly led to the first state societies in mainland Southeast Asia.

<https://www.pnas.org/content/118/47/e2113598118.abstract>

#### **ZHIQIANG SHA et al – Handedness and its genetic influences are associated with structural asymmetries of the cerebral cortex in 31,864 individuals**

Roughly 10% of the human population is left-handed, and this rate is increased in some brain-related disorders. The neuroanatomical correlates of hand preference have remained equivocal. We resampled structural brain image data from 28,802 right-handers and 3,062 left-handers (UK Biobank population dataset) to a symmetrical surface template, and mapped asymmetries for each of 8,681 vertices across the cerebral cortex in each individual. Left-handers compared to right-handers showed average differences of surface area asymmetry within the fusiform cortex, the anterior insula, the anterior middle cingulate cortex, and the precentral cortex. Meta-analyzed functional imaging data implicated these regions in executive functions and language. Polygenic disposition to left-handedness was associated with two of these regional asymmetries, and 18 loci previously linked with left-handedness by genome-wide screening showed associations with one or more of these asymmetries. Implicated genes included six encoding microtubule-related proteins: TUBB, TUBA1B, TUBB3, TUBB4A, MAP2, and NME7—mutations in the latter can cause left to right reversal of the visceral organs. There were also two cortical regions where average thickness asymmetry was altered in left-handedness: on the postcentral gyrus and the inferior occipital cortex, functionally annotated with hand sensorimotor and visual roles. These cortical thickness asymmetries were not heritable. Heritable surface area asymmetries of language-related regions may link the etiologies of hand preference and language, whereas nonheritable asymmetries of sensorimotor cortex may manifest as consequences of hand preference.

<https://www.pnas.org/content/118/47/e2113095118.abstract>

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## Royal Society Open Science

### PAPERS

#### **JAROSŁAW R. LELONKIEWICZ, MARTIN J. PICKERING AND HOLLY P. BRANIGAN – Does it pay to imitate? No evidence for social gains from lexical imitation**

According to an influential hypothesis, people imitate motor movements to foster social interactions. Could imitation of language serve a similar function? We investigated this question in two pre-registered experiments. In Experiment 1, participants were asked to alternate naming pictures and matching pictures to a name provided by a partner. Crucially, and unknown to participants, the partner was in fact a computer program which in one group produced the same names as previously used by the participant, and in the other group consistently produced different names. We found no difference in how the two groups evaluated the partner or the interaction and no difference in their willingness to cooperate with the partner. In Experiment 2, we made the task more similar to natural interactions by adding a stage in which a participant and the partner introduced themselves to each other and included a measure of the participant's autistic traits. Once again, we found no effects of being imitated. We discuss how these null results may inform imitation research.

<https://royalsocietypublishing.org/doi/full/10.1098/rsos.211107>

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