EAORC BULLETIN 888 – 21 June 2020

CONTENTS

NOTICES

PUBLICATION ALERTS

If you have had a paper or book published, or you see something which would be of interest to the group, 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 – DNA from ancient Irish tomb reveals incest and an elite class that ruled early farmers

Twenty-five kilometers north of Dublin, a masterpiece of Stone Age engineering rises from the hills: a circular structure 12 meters high, almost the area of a U.S. football field, and made up of more than 200,000 tons of earth and stone. Some of the first farmers to arrive in Ireland erected this monument, called Newgrange, nearly 1000 years before Stonehenge or Egypt's first pyramids were built. Archaeologists have assumed it was a ceremonial site and communal tomb—an expression of an egalitarian society.
https://www.sciencemag.org/news/2020/06/dna-ancient-irish-tomb-reveals-incest-and-elite-class-ruled-early-farmers?utm_campaign=news_daily_2020-06-17&et_rid=17774313&et_cid=3369689

SOCIETY FOR SCIENCE – DNA from a 5,200-year-old Irish tomb hints at ancient royal incest

Ruling families in Ireland may have organized a big tomb project, and inbred, more than 5,000 years ago, a new study suggests.
http://click.societyforscience-email.com/?qs=1d02a062d1ce0377c3f3c15d6efa479922b8375e620911edd5b0b367cadfc0ff0aa6f3e91e72d28957cbd42810240c2a79ef75a537190c8e

SCIAM NEWS – Human Speech Evolution Gets Lip-Smacking Evidence

A study of our closest evolutionary relatives finds that the chimp behavior known as lip smacking occurs in the same timing range as human mouths during speech.
http://links.email.scientificamerican.com/ctt?ms=NjY4ODM1MzcS1&kn=17&r=NTY1MTgzOTY4MAS2&b=0&j=MTkwMjczNDQyMgS2&mt=1&rt=0

BREAKING SCIENCE – 48,000-Year-Old Arrowheads Unearthed in Sri Lanka

Archaeologists have found over a hundred bone arrow points at the Pleistocene cave site of Fa-Hien Lena in Sri Lanka. The artifacts were used to hunt tree-dwelling animals such as small monkeys and squirrels about 48,000 years ago and represent the earliest known bow-and-arrow technology outside of Africa. “The island of Sri Lanka in the [...]
http://feedproxy.google.com/~r/BreakingScienceNews/~3/QQJqOqATxP4/fa-hien-lena-arrowheads-08535.html?utm_source=feedburner&utm_medium=email

BREAKING SCIENCE – Researchers Sequence Genome of Neanderthal Woman from Chagyrskaya Cave

An international team of researchers has sequenced and analyzed the genome of an 80,000-year-old Neanderthal woman from Chagyrskaya Cave in the Altai Mountains, Siberia. The genome provides insights into Neanderthal population structure and history and allows the identification of genomic features unique to these human cousins.
http://feedproxy.google.com/~r/BreakingScienceNews/~3/EyME36rUYs8/chagyrskaya-neanderthal-genome-08548.html?utm_source=feedburner&utm_medium=email

SCIENCE DAILY – Seafood helped prehistoric people migrate out of Africa

A study has examined fossil reefs near to the now-submerged Red Sea shorelines that marked prehistoric migratory routes from Africa to Arabia. The findings suggest this coast offered the resources necessary to act as a gateway out of Africa during periods of little rainfall when other food sources were scarce.
https://www.sciencedaily.com/releases/2020/06/200616135802.htm

SCIENCE DAILY – Hunting in savanna-like landscapes may have poured jet fuel on brain evolution

Compared to the vast emptiness of open water, land is rife with obstacles and occlusions. By providing prey with spaces to hide and predators with cover for sneak attacks, the habitats possible on land may have helped give rise to planning strategies -- rather than those based on habit -- for many of those animals.
https://www.sciencedaily.com/releases/2020/06/200616083408.htm

SCIENCE DAILY – Is Santa real? Examining children's beliefs in cultural figures and 'non-real' people

Young children understand dinosaurs and The Wiggles are (or were!) real, and that fictional characters like Peter Pan and Spongebob are not real -- but cultural figures like Santa or the Tooth Fairy occupy an ambiguous place in a child's pantheon, a new study suggests.
{OK, too late for April Fool and too early for Christmas, but it appeals to me. I guess lockdown has finally taken its toll.}
https://www.sciencedaily.com/releases/2020/06/200617150036.htm

SCIENCE DAILY – A Neanderthal woman from Chagyrskaya Cave

Until now, the genomes of only two Neanderthals have been sequenced in high quality: one from Vindjia Cave in modern-day Croatia and one from Denisova Cave in Siberia's Altai Mountains. A research team has now sequenced the genome of a third Neanderthal whose remains were found - 106 kilometers away from the latter site - in Chagyrskaya Cave.
https://www.sciencedaily.com/releases/2020/06/200617121513.htm

SCIENCE DAILY – First-degree incest: ancient genomes uncover Irish passage tomb dynastic elite

Archaeologists and geneticists have shed new light on the earliest periods of Ireland's human history. Among their incredible findings is the discovery that the genome of an adult male buried in the heart of the Newgrange passage tomb points to first-degree incest, implying he was among a ruling social elite akin to the similarly inbred Inca god-kings and Egyptian pharaohs.
https://www.sciencedaily.com/releases/2020/06/200617121507.htm

SCIENCE DAILY – Studying the Neanderthal DNA found in modern humans using stem cells and organoids

Protocols that allow the transformation of human induced pluripotent stem cell (iPSC) lines into organoids have changed the way scientists can study developmental processes and enable them to decipher the interplay between genes and tissue formation, particularly for organs where primary tissue is not available. Now, investigators are taking this technology and applying it to study the developmental effects of Neanderthal DNA.
https://www.sciencedaily.com/releases/2020/06/200618150306.htm

SCIENCE DAILY – Innovation by ancient farmers adds to biodiversity of the Amazon

Innovation by ancient farmers to improve soil fertility continues to have an impact on the biodiversity of the Amazon, a major new study shows.
https://www.sciencedaily.com/releases/2020/06/200618120147.htm

NATURE BRIEFING – Incest in the elite of Neolithic Ireland

The huge, elaborate, 5,000-year-old tomb at Newgrange, Ireland, is thought to have been built for a powerful elite. DNA of a man buried there in splendour reveals that he was the offspring of first-degree relatives: either full siblings or parent and child. Was this a strategy to maintain a dynastic bloodline? The Nature Podcast speaks to ancient-geneticist Lara Cassidy and other experts about the possible meaning of the man's parentage and his spectacular surroundings.
https://nature.us17.list-manage.com/track/click?u=2c6057c528fdc6f73fa196d9d&id=9c52754752&e=1db4b9a19b

ACADEMIA.EDU – Evolution of the Genus Homo

International Studies in the Philosophy of Science, 26:1, March 2012, pp.67-95.

NATHALIE GONTIER – Selectionist Approaches in Evolutionary Linguistics: An Epistemological Analysis

Evolutionary linguistics is methodologically inspired by evolutionary psychology and the neo-Darwinian, selectionist approach. Language is claimed to have evolved by means of natural selection. The focus therefore lies not on how language evolved, but on finding out why language evolved. This latter question is answered by identifying the functional benefits and adaptive status that language provides, from which in turn selective pressures are deduced. This article analyses five of the most commonly given pressures or reasons why presumably language evolved. I demonstrate that these reasons depend on functional definitions of what language is. To undo this bias, I suggest that scholars move away from the 'why' and 'what for' questions of language evolution, and focus on how language actually evolved. The latter project inquires into the distinct evolutionary mechanisms enabling the evolution of the anatomical and sociocultural traits underlying linguistic behaviour.
https://www.academia.edu/1567915/Selectionist_Approaches_in_Evolutionary_Linguistics_an_epistemological_analysis?auto=download&email_work_card=download-paper

ACADEMIA.EDU – Looking at Europe through a Basque lens

Etnolingwistyka 30, 2018 (DOI: 10.17951/et.2018.30.189)

ROSLYN FRANK – Looking at Europe through a Basque lens: Ethnolinguistic considerations of two worldviews

The main thesis of this article is that the Basque linguacultural complex provides a window onto conceptual frames reflecting a much earlier animistic worldview, reminiscent of the type of relational cosmologies characterizing ethnographically documented hunter-gatherers. In this respect, even though the Basque language is classed as pre-Indo-European, what that classification might mean from the point of view of the cosmological frames of thought entrenched in the Basque language is taken into consideration, especially the fact that, until the late 20th century, the orally transmitted belief that humans descended from bears was still circulating among Basque speakers. Ethnographic and linguistic evidence points to the possibility that a similar animistic linguacultural substrate was operating across much of Europe during the period in which Indo-European languages and their associated conceptual frames were gaining a foothold. Drawing on the methodological and theoretical tools of cultural linguistics and Habermas' concept of lifeworld (Lebenswelt), defined as a culturally transmitted and linguistically organized stock of interpretative patterns, a set of asymmetric polarities are analyzed. These are deeply engrained in the linguaculture of Western thought, namely, man/woman, human/animal and culture/nature. Moreover, all of them rest, ultimately, on the notion of human exceptionalism. When viewed from the indigenous frames of the Basque language, these oppositions disappear or are represented in ways more in accordance with the underlying animistic ontology and associated conceptualizations of relational personal identity. In short, the conceptual frames discussed in this study, understandings that are projected through the linguacultural nexus of the Basque language, often align with the ways that animism has been interpreted as expressing a form of relational ontology in which notions of kinship, mutual aid and reciprocity are emphasized and hence closely intertwined. Consequently, the resulting worldview provides a different vantage point for looking back at Western thought and what might have been going on in Europe in times past.
https://www.academia.edu/38559524/Looking_at_Europe_through_a_Basque_lens_Ethnolinguistic_considerations_of_two_worldviews?auto=download&email_work_card=download-paper

PUBLICATIONS

Current Anthropology

PAPERS

DANIEL E. LIEBERMAN et al – Running in Tarahumara (Rarámuri) Culture: Persistence Hunting, Footracing, Dancing, Work, and the Fallacy of the Athletic Savage

The Tarahumara (Rarámuri) are a Native American people from Chihuahua, Mexico, who have long been famous for running, but there is widespread incredulity about how and why they run such long distances. Some characterizations of Tarahumara running are also based on stereotypical views of athleticism among non-Western peoples, here labeled the "fallacy of the

athletic savage." To place Tarahumara running more appropriately into its larger social and functional contexts, we combined our own observations and ethnographic evidence with interviews of 10 elderly Tarahumara runners about running during hunting as well as during footraces. We detail how running played an integral role in persistence hunting, in which groups of hunters employed a variety of methods to chase animals on foot. Running during hunting, moreover, is linked to men's and women's footraces, and both kinds of running are considered powerful forms of prayer. Long-distance running is also related to endurance dances that have important spiritual dimensions. Although the Tarahumara do not train to run in any traditional Western sense, and not all of them are great runners, the Tarahumara, like many Native American peoples, consider running, along with other endurance-based activities, to be important social and spiritual pursuits.
https://www.journals.uchicago.edu/doi/abs/10.1086/708810

Evolutionary Anthropology

PAPERS

CURTIS ATKISSON et al – Why understanding multiplex social network structuring processes will help us better understand the evolution of human behavior

Social scientists have long appreciated that relationships between individuals cannot be described from observing a single domain, and that the structure across domains of interaction can have important effects on outcomes of interest (e.g., cooperation; Durkheim, 1893). One debate explicitly about this surrounds food sharing. Some argue that failing to find reciprocal food sharing means that some process other than reciprocity must be occurring, whereas others argue for models that allow reciprocity to span domains in the form of trade (Kaplan and Hill, 1985.). Multilayer networks, high-dimensional networks that allow us to consider multiple sets of relationships at the same time, are ubiquitous and have consequences, so processes giving rise to them are important social phenomena. The analysis of multi-dimensional social networks has recently garnered the attention of the network science community (Kivelä et al., 2014). Recent models of these processes show how ignoring layer interdependencies can lead one to miss why a layer formed the way it did, and/or draw erroneous conclusions (Górski et al., 2018). Understanding the structuring processes that underlie multiplex networks will help understand increasingly rich data sets, giving more accurate and complete pictures of social interactions.
https://onlinelibrary.wiley.com/doi/abs/10.1002/evan.21850?campaign=woletoc

SHI-XIA YANG et al with MICHAEL D. PETRAGLIA – The Paleolithic in the Nihewan Basin, China: Evolutionary history of an Early to Late Pleistocene record in Eastern Asia

The Nihewan Basin of China preserves one of the most important successions of Paleolithic archeological sites in Eurasia. Stratified archeological sites and mammalian fossils, first reported in the 1920s, continue to be recovered in large-scale excavation projects. Here, we review key findings from archeological excavations in the Nihewan Basin ranging from ~1.66 Ma to 11.7 ka. We place particular emphasis on changes in stone tool technology over the long term. Though Pleistocene lithic industries from East Asia are often described as simple in character, re-evaluation of the stone tool evidence from the Nihewan Basin demonstrates significant, though periodic, innovations and variability in manufacturing techniques through time, indicating adaptive and technological flexibility on the part of hominins. Synthesis of paleoenvironmental and archeological data indicate changes in hominin occupation frequency in the Nihewan Basin, with chronological gaps suggesting that continuous presence in high, seasonal latitudes was not possible prior to the Late Pleistocene.
https://onlinelibrary.wiley.com/doi/full/10.1002/evan.21813?campaign=woletoc

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Frontiers in Psychology

PAPERS

KIBUM MOON et al – The Mirror of Mind: Visualizing Mental Representations of Self Through Reverse Correlation

The reverse correlation (RC) method has been widely used, because it allows visualization of mental representations without a priori assumptions about relevant dimensions. We employed the RC method to visualize mental representations of self and examined their relationships with traits related to self-image. For this purpose, 110 participants (70 women) performed a two-image forced choice RC task to generate a classification image of self (self-CI). Participants perceived their self-CIs as bearing a stronger resemblance to themselves than did CIs of others (filler-CIs). Valence ratings of participants who performed the RC task (RC sample) and of 30 independent raters both showed positive correlations with self-esteem, explicit self-evaluation, and extraversion. Moreover, valence ratings of independent raters were negatively correlated with social anxiety symptoms. On the other hand, valence ratings of the RC sample and independent raters were not correlated with depression symptoms, trait anxiety, or social desirability. The results imply that mental representations of self can be properly visualized by using the RC method.
https://www.frontiersin.org/articles/10.3389/fpsyg.2020.01149/full?utm_source=F-AAE&utm_medium=EMLF&utm_campaign=MRK_1356251_69_Psycho_20200618_arts_A

NATASSA KYRIAKOPOULOU & STELLA VOSNIADOU – Theory of Mind, Personal Epistemology, and Science Learning: Exploring Common Conceptual Components

We investigated the hypothesis that theory of mind (ToM) and epistemological understanding promote the aspect of science learning that concerns the ability to understand that there can be more than one representation of the same phenomenon in the physical world. Sixty-three students ranging in age from 10 to 12 years were administered two false-belief ToM tasks, an epistemological understanding task that investigated beliefs about the nature of science and a science learning task. The science learning task required distinguishing and reflecting upon phenomenal and scientific depictions of phenomena in observational astronomy. A three-stage hierarchical multiple regression showed that ToM was a significant predictor of performance in the astronomy task, supporting the hypothesis of a common underlying conceptual component. The results also showed that performance in the personal epistemology–nature of science task was a significant predictor of performance in the astronomy task, even when ToM and age were taken into consideration. The results indicate that both ToM and epistemological understanding promote the ability to construct and reflect on phenomenal and scientific representations of the same situation in the physical world and have important implications for science education.
https://www.frontiersin.org/articles/10.3389/fpsyg.2020.01140/full?utm_source=F-AAE&utm_medium=EMLF&utm_campaign=MRK_1356251_69_Psycho_20200618_arts_A

TOMASZ FRACKOWIAK et al – Subjective Happiness Among Polish and Hadza People

Life satisfaction and happiness were broadly studied in Western populations, whereas evidence from traditional societies remains surprisingly scarce. We collected data on the happiness from 145 Hadza, and compared it with data obtained from 156 Poles, representing Westernized society. Participants were asked to answer four simple questions from Subjective Happiness Scale (Lyubomirsky and Lepper, 1999). Results indicate that Hadza report a higher level of happiness with their lives than do Polish people. Our findings also show that sex was not related to happiness in both populations, while age was a negative predictor of happiness, but only among Poles. Therefore, we hypothesize that positive perception of aging in societies may increase their actual happiness.
https://www.frontiersin.org/articles/10.3389/fpsyg.2020.01173/full?utm_source=F-AAE&utm_medium=EMLF&utm_campaign=MRK_1356251_69_Psycho_20200618_arts_A

Journal of the Royal Anthropological Institute

PAPERS

DIANA YOUNG – In the red: substances and materials in the Australian Western Desert

This article discusses the diversity, distribution, and qualities of materials and substances categorized as red among Pitjantjatjara- and Yankunytjatjara-speaking Western Desert Aboriginal people: Anangu. Valued red materials and substances include elements of the encultured landscape – country – such as ochre, timber, food, blood, and fire, alongside cloth and other industrially produced materials. Previous scholarship defines reds among central Australian Aboriginal cultures only in static symbolic terms as representing blood. Based on long-term fieldwork, this article discusses how Anangu employ a system of analogy across domains which connects together red materials and substances with particular affordances. I argue that Anangu conceptualize these red materials and substances as making visible kurunpa /spirit. This has implications for concepts of health and for constructing the local cultural value of consumer goods and substances found in country. Reds connect the mental and the material. The article contributes to studies of how contemporary Anangu mediate relationships between kin and country and participate in a wider market economy. It addresses anthropological knowledge about, and the importance of, the materiality of colours and the role of coloured materials and substances in shaping local ontologies and epistemologies.
https://rai.onlinelibrary.wiley.com/doi/10.1111/1467-9655.13248

IAN HODDER – The paradox of the long term: human evolution and entanglement★

Over recent decades, many archaeologists have eschewed evolutionary theories, and in doing so they have turned away from the identification of long-term trends that are of great relevance to present-day matters of concern. In particular, there is clear evidence for an overall long-term increase in the amount of human-made material and associated human-thing entanglements, an increase tied up with environmental impact and global inequalities. The directionality of these long-term changes is clear and yet evolutionary theory largely shuns notions of overall directional change. This paradox and its implications are the subject of this article, with the suggestion made that, for human evolution at least, notions of directionality and path dependence need to be embraced, with concomitant changes in human evolutionary theory, and with implications for responses to environmental change. Adding to earlier accounts of entanglement, emphases are placed on the self-amplifying processes that lead to change and on irreversibility in the place of teleology.
https://rai.onlinelibrary.wiley.com/doi/10.1111/1467-9655.13253

Mind & Language

PAPERS

RONALD J. PLANER & PETER GODFREY-SMITH – Communication and representation understood as sender–receiver coordination

Modeling work by Brian Skyrms and others in recent years has transformed the theoretical role of David Lewis's 1969 model of signaling. The latter can now be understood as a minimal model of communication in all its forms. In this article, we explain how the Lewis model has been generalized, and consider how it and its variants contribute to ongoing debates in several areas. Specifically, we consider connections between the models and four topics: The role of common interest in communication, signaling within the organism, meaning, and the evolution of human communication and language.
https://onlinelibrary.wiley.com/doi/abs/10.1111/mila.12293?campaign=wolearlyview

Nature

ARTICLES

ALISON SHERIDAN – Incest uncovered at the elite prehistoric Newgrange monument in Ireland

The huge, elaborate, 5,000-year-old tomb at Newgrange, Ireland, is thought to have been built for a powerful elite. DNA of a man buried there reveals a case of incest. Was this a strategy to maintain a dynastic bloodline?
https://www.nature.com/articles/d41586-020-01655-4

PAPERS

LARA M. CASSIDY et al – A dynastic elite in monumental Neolithic society

The nature and distribution of political power in Europe during the Neolithic era remains poorly understood1. During this period, many societies began to invest heavily in building monuments, which suggests an increase in social organization. The scale and sophistication of megalithic architecture along the Atlantic seaboard, culminating in the great passage tomb complexes, is particularly impressive2. Although co-operative ideology has often been emphasised as a driver of megalith construction1, the human expenditure required to erect the largest monuments has led some researchers to emphasize hierarchy3—of which the most extreme case is a small elite marshalling the labour of the masses. Here we present evidence that a social stratum of this type was established during the Neolithic period in Ireland. We sampled 44 whole genomes, among which we identify the adult son of a first-degree incestuous union from remains that were discovered within the most elaborate recess of the Newgrange passage tomb. Socially sanctioned matings of this nature are very rare, and are documented almost exclusively among politico-religious elites4—specifically within polygynous and patrilineal royal families that are headed by god-kings5,6. We identify relatives of this individual within two other major complexes of passage tombs 150 km to the west of Newgrange, as well as dietary differences and fine-scale haplotypic structure (which is unprecedented in resolution for a prehistoric population) between passage tomb samples and the larger dataset, which together imply hierarchy. This elite emerged against a backdrop of rapid maritime colonization that displaced a unique Mesolithic isolate population, although we also detected rare Irish hunter-gatherer introgression within the Neolithic population.
https://www.nature.com/articles/s41586-020-2378-6

Nature Communications

PAPERS

SAM EREIRA et al – Social training reconfigures prediction errors to shape Self-Other boundaries

Selectively attributing beliefs to specific agents is core to reasoning about other people and imagining oneself in different states. Evidence suggests humans might achieve this by simulating each other's computations in agent-specific neural circuits, but it is not known how circuits become agent-specific. Here we investigate whether agent-specificity adapts to social context. We train subjects on social learning tasks, manipulating the frequency with which self and other see the same information. Training alters the agent-specificity of prediction error (PE) circuits for at least 24 h, modulating the extent to which another agent's PE is experienced as one's own and influencing perspective-taking in an independent task. Ventromedial prefrontal myelin density, indexed by magnetisation transfer, correlates with the strength of this adaptation. We describe a frontotemporal learning network, which exploits relationships between different agents' computations. Our findings suggest that Self-Other boundaries are learnable variables, shaped by the statistical structure of social experience.
https://www.nature.com/articles/s41467-020-16856-8

PLoS One

PAPERS

ROHAN KAPITÁNY et al – The child's pantheon: Children's hierarchical belief structure in real and non-real figures

To what extent do children believe in real, unreal, natural and supernatural figures relative to each other, and to what extent are features of culture responsible for belief? Are some figures, like Santa Claus or an alien, perceived as more real than figures like Princess Elsa or a unicorn? We categorized 13 figures into five a priori categories based on 1) whether children receive direct evidence of the figure's existence, 2) whether children receive indirect evidence of the figure's existence, 3) whether the figure was associated with culture-specific rituals or norms, and 4) whether the figure was explicitly presented

as fictional. We anticipated that the categories would be endorsed in the following order: 'Real People' (a person known to the child, The Wiggles), 'Cultural Figures' (Santa Claus, The Easter Bunny, The Tooth Fairy), 'Ambiguous Figures' (Dinosaurs, Aliens), 'Mythical Figures' (unicorns, ghosts, dragons), and 'Fictional Figures' (Spongebob Squarepants, Princess Elsa, Peter Pan). In total, we analysed responses from 176 children (aged 2–11 years) and 56 adults for 'how real' they believed 13 individual figures were (95 children were examined online by their parents, and 81 children were examined by trained research assistants). A cluster analysis, based exclusively on children's 'realness' scores, revealed a structure supporting our hypotheses, and multilevel regressions revealed a sensible hierarchy of endorsement with differing developmental trajectories for each category of figures. We advance the argument that cultural rituals are a special form of testimony that influences children's reality/fantasy distinctions, and that rituals and norms for 'Cultural Figures' are a powerful and under-researched factor in generating and sustaining a child's endorsement for a figure's reality status. All our data and materials are publically available at https://osf.io/wurxy/.
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0234142

FENG LI et al – Intra-assemblage variation in the macro-blade assemblage from the 1963 excavation at Shuidonggou locality 1, northern China, in the context of regional variation
The emergence of the Upper Paleolithic and regional variability in early Upper Paleolithic industries are prominent topics in Paleolithic archaeology, with special relevance to the dispersal and differentiation of early modern human cultures across Eurasia. The so-called Initial Upper Paleolithic (IUP) has been considered a key element in the emergence of the Upper Paleolithic in northern Asia. Here, we examine the intra-assemblage variation in the collection from the 1963 excavation at Shuidonggou locality 1, a major IUP site in northern China. We combine technological and quantitative attribute analyses to investigate the variety of core reduction sequences and tool manufacture behaviors at the site. A range of core reduction sequences have been documented at Shuidonggou locality 1, including both simple core reduction and prepared core reduction yielding laminar (blade-like) products. The simple core reduction component may due to mixed non-IUP assemblages from different archaeological layers. Among the laminar core reduction sequences, the main strategy involves asymmetrical exploitation of the broad face of core blank, producing blades and elongate flakes, and resembling a recurrent Levallois blade method sensu lato. We compare Shuidonggou laminar blank production with that of IUP assemblages in the Siberian Altai, northern Mongolia, and the Transbaikal region. The comparison demonstrates a general consistency to the basic blank production in IUP assemblages across northern Asia, with some regional variation. The results suggest a multi-directional model of diffusion of the IUP in northeast Asia.
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0234576

VINCENZO MAFFEI et al – Sensitivity of occipito-temporal cortex, premotor and Broca's areas to visible speech gestures in a familiar language
When looking at a speaking person, the analysis of facial kinematics contributes to language discrimination and to the decoding of the time flow of visual speech. To disentangle these two factors, we investigated behavioural and fMRI responses to familiar and unfamiliar languages when observing speech gestures with natural or reversed kinematics. Twenty Italian volunteers viewed silent video-clips of speech shown as recorded (Forward, biological motion) or reversed in time (Backward, non-biological motion), in Italian (familiar language) or Arabic (non-familiar language). fMRI revealed that language (Italian/Arabic) and time-rendering (Forward/Backward) modulated distinct areas in the ventral occipito-temporal cortex, suggesting that visual speech analysis begins in this region, earlier than previously thought. Left premotor ventral (superior subdivision) and dorsal areas were preferentially activated with the familiar language independently of time-rendering, challenging the view that the role of these regions in speech processing is purely articulatory. The left premotor ventral region in the frontal operculum, thought to include part of the Broca's area, responded to the natural familiar language, consistent with the hypothesis of motor simulation of speech gestures.
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0234695

RENÉ WESTERHAUSEN & FREDRIK SAMUELSEN – An optimal dichotic-listening paradigm for the assessment of hemispheric dominance for speech processing
Dichotic-listening paradigms are widely accepted as non-invasive tests of hemispheric dominance for language processing and represent a standard diagnostic tool for the assessment of developmental auditory and language disorders. Despite its popularity in research and clinical settings, dichotic paradigms show comparatively low reliability, significantly threatening the validity of conclusions drawn from the results. Thus, the aim of the present work was to design and evaluate a novel, highly reliable dichotic-listening paradigm for the assessment of hemispheric differences. Based on an extensive literature review, the paradigm was optimized to account for the main experimental variables which are known to systematically bias task performance or affect random error variance. The main design principle was to minimize the relevance of higher cognitive functions on task performance in order to obtain stimulus-driven laterality estimates. To this end, the key design features of the paradigm were the use of stop-consonant vowel (CV) syllables as stimulus material, a single stimulus pair per trial presentation mode, and a free recall (single) response instruction. Evaluating a verbal and manual response-format version of the paradigm in a sample of N = 50 healthy participants, we yielded test-retest intra-class correlations of rICC = .91 and .93 for the two response format versions. These excellent reliability estimates suggest that the optimal paradigm may offer an effective and efficient alternative to currently used paradigms both in research and diagnostic.

https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0234665

PNAS

PAPERS

SACHA KACKI et al with ERIK TRINKAUS – Complex mortuary dynamics in the Upper Paleolithic of the decorated Grotte de Cussac, France

The Mid-Upper Paleolithic (Gravettian) karstic Grotte de Cussac (France) contains two areas of human remains in the context of abundant (and spectacular) parietal engravings. The first area (loci 1 and 2) includes the skeleton of a young adult male in a bear nest, rearranged by postdecomposition inundation, and the variably fragmentary remains of at least two individuals distributed across two bear nests, sorted anatomically and with most of the elements constrained to one side of one nest. The second area (locus 3) retains remains of two adults and an adolescent, in upper hollows and variably distributed down the slope, largely segregated into upper versus lower body groups. The only decoration associated with the human remains is red pigment on some of the bones or underlying sediment. The human remains indicate variable nonnatural deposition and manipulation of human bodies, body portions, and skeletal elements of at least six individuals. Moreover, Cussac is unusual in the association of these remains with exceptional parietal art. The complex Cussac mortuary pattern joins growing evidence from other Gravettian sites of variable treatment of individuals after death, within and across sites, in terms of formal deposition of the body versus postmortem manipulation versus surface abandonment. It provides a window onto the social diversity and the complex interactions of the living and the dead among these successful Late Pleistocene foragers.
https://www.pnas.org/content/early/2020/06/09/2005242117.abstract?etoc

DENIS ARCHAKOV et al – Auditory representation of learned sound sequences in motor regions of the macaque brain

Human speech production requires the ability to couple motor actions with their auditory consequences. Nonhuman primates might not have speech because they lack this ability. To address this question, we trained macaques to perform an auditory–motor task producing sound sequences via hand presses on a newly designed device (“monkey piano”). Catch trials were interspersed to ascertain the monkeys were listening to the sounds they produced. Functional MRI was then used to map brain activity while the animals listened attentively to the sound sequences they had learned to produce and to two control sequences, which were either completely unfamiliar or familiar through passive exposure only. All sounds activated auditory midbrain and cortex, but listening to the sequences that were learned by self-production additionally activated the putamen and the hand and arm regions of motor cortex. These results indicate that, in principle, monkeys are capable of forming internal models linking sound perception and production in motor regions of the brain, so this ability is not special to speech in humans. However, the coupling of sounds and actions in nonhuman primates (and the availability of an internal model supporting it) seems not to extend to the upper vocal tract, that is, the supralaryngeal articulators, which are key for the production of speech sounds in humans. The origin of speech may have required the evolution of a “command apparatus” similar to the control of the hand, which was crucial for the evolution of tool use.
https://www.pnas.org/content/early/2020/06/12/1915610117.abstract?etoc

PAULA RUBIO-FERNANDEZ & JULIAN JARA-ETTINGER – Incrementality and efficiency shape pragmatics across languages

To correctly interpret a message, people must attend to the context in which it was produced. Here we investigate how this process, known as pragmatic reasoning, is guided by two universal forces in human communication: incrementality and efficiency, with speakers of all languages interpreting language incrementally and making the most efficient use of the incoming information. Crucially, however, the interplay between these two forces results in speakers of different languages having different pragmatic information available at each point in processing, including inferences about speaker intentions. In particular, the position of adjectives relative to nouns (e.g., “black lamp” vs. “lamp black”) makes visual context information available in reverse orders. In an eye-tracking study comparing four unrelated languages that have been understudied with regard to language processing (Catalan, Hindi, Hungarian, and Wolof), we show that speakers of languages with an adjective–noun order integrate context by first identifying properties (e.g., color, material, or size), whereas speakers of languages with a noun–adjective order integrate context by first identifying kinds (e.g., lamps or chairs). Most notably, this difference allows listeners of adjective–noun descriptions to infer the speaker’s intention when using an adjective (e.g., “the black…” as implying “not the blue one”) and anticipate the target referent, whereas listeners of noun–adjective descriptions are subject to temporary ambiguity when deriving the same interpretation. We conclude that incrementality and efficiency guide pragmatic reasoning across languages, with different word orders having different pragmatic affordances.
https://www.pnas.org/content/117/24/13399.abstract?etoc

KALEDA KREBS DENTON et al with MARCUS W. FELDMAN – Cultural evolution of conformity and anticonformity

Conformist bias occurs when the probability of adopting a more common cultural variant in a population exceeds its frequency, and anticonformist bias occurs when the reverse is true. Conformist and anticonformist bias have been widely documented in humans, and conformist bias has also been observed in many nonhuman animals. Boyd and Richerson used models of conformist and anticonformist bias to explain the evolution of large-scale cooperation, and subsequent research has extended these models. We revisit Boyd and Richerson’s original analysis and show that, with conformity based on more than three role models, the evolutionary dynamics can be more complex than previously assumed. For example, we show the

presence of stable cycles and chaos under strong anticonformity and the presence of new equilibria when both conformity and anticonformity act at different variant frequencies, with and without selection. We also investigate the case of population subdivision with migration and find that the common claim that conformity can maintain between-group differences is not always true. Therefore, the effect of conformity on the evolution of cooperation by group selection may be more complicated than previously stated. Finally, using Feldman and Liberman's modifier approach, we investigate the conditions under which a rare modifier of the extent of conformity or the number of role models can invade a population. Understanding the dynamics of conformist- and anticonformist-biased transmission may have implications for research on human and nonhuman animal behavior, the evolution of cooperation, and frequency-dependent transmission in general.
https://www.pnas.org/content/117/24/13603.abstract?etoc

FABRIZIO MAFESSONI et al with SVANTE PÄÄBO – A high-coverage Neandertal genome from Chagyrskaya Cave
We sequenced the genome of a Neandertal from Chagyrskaya Cave in the Altai Mountains, Russia, to 27-fold genomic coverage. We show that this Neandertal was a female and that she was more related to Neandertals in western Eurasia [Prüfer et al., Science 358, 655–658 (2017); Hajdinjak et al., Nature 555, 652–656 (2018)] than to Neandertals who lived earlier in Denisova Cave [Prüfer et al., Nature 505, 43–49 (2014)], which is located about 100 km away. About 12.9% of the Chagyrskaya genome is spanned by homozygous regions that are between 2.5 and 10 centiMorgans (cM) long. This is consistent with the fact that Siberian Neandertals lived in relatively isolated populations of less than 60 individuals. In contrast, a Neandertal from Europe, a Denisovan from the Altai Mountains, and ancient modern humans seem to have lived in populations of larger sizes. The availability of three Neandertal genomes of high quality allows a view of genetic features that were unique to Neandertals and that are likely to have been at high frequency among them. We find that genes highly expressed in the striatum in the basal ganglia of the brain carry more amino-acid-changing substitutions than genes expressed elsewhere in the brain, suggesting that the striatum may have evolved unique functions in Neandertals.
https://www.pnas.org/content/early/2020/06/15/2004944117.abstract?etoc

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Quarterly Review of Biology

REVIEWS

ZARIN MACHANDA – Wild Chimpanzees
Review of 'Wild Chimpanzees: Social Behavior of an Endangered Species' by Adam Clark Arcadi.
https://www.journals.uchicago.edu/doi/abs/10.1086/709047

KRISHNA DRONAMRAJU – The Human Instinct
Review of 'The Human Instinct: How We Evolved to Have Reason, Consciousness, and Free Will' by Kenneth R. Miller.
https://www.journals.uchicago.edu/doi/abs/10.1086/709098

JENNIFER L. VERDOLIN – Humanimal
Review of 'Humanimal: How Homo sapiens Became Nature's Most Paradoxical Creature: A New Evolutionary History' by Adam Rutherford; illustrated by Alice Roberts.
https://www.journals.uchicago.edu/doi/abs/10.1086/709060

IVAN GONZALEZ-CABRERA – The Ape That Understood the Universe
Review of 'The Ape That Understood the Universe: How the Mind and Culture Evolve' by Steve Stewart-Williams.
https://www.journals.uchicago.edu/doi/abs/10.1086/709061

MICHAEL L. WILSON – Why Chimpanzees Can't Learn Language and Only Humans Can
Review of 'Why Chimpanzees Can't Learn Language and Only Humans Can. Leonard Hastings Schoff Memorial Lectures' by Herbert S. Terrace.
https://www.journals.uchicago.edu/doi/abs/10.1086/709067

DANA M. WILLIAMS – Thinking Like a Parrot
Review of 'Thinking Like a Parrot: Perspectives from the Wild' by Alan B. Bond and Judy Diamond.
https://www.journals.uchicago.edu/doi/abs/10.1086/709087

SUSAN M. FITZPATRICK – The Consciousness Instinct
Review of 'The Consciousness Instinct: Unraveling the Mystery of How the Brain Makes the Mind' by Michael S. Gazzaniga.
https://www.journals.uchicago.edu/doi/abs/10.1086/709072

ELLIS J. G. LANGLEY – Cognitive Evolution
Review of 'Cognitive Evolution' by David B. Boles.
https://www.journals.uchicago.edu/doi/abs/10.1086/709073

Science

ARTICLES

ANDREW CURRY – Incest in ancient Ireland suggests an elite ruled early farmers

Twenty-five kilometers north of Dublin, a masterpiece of Stone Age engineering rises from the hills: a circular structure 12 meters high, almost the area of a U.S. football field, and made up of more than 200,000 tons of earth and stone. Some of the first farmers to arrive in Ireland erected this monument, called Newgrange, nearly 1000 years before Stonehenge or Egypt's first pyramids were built. Archaeologists have assumed it was a ceremonial site and communal tomb—an expression of an egalitarian society. Now, DNA from a middle-aged man buried in 3200 B.C.E. at the center of this mighty mound suggests otherwise. His genes indicate he had parents so closely related they must have been brother and sister or parent and child. Across cultures, incest is almost always taboo—except in inbred royal families. Its genetic traces at Newgrange suggest social hierarchy took hold in Ireland earlier than thought, according to a new study that also includes DNA from 40 other ancient Irish tombs.

https://science.sciencemag.org/content/368/6497/1299

Trends in Ecology and Evolution

PAPERS

CLAUDIA BANK – Defining Theories in Evolution

The field of evolution was initially dominated by theory. This includes both verbal models, such as the very definition of evolution by natural selection, and mathematical and statistical models, such as the impressive foundations of population genetics laid out almost a century ago. Moreover, in evolutionary biology, mathematical models have a unique history of being used as a proof-of-concept of verbal models that, due to the timescale of evolution and the complexity of interacting forces in nature, cannot be tested empirically. With recent advances in experimental and technological approaches, evaluation of both classical and new models of various degrees of complexity has become feasible. At the same time, other scientific areas such as medicine or conservation biology increasingly recognize the importance of considering genetic and phenotypic variation and the possibility of (rapid) evolutionary change.

https://www.cell.com/trends/ecology-evolution/fulltext/S0169-5347(20)30144-0?dgcid=raven_jbs_aip_email

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