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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, please send me a publication alert so that I can include it in the newsletter. Many thanks to those who have already sent in alerts.

If there is a journal you feel I should be tracking on a regular basis, let me know.

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

ACADEMIA.EDU – From Acheulean to Middle Stone Age in the Kapthurin Formation, Kenya

In Erella Hovers & Steven L. Kuhn (eds.), Transitions Before the Transition: Evolution and Stability in the Middle Paleolithic and Middle Stone Age. Springer: Berlin (2006).

SALLY MCBREARTY & CHRISTIAN TRYON – From Acheulean to Middle Stone Age in the Kapthurin Formation, Kenya

The Acheulean to Middle Stone Age (MSA) transition is examined from an evolutionary perspective. The replacement of Acheulean handaxes by MSA points represents a shift from hand-held to hafted technology, but the timing and nature of this process are poorly understood due to the rarity of sites from the early MSA (EMSA), here defined as the portion of the MSA predating 130,000 years ago. The well-calibrated sequence in the Kapthurin Formation, Kenya, spans the transition, and shows that MSA technology was present before 285,000 years ago. This date coincides with the age of known African fossils that most likely represent the earliest members of the Homo sapiens lineage. Occurrences with characteristic Acheulean and EMSA artifacts are interstratified in the Kapthurin Formation, demonstrating that the transition was not a simple, unidirectional process. A variety of flake production techniques is present at both Acheulean and MSA sites in the formation. The Levallois tradition begins before 285,000 BP in an Acheulean context; Levallois production methods diversify in the MSA. The precocious appearance of blades, grindstones, and pigment in the Kapthurin Formation before 285,000 BP shows that the array of sophisticated behaviors known in the later MSA (LMSA) began at the Acheulean to MSA transition, and it is suggested that such technological changes are among the causes or consequences of the origin of our species.

[https://www.academia.edu/6443128/Transitions Before The Transition Evolution and Stability in the Middle Paleolithic and Middle Stone Age Edited by](https://www.academia.edu/6443128/Transitions_Before_The_Transition_Evolution_and_Stability_in_the_Middle_Paleolithic_and_Middle_Stone_Age_Edited_by)

ACADEMIA.EDU – Variability in the Middle Stone Age of Eastern Africa

In Current Anthropology 54:S8, S234-S254 (2013).

CHRISTIAN A. TRYON & J. TYLER FAITH – Variability in the Middle Stone Age of Eastern Africa

Eastern Africa is an important area to study early populations of Homo sapiens because subsets of those populations likely dispersed to Eurasia and subsequently throughout the globe during the Upper Pleistocene. The Middle Stone Age (MSA) archaeology of this region, particularly aspects of stone-tool technology and typology, is highly variable with only rare cases of geographic and temporal patterning. Although there are differences in timing and perhaps frequency of occurrence, those elements that make up the MSA lithic tool kit are also found at contemporaneous sites elsewhere in Africa and Eurasia, making it difficult to identify a unique archaeological signal for hominin dispersals out of eastern Africa. Rather, regional variation appears to be the outcome of possibly long-term interactions between particular physical and social environments experienced by hominin populations.

[https://www.academia.edu/6443142/Variability in the Middle Stone Age of Eastern Africa](https://www.academia.edu/6443142/Variability_in_the_Middle_Stone_Age_of_Eastern_Africa)

ACADEMIA.EDU – Late Acheulean technology and cognition at Boxgrove, UK

In Journal of Archaeological Science 41, 576-590 (2014).

DIETRICH STOUT et al – Late Acheulean technology and cognition at Boxgrove, UK

The Acheulean industrial complex combines technological variability with continuity on a scale unparalleled by more recent industries. Acheulean variability includes a widely recognized increase in biface refinement from the Early to Late Acheulean, however the specific timing and technological nature of this shift remain unclear as do its behavioral, cognitive, and evolutionary implications. To investigate this topic, we examined lithic collections from the early Middle Pleistocene Acheulean site of Boxgrove for evidence of the use of platform preparation as a biface thinning technique. To aid in the identification and assessment of platform preparation, Boxgrove artifacts were compared with experimental products of Inexperienced, Novice, and Expert stone knappers. Results demonstrate the technologically efficacious use of platform preparation among the Boxgrove toolmakers w500 thousand years ago, providing the first direct evidence of this technique in the Acheulean. The use of platform preparation in bifacial thinning increases the complexity of toolmaking action sequences and has implications for understanding the neurocognitive substrates, social transmission, and spatiotemporal distribution of Late Acheulean technology.

https://www.academia.edu/10501633/Late_Acheulean_technology_and_cognition_at_Boxgrove_UK

LECTURE ALERT – RAI Reviewer meets Reviewed: Hegemonies of Language and Their Discontents

Thursday 19 May 2022 at 4.00-6.00pm (BST)

You can register for the Zoom event here:

https://us02web.zoom.us/webinar/register/WN_Oh4Bd_ooSVKWEA6vekw11w

Hegemonies of language and their discontents: The Southwest North American region since 1540

The Royal Anthropological Institute is pleased to present 'Reviewer meets Reviewed', a discussion between author Professor Carlos Velez-Ibanez (Arizona State University) and reviewer Professor Anthony Grant (Edge Hill University), chaired by Dr Martin Edwardes (King's College London).

Spanish and English have fought a centuries-long battle for dominance in the Southwest North American Region, commonly known as the U.S.-Mexico transborder region. Covering the time period of 1540 to the present, Hegemonies of Language and Their Discontents provides a deep and broad understanding of the contradictory methods of establishing language supremacy in the region and the manner in which those affected have responded and acted, often in dissatisfaction and at times with inventive adaptations.

Well-regarded author Carlos G. Velez-Ibanez details the linguistic and cultural processes used by penetrating imperial and national states. He argues that these impositions were not linear but hydra-headed, complex and contradictory, sometimes accommodating and at other times forcefully imposed. Such impositions created discontent resulting in physical and linguistic revolts, translanguaging versions, and multi-layered capacities of use and misuse of imposed languages—even the invention of community-created trilingual dictionaries.

Velez-Ibanez gives particular attention to the region, including both sides of the border, explaining the consequences of the fragile splitting of the area through geopolitical border formation. He illustrates the many ways those discontents have manifested in linguistic, cultural, educational, political, and legal forms.

<https://www.therai.org.uk/events-calendar/eventdetail/742/-/reviewer-meets-reviewed-hegemonies-of-language-and-their-discontents>

NEWS

BREAKING SCIENCE – Honeybees Demonstrate Ability to Learn Concepts of Odd and Even

New research shows that honeybees (*Apis mellifera*) can visually acquire the capacity to differentiate between odd and even quantities of 1-10 geometric elements and extrapolate this categorization to the novel numerosities of 11 and 12, revealing that such categorization is accessible to a comparatively simple system.

<http://www.sci-news.com/biology/honeybees-odd-even-concepts-10763.html>

BREAKING SCIENCE – N. American & Australian Indigenous Communities Farmed Oysters for 5k-10k Yrs

Despite several important studies, Indigenous fisheries generally receive less attention from scholars and managers than the 17th-20th century capitalist commercial fisheries that decimated many keystone species, including oysters. In new research, archaeologists investigated Indigenous oyster harvest through time in North America and Australia, placing their data in the context of sea level histories and historical catch records.

http://www.sci-news.com/archaeology/ancient-oyster-fisheries-10770.html?utm_source=feedburner&utm_medium=email

SCIENCE DAILY – Study of ancient predators sheds light on how humans did -- or didn't -- find food

A new analysis of the remains of ancient predators reveals new information about how prehistoric humans did -- or didn't -- find their food.

<https://www.sciencedaily.com/releases/2022/05/220503190203.htm>

SCIENCE DAILY – How the brain says 'oops!'

Researchers have uncovered how signals from a group of neurons in the brain's frontal lobe simultaneously give humans the flexibility to learn new tasks -- and the focus to develop highly specific skills.

<https://www.sciencedaily.com/releases/2022/05/220505143721.htm>

SCIENCE DAILY – Neuroscientists find multiple brain regions control speech

Neurobiologists give new meaning to the term 'motor mouth'. By carefully mapping neural networks in marmoset and macaque monkeys, they determined that multiple areas in the brain's frontal lobe control the muscles of vocalization and could provide a foundation for complex speech.

<https://www.sciencedaily.com/releases/2022/05/220504170821.htm>

SCIENCE NEWS – Largest Native American cave art revealed by 3D scans

Previously hidden glyphs in Alabama cave are more than 1000 years old.

<https://www.science.org/content/article/largest-native-american-cave-art-revealed-3d-scans>

THE CONVERSATION – Ancient cave art: Revealing the ghosts of human history

A team of US archaeologists have revealed cave art almost 2,000 years old.

<https://theconversationuk.cmail20.com/t/r-l-tytylrhd-khhilillah-o/>

PUBLICATIONS

eLife

PAPERS

IRENE COGLIATI DEZZA, AXEL CLEEREMANS & WILLIAM H ALEXANDER – Independent and interacting value systems for reward and information in the human brain

Theories of prefrontal cortex (PFC) as optimizing reward value have been widely deployed to explain its activity in a diverse range of contexts, with substantial empirical support in neuroeconomics and decision neuroscience. Similar neural circuits, however, have also been associated with information processing. By using computational modeling, model-based functional magnetic resonance imaging analysis, and a novel experimental paradigm, we aim at establishing whether a dedicated and independent value system for information exists in the human PFC. We identify two regions in the human PFC that independently encode reward and information. Our results provide empirical evidence for PFC as an optimizer of independent information and reward signals during decision-making under realistic scenarios, with potential implications for the interpretation of PFC activity in both healthy and clinical populations.

<https://elifesciences.org/articles/66358>

Frontiers in Ecology and Evolution

PAPERS

ROMAIN BRETTE – Brains as Computers: Metaphor, Analogy, Theory or Fact?

Whether electronic, analog or quantum, a computer is a programmable machine. Wilder Penfield held that the brain is literally a computer, because he was a dualist: the mind programs the brain. If this type of dualism is rejected, then identifying the brain to a computer requires defining what a brain “program” might mean and who gets to “program” the brain. If the brain “programs” itself when it learns, then this is a metaphor. If evolution “programs” the brain, then this is a metaphor. Indeed, in the neuroscience literature, the brain-computer is typically not used as an analogy, i.e., as an explicit comparison, but metaphorically, by importing terms from the field of computers into neuroscientific discourse: we assert that brains compute the location of sounds, we wonder how perceptual algorithms are implemented in the brain. Considerable difficulties arise when attempting to give a precise biological description of these terms, which is the sign that we are indeed dealing with a metaphor. Metaphors can be both useful and misleading. The appeal of the brain-computer metaphor is that it promises to bridge physiological and mental domains. But it is misleading because the basis of this promise is that computer terms are themselves imported from the mental domain (calculation, memory, information). In other words, the brain-computer metaphor offers a reductionist view of cognition (all cognition is calculation) rather than a naturalistic theory of cognition, hidden behind a metaphoric blanket.

<https://www.frontiersin.org/articles/10.3389/fevo.2022.878729/full>

Nature Humanities & Social Sciences Communications

PAPERS

MICHAEL CHAPMAN, JENNIFER PHILIP & PAUL KOMESAROFF – A person-centred problem

It has become commonly expected that the “personhood” of people with dementia should be recognised, understood in the relational sense that is now widely adopted in healthcare practices. Despite its broad acceptance, however, the concept of

personhood remains problematic in dementia care, as a result both of the theoretical challenges it poses and the practices that arise from it. This work employs the technique of ethnographic observation of residents, family members, and care staff of an aged care facility to explore the ways in which various modalities of the “self” are displayed in persons with dementia. The results provide insights into the moral and ontological impact of personhood on the systems that structure and influence interactions involving people with dementia. We conclude that privileging a preserved identity in dementia, and delivering care that conforms to contemporary “person-centred” expectations may limit recognition of the fluid, ongoing selfhood of people with dementia and that a reconsideration of this focus may enable us to expand our understanding of, and our responses to, their changing experiences.

<https://www.nature.com/articles/s41599-022-01166-9>

Nature Reviews Neuroscience

PAPERS

ANIL K. SETH & TIM BAYNE – Theories of consciousness

Recent years have seen a blossoming of theories about the biological and physical basis of consciousness. Good theories guide empirical research, allowing us to interpret data, develop new experimental techniques and expand our capacity to manipulate the phenomenon of interest. Indeed, it is only when couched in terms of a theory that empirical discoveries can ultimately deliver a satisfying understanding of a phenomenon. However, in the case of consciousness, it is unclear how current theories relate to each other, or whether they can be empirically distinguished. To clarify this complicated landscape, we review four prominent theoretical approaches to consciousness: higher-order theories, global workspace theories, re-entry and predictive processing theories and integrated information theory. We describe the key characteristics of each approach by identifying which aspects of consciousness they propose to explain, what their neurobiological commitments are and what empirical data are adduced in their support. We consider how some prominent empirical debates might distinguish among these theories, and we outline three ways in which theories need to be developed to deliver a mature regimen of theory-testing in the neuroscience of consciousness. There are good reasons to think that the iterative development, testing and comparison of theories of consciousness will lead to a deeper understanding of this most profound of mysteries.

<https://www.nature.com/articles/s41583-022-00587-4>

Nature Reviews Psychology

ARTICLES

PSYTEACHR TEAM – Open-source tutorials benefit the field

Open research is increasingly required by journals and funders but involves many new skills. Creating open-source tutorials is useful to the field and personally rewarding, but these efforts must be credited accordingly.

<https://www.nature.com/articles/s44159-022-00058-8>

Nature Scientific Reports

PAPERS

ASIER GARCÍA-ESCÁRZAGA et al – Human forager response to abrupt climate change at 8.2 ka on the Atlantic coast of Europe

The cooling and drying associated with the so-called ‘8.2 ka event’ have long been hypothesized as having sweeping implications for human societies in the Early Holocene, including some of the last Mesolithic hunter-gatherers in Atlantic Europe. Nevertheless, detailed ‘on-site’ records with which the impacts of broader climate changes on human-relevant environments can be explored have been lacking. Here, we reconstruct sea surface temperatures (SST) from $\delta^{18}\text{O}$ values measured on subfossil topshells *Phorcus lineatus* exploited by the Mesolithic human groups that lived at El Mazo cave (N Spain) between 9 and 7.4 ka. Bayesian modelling of 65 radiocarbon dates, in combination with this $\delta^{18}\text{O}$ data, provide a high-resolution seasonal record of SST, revealing that colder SST during the 8.2 ka event led to changes in the availability of different shellfish species. Intensification in the exploitation of molluscs by humans indicates demographic growth in these Atlantic coastal settings which acted as refugia during this cold event.

<https://www.nature.com/articles/s41598-022-10135-w>

New Scientist

NEWS

People visited Stonehenge site thousands of years before it was built

Archaeological work at Blick Mead, a site near Stonehenge, reveals that people were visiting the site thousands of years before the monument was built.

<https://www.newscientist.com/article/2317623-people-visited-stonehenge-site-thousands-of-years-before-it-was-built/#ixzz7SSOW4ldt>

ARTICLES

ROWAN HOOPER – Frans de Waal on what apes can teach us about sex and gender

Having studied chimps and bonobos for decades, primatologist Frans de Waal argues that variation in gender-typical behaviour is likely to be more common than we thought in humans.

<https://www.newscientist.com/article/mg25433852-100-frans-de-waal-on-what-apes-can-teach-us-about-sex-and-gender/#ixzz7SS0prPWV>

PeerJ

PAPERS

M. SUSAN BOTHA et al – The response of geophytes to continuous human foraging on the Cape south coast, South Africa and its implications for early hunter-gatherer mobility patterns

Current ecological understanding of plants with underground storage organs (USOs) suggests they have, in general, low rates of recruitment and thus as a resource it should be rapidly exhausted, which likely had implications for hunter-gatherer mobility patterns. We focus on the resilience (defined here as the ability of species to persist after being harvested) of USOs to human foraging. Human foragers harvested all visible USO material from 19 plots spread across six Cape south coast (South Africa) vegetation types for three consecutive years (2015–2017) during the period of peak USO apparency (September–October). We expected the plots to be depleted after the first year of harvesting since the entire storage organ of the USO is removed during foraging, i.e. immediate and substantial declines from the first to the second harvest. However, over 50% of the total weight harvested in 2015 was harvested in 2016 and 2017; only after two consecutive years of harvesting, was there evidence of significantly lower yield ($p = 0.034$) than the first (2015) harvest. Novel emergence of new species and new individuals in year two and three buffered the decline of harvested USOs. We use our findings to make predictions on hunter-gatherer mobility patterns in this region compared to the Hadza in East Africa and the Alyawara in North Australia.

<https://peerj.com/articles/13066/>

PLoS Biology

PAPERS

JOHANNA SCHICK et al with KLAUS ZUBERBÜHLER & CAREL P. VAN SCHAİK – The function and evolution of child-directed communication

This is an uncorrected proof.

Humans communicate with small children in unusual and highly conspicuous ways (child-directed communication (CDC)), which enhance social bonding and facilitate language acquisition. CDC-like inputs are also reported for some vocally learning animals, suggesting similar functions in facilitating communicative competence. However, adult great apes, our closest living relatives, rarely signal to their infants, implicating communication surrounding the infant as the main input for infant great apes and early humans. Given cross-cultural variation in the amount and structure of CDC, we suggest that child-surrounding communication (CSC) provides essential compensatory input when CDC is less prevalent—a paramount topic for future studies.

<https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.3001630>

BASTIEN BLAIN et al – Observing others give & take: A computational account of bystanders' feelings and actions

This is an uncorrected proof.

Social interactions influence people's feelings and behavior. Here, we propose that a person's well-being is influenced not only by interactions they experience themselves, but also by those they observe. In particular, we test and quantify the influence of observed selfishness and observed inequality on a bystanders' feelings and non-costly punishment decisions. We developed computational models that relate others' (un)selfish acts to observers' emotional reactions and punishment decisions. These characterize the rules by which others' interactions are transformed into bystanders' reactions, and successfully predict those reactions in out-of-sample participants. The models highlight the impact of two social values—'selfishness aversion' and 'inequality aversion'. As for the latter we find that even small violations from perfect equality have a disproportionately large impact on feelings and punishment. In this age of internet and social media we constantly observe others' online interactions, in addition to in-person interactions. Quantifying the consequences of such observations is important for predicting their impact on society.

<https://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1010010>

PLoS One

PAPERS

QIULU SHOU et al – Is oxytocin a trust hormone? Salivary oxytocin is associated with caution but not with general trust

Studies on the association between trust and oxytocin, a neuropeptide of the central nervous system, have not reached a consensus, thereby challenging the possibility of a direct association between the two. However, previous studies have not examined how oxytocin is correlated with trust, based on its categorization into different factors in the field of social science. For instance, based on Yamagishi's trust theory, trust can be categorized into two factors: general trust and caution. General

trust refers to beliefs about the trustworthiness of others, whereas caution refers to the belief that caution is needed when dealing with high social uncertainty. In this study, to examine the relationship between these two factors and oxytocin, we analyzed data of 197 adults (men = 98, women = 99; mean age = 41.7 years; standard deviation for age = 10.4 years) and examined the relationships between these two factors of trust and endogenous salivary oxytocin levels. We found that oxytocin was positively correlated with caution rather than with general trust thereby suggesting that oxytocin plays a role in regulating caution rather than general trust among the components of trust. The present study demonstrated that salivary oxytocin level can act as a biomarker that partially predicts one's trust, especially as reflected by caution.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0267988>

HOON C. SHIN et al – Joint effects of voluntary participation and group selection on the evolution of altruistic punishment

It is puzzling how altruistic punishment of defectors can evolve in large groups of nonrelatives, since punishers should voluntarily bear individual costs of punishing to benefit those who do not pay the costs. Although two distinct mechanisms have been proposed to explain the puzzle, namely voluntary participation and group-level competition and selection, insights into their joint effects have been less clear. Here we investigated what could be combined effects of these two mechanisms on the evolution of altruistic punishment and how these effects can vary with nonparticipants' individual payoff and group size. We modelled altruistic punishers as those who contribute to a public good and impose a fine on each defector, i.e., they are neither pure punishers nor excluders. Our simulation results show that voluntary participation has negative effects on the evolution of cooperation in small groups regardless of nonparticipants' payoffs, while in large groups it has positive effects within only a limited range of nonparticipants' payoff. We discuss that such asymmetric effects could be explained by evolutionary forces emerging from voluntary participation. Lastly, we suggest that insights from social science disciplines studying the exit option could enrich voluntary participation models.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0268019>

PNAS

PAPERS

MICHAEL S. A. GRAZIANO – A conceptual framework for consciousness

This article argues that consciousness has a logically sound, explanatory framework, different from typical accounts that suffer from hidden mysticism. The article has three main parts. The first describes background principles concerning information processing in the brain, from which one can deduce a general, rational framework for explaining consciousness. The second part describes a specific theory that embodies those background principles, the Attention Schema Theory. In the past several years, a growing body of experimental evidence—behavioral evidence, brain imaging evidence, and computational modeling—has addressed aspects of the theory. The final part discusses the evolution of consciousness. By emphasizing the specific role of consciousness in cognition and behavior, the present approach leads to a proposed account of how consciousness may have evolved over millions of years, from fish to humans. The goal of this article is to present a comprehensive, overarching framework in which we can understand scientifically what consciousness is and what key adaptive roles it plays in brain function.

<https://www.pnas.org/doi/full/10.1073/pnas.2116933119>

CHRISTINA M. CERKEVICH, JEAN-ALBAN RATHELOT & PETER L. STRICK – Cortical basis for skilled vocalization

Marmosets display remarkable vocal motor abilities. Macaques do not. What is it about the marmoset brain that enables its skill in the vocal domain? We examined the cortical control of a laryngeal muscle that is essential for vocalization in both species. We found that, in both monkeys, multiple premotor areas in the frontal lobe along with the primary motor cortex (M1) are major sources of disynaptic drive to laryngeal motoneurons. Two of the premotor areas, ventral area 6 (area 6V) and the supplementary motor area (SMA), are a substantially larger source of descending output in marmosets. We propose that the enhanced vocal motor skills of marmosets are due, in part, to the expansion of descending output from these premotor areas.

<https://www.pnas.org/doi/full/10.1073/pnas.2122345119>

Trends in Cognitive Sciences

PAPERS

YI-YUAN TANG et al – Effortless training of attention and self-control: mechanisms and applications

For the past 50 years, cognitive scientists have assumed that training attention and self-control must be effortful. However, growing evidence suggests promising effects of effortless training approaches such as nature exposure, flow experience, and effortless practice on attention and self-control. This opinion article focuses on effortless training of attention and self-control. We begin by introducing our definitions of effortful and effortless training and reviewing the growing literature on these two different forms of training. We then discuss the similarities and differences in their respective behavioral outcomes and neural correlates. Finally, we propose a putative neural mechanism of effortless training. We conclude by highlighting promising directions for research, development, and application of effortless training.

[https://www.cell.com/trends/cognitive-sciences/fulltext/S1364-6613\(22\)00090-0](https://www.cell.com/trends/cognitive-sciences/fulltext/S1364-6613(22)00090-0)

Trends in Ecology and Evolution

PAPERS

MICHAEL D. PURUGGANAN – What is domestication?

The nature of domestication is often misunderstood. Most definitions of the process are anthropocentric and center on human intentionality, which minimizes the role of unconscious selection and also excludes non-human domesticators. An overarching, biologically grounded definition of domestication is discussed, which emphasizes its core nature as a coevolutionary process that arises from a specialized mutualism, in which one species controls the fitness of another in order to gain resources and/or services. This inclusive definition encompasses both human-associated domestication of crop plants and livestock as well as other non-human domesticators, such as insects. It also calls into question the idea that humans are themselves domesticated, given that evolution of human traits did not arise through the control of fitness by another species.

[https://www.cell.com/trends/ecology-evolution/fulltext/S0169-5347\(22\)00089-1](https://www.cell.com/trends/ecology-evolution/fulltext/S0169-5347(22)00089-1)

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