Philosophy, Cognition, and Archaeology

Edited by Janko Nešić and Vanja Subotić

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Edited volume

Janko Nešić
Vanja Subotić
(Editors)

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A FOREWORD
Or How It Took Almost as Long to Create This Edited Volume as It Did for the Hominins to Discover Fire

We had big plans two years ago. It was the high noon of the *Sciences of Origin* project funded by the Templeton Foundation and Ian Ramsey Centre at the University of Oxford. The project gathered philosophers, archaeologists, biologists, and all aficionados of historical sciences during several events to ponder upon the roots of life, consciousness, and the cosmos. Big questions. So naturally, big questions go hand in hand with big plans. We wanted to end the project with a large, edited volume of papers at the intersection of philosophy, cognitive science, and cognitive archaeology. The indifferent cosmos—whose origins we haven't really understood during the two-year project (and we probably never will but that doesn't stop us from trying) had other, much smaller, plans. Our dream edited volumes were, alas, published by Routledge in 2022, namely *An Introduction to Evolutionary Cognitive Archaeology* by Thomas Wynn and Frederick L. Coolidge, and *Psychology and Cognitive Archaeology* by Tracy Henley and Matt Rossano. These are absolutely impressive and wonderful pieces edited by the leading authorities in the field(s) that have attracted all the big shots. Being more enthusiasts than experts, we are immensely grateful to those authors who have chosen to send papers to our much more modest publishing endeavor as well as reviewers who dedicated their time to improving the scholarly quality of papers. The Faculty of Philosophy at the University of Belgrade can't compare to the large commercial academic publishers like Routledge, but we are proud that we still manage to do both relevant and interesting science at the periphery—even if it takes us much longer to put together a publication like this.

The edited volume is divided into three parts, each covering papers that deal with similar research questions, albeit from the angle of different disciplines. The authors' areas of specialization include but are not limited to *history and philosophy of science, philosophy of mind and cognition, philosophy of archaeology, philosophy of language and linguistics, prehistoric archaeology, museology and heritology, evolutionary psychiatry*, as well as *cognitive evolutionary theory*.

In **Part 1,** the focus is on the interdisciplinary nature of cognitive archaeology. Rami Gabriel discusses the evolution of cognition through the lens of affective neuroscience and 4E cognition. He convincingly argues that the affective and embodied complex of emotional intentionality was crucial for mammalians to craft a social niche and may pinpoint a specific evolutionary stage, namely the origin of the proto-representational mind. *Stefan Milošević* & *Janko Nešić* present a fully blooded cognitive archaeology project in which they try to unravel how autistic traits could have influenced the development of musical cognition as attested in the creation of different Paleolithic bone flutes. They also marvelously show how fruitful and interesting can be the collaboration between a prehistoric archaeologist and a philosopher of mind and cognition. The last paper in this part of the edited volume is by *William Krieger* who stresses the links between public philosophy and epistemic pluralism in cognitive archaeology to show how "cognitive solutions" can be brought up in the cases of looting of artifacts and their exploitation on the black market to reach a wider audience and promote epistemic justice but also how better explanatory models can ensue from this. Krieger successfully interweaves methodological analysis of archaeology with the wider epistemic and social context thereby showing how philosophers are well capable of leaving the Ivory Tower.

In **Part 2** the broader context is studied by presenting a less conventional perspective on cognitive archaeology. The authors presented an interesting and compelling blend of ideas and insights from museology, heritology, culturology, and semiotics before discussing how they can be connected to cognitive archaeology. Thus, *Noel E. Boulting* tackles the issue of interpreting cultural heritage from the perspective of Charles Sanders Pierce's semiotic theory. By employing the distinction between iconic, indexical, and rule-governed activity within Pierce's theory, a novel view of cultural artifacts emerges—that of culturally embodied meanings created in a landscape for memory. *Stephanie Koerner*, in her lengthy and impressively thorough paper that spans across history and philosophy of science, archaeology, culturology, and art theory, investigates whether Giambattista Vico's works bear resemblance to the enactive images of the Upper Paleolithic posited by one of the *maestros* of cognitive archaeology, Lambros Malafouris. Finally, *Igor Eftimovski* and *Nikos Chausidis* analyze how Karl Gustav Jung's archetype theory can be of use to advance and deepen archaeological theory, especially in the domain of the origins of symbolic cognition.

In **Part 3** the authors zoom in on a specific topic, namely the evolutionary origins of language *qua* higher cognitive capacity, albeit from two quite distinctive perspectives. *Vanja Subotić* explores the methodological status of paleolinguistics, the scientific discipline dealing with the linguistic reconstructions of proto language with the help of archaeological evidence. She argues that semantic externalism coupled with the idea of cognitive fossils can make paleolinguistics more legitimate in the eyes of archaeologists, linguists, and cognitive scientists interested in the proto-language and its cognitive underpinnings. *Milica Nešić* and the rest of her colleagues—*Teodora Sladojević*, *Mina Koturović*, *Nevena Bursać*, *Katarina Simić*, and *Filip Jezdić*—examine how the evolutionary origins of schizophrenia can surprisingly shed light on the co-evolution of tool making and language. They argue that some lines of medical and neuroscientific research show that tool use and language syntax share neural substrates in the basal ganglia, a brain area known to be involved in schizophrenia pathophysiology as well.

Now comes the moment to extend heartfelt thanks and well-deserved kudos. First and foremost, we are grateful to the reviewers of individual chapters whose expertise and dedication have been instrumental in shaping this edited volume into a comprehensive, up-to-date, and valuable resource for our readers. The reviewers of this edited volume undertook the particularly arduous task of evaluating each chapter and assessing the overall scholarly quality of the work. We owe them a big thank you for their thoughtful criticism and positive attitude towards the edited volume, which has reassured us that the past two years were well spent. Finally, we wish to express our gratitude to our colleagues *Slobodan Perović,* the Principal Investigator of the *Sciences of Origin* project and a full professor in the Department of Philosophy at the Faculty of Philosophy, and *Petar Nurkić*, a research assistant at the Institute of Philosophy at the Faculty of Philosophy. Slobodan demonstrated immense patience with this tedious publication process (and perhaps eventually gave up), while the initiative for the entire procedure came from Petar.

The hope remains that this edited volume, built on the firm foundations of the *Sciences of Origin* project, will light interdisciplinary and transdisciplinary fires among archaeologists, psychologists, cognitive scientists, and philosophers both at our home institutions, where it hasn't sparked yet, and elsewhere where it only needs some additional wood for burning.

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Rami Gabriel
Columbia College Chicago
Department of Humanities, History, and Social Science
rgabriel@colum.edu

ISSUES IN THE INTEGRATION BETWEEN AFFECTIVE NEUROSCIENCE AND 4E PSYCHOLOGY

Abstract: *Affect arose early in the evolution of sentient life forms to allow organisms to monitor intero-and exteroceptive signals (Panksepp, 1998; Ledoux, 2023). Vertebrate evolution simultaneously promoted agency through sensorimotor integration (Godfrey-Smith, 2020). These systems provide the basis for motivational processes (Gabriel, 2021). Subsequently, emotions generated and developed through social living and enculturation enabled construction of the information-rich mammalian social niche (Asma & Gabriel, 2019). Building on these insights, I describe how affective neuroscience and 4E psychology can together account for a wide range of animal behaviors. I argue that this affective and embodied complex of emotional intentionality and salience may provide the basis for the subsequent evolution of cognition.*

1 Introduction

A sufficient account of cognitive evolution will have to go deeper than analyzing our power to manipulate representations. We will have to understand a much older capacity—the power to feel. Affective science can demonstrate the relevance of emotions to perception, thinking, decision-making, and social behavior (Panksepp, 2012; Scherer & Davidson, 2002). With an appropriate understanding of the nature of emotions, theorists are in a better position to build bridges to minimal notions of representation such as those espoused in teleosemantics (see Millikan, 1989). The further step required to make space for pro-

to-representational forms is an understanding of the mind as integrated into the world through the body, society, and culture (Haugeland, 1998). In the last few decades, this aspect of the mind has been characterized as embedded, extended, embodied, and enactive (henceforward, 4E psychology). In this chapter, I discuss the kinds of minds assembled in the interaction between affect and perception and action so as to clarify the basis upon which cognitive evolution occurred.

The first step in developing an updated notion of cognitive evolution is accurately portraying the nature of affect as part of an allostatic system in the mindbrain. From sensory affects to the valenced nature of every perception and thought, we must grapple with exploring how feelings are sculpted in the ontogenetic encounter between neuroplasticity and ecological setting to provide the true semantic contours of mind. In such a framework, meaning is foundationally a product of embodiment and our relation to the immediate environment (Damasio, 2018). In this schema, which emphasizes allostasis and the intentionality of emotions, objects gain their intentional aboutness through the tracking of emotional cues which abound in social interaction across development (Asma & Gabriel, 2019). To unpack affective intentionality, we can draw from the insights of 4E psychology so as to construct a rich understanding of the relation between embodiment and cognitive evolution (Milkowski et al, 2018).

Sentience did not arrive on the scene with our rational capacities, it is a far older evolutionary consequence of the development of complex bodies in symbiotic relation with their environment (Reber, 2016). Emotions (or affects) arose early in the evolution of sentient life forms to provide a crucial function for the organism to monitor intero– and extero-ceptive signals (Ledoux, 2023). Complex emotions are essential for constructing the information-rich mammalian social niche and yet our notions of cognition often misconstrue its nature. Towards clarifying the function of affect and agency, I introduce affective neuroscience and 4E psychology below before arguing that the salience network is how emotional intentionality unites affect and embodiment to provide the basis for the subsequent evolution of cognition.

2 Affect and Ecology

Motivation is crucial to understand how biological systems are intentional. Baruch Spinoza's notion of conatus, which one may compare to Aristotle's notion of the final cause in nature as teleological is

the fount of striving in the organism. Conative aboutness in which the basic striving of the organism to align its body with the environment based on its allostatic needs is a kind of intentionality (Panksepp, 1998; Asma & Gabriel, 2019). Proto-representational abilities explored in teleosemantics and 4E psychology require the foundation of this innate striving which motivates all life forms to satisfy allostatic processes.

Three insights enable a richer and more biological analysis of the evolution of cognition. One is the acknowledgment of neuroplasticity, in which ontogenetic experience has formative and re-formative influence on the mindbrain. Secondly, we are developing notions of inter-level mosaic explanation between psychology and the neurosciences (Craver, 2007; Gabriel, 2023b). Thirdly, 4E psychology (Clark & Chalmers, 1998), built atop its predecessor ecological psychology (Gibson, 1979) to enrich our understanding of the role of the body in the mind.

By pairing 4E psychology with the Evolutionary Extended Synthesis (EES) we can reformulate the relation between biology and culture such that the environment of objects and social hierarchies are considered extensions of the animal's mind (Laland, Odling-Smee & Endler, 2017). The core of EES is the argument that culture and its artifacts are extensions of our niche and thus extensions of our biological processes (Gabriel, 2023a). Previously, ecological psychology clarified that an organism perceives the environment actively by recognizing affordances and effectivities which impel active responses. Such direct perception extends from seeing a chair as sittable to perceiving a smile as a sign for possible approach behavior. Cognitive evolution draws from the motivational system embedded in affect, the associational system of memory and learning, to forge a neuroplastic system that can be shaped by multiple levels of selection to create stable biocultures that allow for the complexity of mammalian minds (Gabriel, 2021). These systems allow creatures to pursue "maximum grip" on their environments (Merleau-Ponty, 1962; Dreyfus & Kelly, 2007).

The impetus to integrate these insights from philosophy and affective neuroscience comes from a consideration of the extended social and cultural niche in which humans evolved. In accordance with an extended mind approach, we can characterize how emotions are distributed beyond the organism and into the environment, both as social affordances and as stable biocultures (de Waal, 2001; Laland et al, 2017). Social affordances refer to nonverbal communication between conspecifics, which include social norms and cultural conventions that constitute the EES of a stable bioculture.

Our social and cultural world is designed to trigger and manage affect, partly because this is the most expedient means of arranging pro-social behavior in a manner that is appropriate to the context of that individual. In addition, humans are connoisseurs of emotion and pursue their intrinsic as well as instrumental values (Barrett, 2017). The impressive achievements of a human cognitive niche are often heralded but this all depends upon the evolutionarily prior development of a social niche that organizes emotions and motivation appropriately. Advances of complex tool industry could not have happened without parallel advances in Homo emotional domestication. For example, domestic groups must have been emotionally modern enough to learn and, eventually, patiently teach skills of flint-knapping during the Middle Paleolithic tool-making cultures of the Acheulean and Mousterian periods (Sterelny, 2012). The emotional domestication that occurred in hominids is also crucially tied to the unique parenting culture that developed to enculturate the child during neoteny (Hrdy, 2011). The domestication of the emotions must have occurred to make possible the kinds of co-habitation and intersubjective norms and customs which provided space for cognitive evolution (Klein, 2009). In this interpretation, language as a communication system itself has affective prerequisites such as shared attention and empathy (Tomasello, 2000) and thus may be the result rather than the cause of emotional modernity. While impressive research has been emerging in neuroethology, ecological psychology, evolution of culture, enactive psychology, and philosophy of biology, it remains to provide a conceptual roadmap of how an affective paradigm can draw together these data and project a way forward.

Some instinctual homologous affects are generated deep inside the animal in response to perceptual/motor stimuli, but even Pavlovian associations only become adaptive when external stimuli are paired with painful or appetitive events in such a manner that goal-directed behavior (intentionality) is improved. When we ascend into the social affects of the upper-limbic and cognitive affects of the neocortex we find that emotions are managed, modified, and manipulated through social norms and in the context of the cultural niche (Asma & Gabriel, 2019). For an animal, the world itself is perceived as populated with threat objects, appetitive objects, and so on. The meaning of perception is thus the animal's affective taxonomy of objects and social conspecifics in direct relation to its conative striving. The animal's *umwelt* is intrinsically motivational. I argue below that salience is the phenomenal affective signal of the relational nature of perception and embodiment. Next, I discuss how to unite 4E psychology with affective neuroscience and causal theories of action.

3 Causal Theories of Action

It is important to clarify the range of proto-representational abilities which underlie cognitive evolution. My first example is Lawrence Barsalou's (1999) work on how the cerebellum supports a type of body grammar of movements which could be a precursor to the syntactical iterative systems involved in symbol manipulation and language use (Berwick & Chomsky, 2016). Perception and action are concerned with knowing-how, whereas higher-level cognition is generally characterized as knowing-that (Ryle, 1949). Indeed, there is a dorsal pathway from the visual cortex which is primarily about spatial coordination as opposed to a ventral pathway which leads to associational cortex in the temporal lobe that seems to code for mnemonic identification (the 'what') of perception (Milner & Goodale, 1992). Barsalou went further to describe how the cerebellum coordinates with frontal motor areas to effectively employ specific learned behavior programs. For example, gorillas learn how to eat stinging nettles by folding the leaves over the nettles in a programmatic manner and there is evidence that this skill is passed on between caregivers and infants through mimicry and teaching (Tennie et al, 2008). The existence of body grammar opens the way for considering how skills are encoded in the body as nondeclarative memory of knowing-how.

In order to determine how perception can have rich external content, we might consider the relation between perceptual experience and perception-based belief (Newen, 2015). In some forms of 4E psychology, beliefs are conceived of as dispositions to act (though see Heft, 2007; 2010). In what follows, I consider intention in action as proto-representational and subpersonal because the rich content of the experience is external: it triggers action while not requiring cognitive propositional knowledge (i.e., the 'what' system of semantic representation). Evidence from both fMRI and EEG studies confirm that the mere perception of an affording object triggers activations in motor parts of the cortex (Chao & Martin, 2000; Proverbio et al. 2011). Jeannerod's (1997) causal theory of action puts this line of reasoning into perspective:

> *[this system] for pragmatic processing...constitutes a third kind of information processing, which could be called a 'how' system. Pragmatic representations differ from 'where' representations narrowly conceived insofar as (i) they encode not only information about object location, but also information about object attributes and (ii) they encode this latter kind of information in object-centred coordinates. They differ from 'what'*

or semantic representations in that (i) they are mainly processed in the dorsal pathway rather than in the ventral pathway, and (ii) they provide information *for visually guided action rather than for visual identification. (Pacherie, 2000, p. 411)*

Perception is not a passive process; in fact, gestalt perceptual grouping principles as well as past experience often determine the nature of the percept (Wagemans et al. 2012). A relational model of motor representation can clarify how dynamic relations evolve between the body and the goal. With such an approach we can conceive of the goal of a given action as given under the mode of presentation of the perceptual process (Pacherie, 2000). In this scheme, action is a multilevel process that staggers goal states and feedback loops:

According to the two-tiered models [of action control], at the lower level the process of action-monitoring is equivalent to the production of an efference copy of a motor command for comparison against the reafferent signals generated by the movement. If a mismatch is detected, error signals are sent to the motor system for correction, otherwise the system goes on to the next step. The mechanisms involved in this comparison process operate at subpersonal levels and the representations they operate upon (motor commands, predictions, reafferent signals) are normally nonconscious (i.e. we have no conscious access to their contents). The higher level of action-monitoring also involves a comparison, but this time the comparison is between the high-level intention of the agent (his conscious representation of his goal) and the perceptual representation (mostly visual) of the configuration of the environment...(P)roto-propositional content constitutes a layer of perceptual content where certain properties or relations of a visual scene are made salient...the higher levels of motor representations encode, and thus make salient, the goal of the action as well as some relatively global movement parameters, whereas lower-level motor representations work out the details (Pacherie, 2000, p. 421-425).

The salience of perceived perceptual elements acts as solicitations or affordances. Affect as salience then plays a role as a form of bias in the decision process (McGinty et al., 2016; Gabriel, 2021a). The brain processes for both how to do a set of possible actions and selection of the particular appropriate action may occur simultaneously in a hierarchical affordance competition with the dorsal stream specifying parameters of potential actions and the ventral stream providing further information towards selection (Cisek, 2007). The dorsal stream of the visual system may diverge into a set of sub-streams for actions and way-finding in relation to the environment being perceived as a landscape of affordances. This suggests the brain is a feedback control system that guides the body's interaction with the environment.

This accords with 4E psychology interpretation of the brain as the source of the connection between homeostasis and movement. This integration between the embedded and embodied nature of mind with proto-representation and affect is distinct from the traditional cognitive interpretation of the brain as a sense-think-act representational machine (Pezzulo & Cisek, 2016).

Since emotions are partly constituted by relational properties which are of instrumental value to the animal, we can connect a functional model of affect to the ways in which affordances mandate action (Hufendiek, 2017). In affective neuroscience, affect is a self-regulatory motivational process wherein the felt salience of action and act-planning is directed to goals and their objects in the world via the elaborations of mnemonic scaffolding developed in associative learned relations between mind, body, and world (Panksepp, 1998; Asma & Gabriel, 2019). The core relational themes of our intrinsic allostatic motivational states are thus relational properties between the agent and its physical and social environment:

> Fear is thereby not only intentional (about the relational property "being dangerous") but also intensional (presenting something's being dangerous as something that should be avoided). The embodied action tendencies involved in emotions can be described as "modes of bodily attunement" that determine the kind of access we have to the object in question and the way we feel motivated to act towards it. (Fuchs, 2013: 164)

Finer-grained distinctions can be made between 4E psychology and models that distinguish between perception-action and affordances (Siegel, 2014). Siegel crafts the notion of increments of felt solicitation as the feeling of answerability that an affordance instigates in the perceiving animal. Further, we can consider social norms as mandates to which an individual is sensitive by growing up in that EES; for example, the ontogenetic imprinting of social norms make certain affordances that are part of the stable bioculture salient, thus increasing the possibility of soliciting action in the perceiving animal. The study of such nonverbal communication in humans which is built through socialization goes by the name of proxemics (e.g. Dovidio et al, 1988). Cultural psychology and anthropology have been accruing evidence concerning the range of nonverbal communication across our species and relating these findings to 4E psychology may provide an exciting avenue for integrative research.

There are still some issues determining which elements of a percept relate to which elements of an action. A neo-Gibsonian approach must choose the specificity relation between the affordance and the

behavior (Withagen & Chemero, 2009; Fodor & Pylyshyn, 1981). There is also evidence for individual differences which suggests that the material configuration and conditioning processes of each body determines its particular being in the world (Withagen & Van der Kamp, 2010; Jacobs et al. 2000). The 'skillful action' paradigm exemplified in the phenomenology of swinging a racquet for an experienced tennis player or making a chess move based on pattern recognition for a chess master, is relevant to this conversation as it reveals that an agent may be consciously guided by the feelings of tension and relief relative to both subpersonal and agentially intentional goal states (Dreyfus, 2002). This notion draws from Merleau-Ponty's 'intentional arc', i.e., skills stored as refined dispositions and perceptions, which function via the body's tendency to bring a situation closer to an optimal gestalt (cf. Merleau-Ponty's 'maximal grip'). Skills are the record of an individual's conditioning process inscribed in procedural memory. Bringing this together with a causal theory of action we can consider how felt solicitations can differ depending upon the given individual's body and ontogenetic enculturation through the EES of social affordances (Barrett & Rendall, 2001).

4E psychology suggests that the modular view of mind long favored in the cognitive sciences is unable to explain the penetrability of perceptual mechanisms by abductive processes, such as expectations (Fodor, 1998; Macpherson, 2012; Gabriel, 2012). Similarly, predictive coding paradigms suggest there is an active process of top-down expectations involved in perception wherein the mind aims towards lessening the error signal between percept and prediction of identification (Clark, 2013). Hutto and Myin (2012) cut through this tangle by taking the position that it is possible to build a model of the mind wherein there is no internal content, such that the main forms of representation, i.e., responding to and keeping track of covariant information and making claims and judgments that can be correct or incorrect, could be reduced to direct perception mechanisms and neural descriptions. On the other hand, some critique somatic theories of emotions to argue there must be, in addition to interoceptive perceptions of bodily change that constitute the emotion, representations of external objects, and type-specific propositional attitudes which lead to higher cognitive emotions (Barlassina & Newen, 2014). The main issue in debates concerning the format of control in the mind is how non-representational perceptual states like those characterized in 4E psychology can interact with representational mental states in a manner that is context-sensitive (Hufendiek, 2018). Some have attempted to bring predictive coding in line with an ecological approach (Wheeler

& Clark, 1999). Cisek's (2007) affordance competition hypothesis simplifies brain function from a set of general domains (i.e., perception, cognition, action) into action specification and action selection. This depicts the functional role of the mindbrain as mediating adaptive knowing-how relations with the world rather than rendering cognitive knowing-that descriptions of the world.

Adopting a model which integrates emotions with proto-representations such as body grammar and affordances and imperative Pushmi-Pullyu representations in perception and action is a promising path towards understanding the precursors of cognitive evolution (Millikan, 1996; Asma & Gabriel, 2019). Of course, the nature of biological intentionality and the evolution of representational mind depends on the species and its ecological needs, the set of cultural affordances developed therein, and how the mental architecture reflects these relational processes. In the next section, I describe an ecological model of the specific motivational role of emotions as salience in decision-making.

4 Affect as motivation in an Ecological Model

Drawing upon empirical literature on ecological psychology and 4E psychology, this section describes a pragmatic model of affect-as-motivation in the intentional bond between the organism and the world. The motivating role of emotions is embodied, situated, and functional (Reed, 1996; Turvey, 1992; Withagen & Chemero, 2009; Rietveld & Kiverstein, 2014). Adopting a motivational interpretation of affect collapses the traditional distinction between emotion and cognition because perceptual salience acts itself as an operational affordance (Kusonoki, Gottlieb, & Goldberg, 2000; Berridge, Robinson & Aldridge, 2009; Pessoa, 2013). I argue that this aspect of the mind is the basis of subsequent cognitive evolution and that it helps us understand the huge range of abilities demonstrated by non-human animals. The archaeological record bears out that prior to cognitive modernity associated with symbol use, adornment, and technology, humans and non-human primates were engaged in complex social co-habitation and survival (Sterelny, 2012).

Affect is a conative embodied system for appraising the relation between perception and action in the context of the mnemonic scaffolding of body-world information loops (Panksepp, 1998). The felt sense of salience that accompanies perception acts as an affective goad that dynamically covaries with homeostatic needs. Affect moti-

vates adaptive action patterns such as information-seeking behaviors (Damasio, 2018). The unity of perception-action systems is manifested in imperative informational transfer between the creature and the learned context of the social and spatial field of affordances (Millikan, 1989; Heft, 2007; Hutto & Myin, 2017). As perception, affect motivates action by locking onto relevant aspects of the environment in a way that shapes subpersonal processes, which then serve the intentional aspects of act-planning (Pacherie, 2000; Gallagher, 2008; Hufendiek, 2017). For example, affect in spatial navigation plays an affordance-like role as attractors of approach/avoid relative to landmarks in cognitive maps (O'Keefe & Nadel, 1978; Gallistel, 1990; Rescorla, 2009; Asma & Gabriel, 2019).

The role of affordances as situated forms of motivated behavior is illustrated in neuroscientific models of decision-making and salience that connect this expanded notion of the role of affect in the field of affordances to cortical mechanisms of action selection (Wallis, 2007). Social information concerning hierarchy and threat is felt as salience and likely mapped in the hippocampus and prefrontal cortices (Schafer & Schiller, 2018; Cisek, 2017). We can consider this to be functional role of the felt sense of valence in affect (Padoa-Schioppa, 2009; Rietveld & Kiverstein, 2014; Robinson and Pallasmaa, 2017). In this regard, affect is a conative appraisal of perceptual affordances in the context of 4E psychology (Gallagher, 2008; Barrett & Rendall, 2010; Panksepp, 2014; Proust, 2015; Asma & Gabriel, 2019). Affordances are learned vehicles of imperative informational transfer between the creature and the learned context of the social and spatial environment (Millikan, 1989; Heft, 2007; Withagen et al., 2015).

Phenomenologically, affect plays an affordance-like role as spatial attractor in cognitive maps—viz. approach or avoid—towards landmarks and agents (Gallistel, 1990). Orbitofrontal salience maps serve as embodied intentions in perception and option-outcome selection via affective goads dynamically motivated by homeostatic needs, leading to adaptive action patterns and information-seeking behaviors (Kusonoki et al., 2000; Cisek & Kalaska, 2010; Damasio, 2018; Gabriel 2021a). A dynamic reconsolidation process of affective tags on spatial markers and social agents can be learned in an implicit, unconscious format of operant conditioning and schemas (Gabriel, 2007) in spatial navigation (Rescorla, 2009), and in the dream state (Solms & Panksepp, 2012). This approach can be fruitfully contrasted with models of the integration of emotion and cognition (Pessoa, 2013; Okon-Singer et al., 2015), and pragmatic approaches to the function of emotions in intentions (Pacherie, 2006; Zeelenberg & Pieters, 2006).

5 Sensible Affective Knowledge

Now that I have suggested two ways to bring together affective neuroscience and 4E psychology in a causal theory of action and in the affective signal of salience in decision-making, it is worth exploring the role that affect and perception play in more cognitive aspects of mind such as knowing-that and belief fixation. By bringing together image-based and body-task grammar with analogical modeling, nonconceptual content, unconscious bundling, and conceptual prototypes, I take steps towards applying this model to sensible affective knowledge. The archaeological evidence that is pertinent here is parietal art in which myths and other narratives are inscribed in caves to provide social norms and systems of meaning for particular hominin social groups (Lewis-Williams, 2002). Perceptual display of these narratives and the rituals associated with the depiction of mythology may have been crucial to the social cohesion of early hominin cultures (Clottes & Lewis-Williams, 1998).

Developments in neurosciences have revealed that rationality is supplemented and sculpted through interaction with affective, imaginative, and sensory processes (Damasio, 2022). These aspects of the mind are uniquely capable of taking into account context and contingency which allow for engagement with the relational aspects of experience such as consideration of value and meaning (Rodowick, 2015; Nussbaum, 2001; Gabriel, 2021b). The core of this set of processes that precede and subsequently supplement cognitive evolution is the interpenetrating hierarchically structured feedback and feedforward systems of affect with the embodied, enactive, embedded, and socio-cultural process which creates the indelible richness of hominin experience (de Sousa, 1987; Panksepp, 1998).

As discussed above, research on perception–action suggests that perception is active and produces predictive dispositions which reflect procedural memories of contingent and necessary aspects of the environment (Reed, 1986). Effectivities in the percept provide the animal bodily dispositions in relation to a perceived surface, they thus seize and actualize affordances, which are the indicative and imperative aspects of the sensory percept (Millikan, 1996). The imperative aspect of a percept dictates how the animal will respond, for example spatial navigation relies on local cues that designate possible routes (Withagen & Michaels, 2005). An organism's exploration of the environment engages prospective control in the context of allostatic goals that constitute an affordance competition model in the orbitofrontal

cortices (Pezzulo & Cisek, 2016). In this way, sensation and perception contribute to the organism's epistemic relation to its EES.

Together, through affordances, effectivities, imperative representations, social and spatial navigation, and emotional contagion, direct perception and affective mechanisms mediate a form of knowledge that directs our actions and supplements rational processes (Gabriel, 2021a). In this model, emotions are manifested as evaluative and expressive dispositions towards objects in the environment. The crucial connection between sensible and affective knowledge is imagination: a precognitive simulation system that mediates between perception and cognition. Imagination is the creative sphere of playful adumbrations of image, sound, and movement. There are evolutionarily early forms of imagination such as involuntary imagination in dreams which produce knowledge that is not declarative but rather poised between concept and intuition (Panksepp, 1998; Asma, 2017). This realm also includes image-based inferential processes, image grammar, body-task grammar, nonconceptual content, unconscious bundling, prototypes, and analogical modeling (Barsalou, 1999; Barton, 2012; Bermudez & Cahen, 2015). For example, image-based grammar like prototypes of characters are generally based on physiognomy. Cues like the shot of a freeway or the sun going down on the horizon compel us to refer to mnemonic schemas and scripts. Consider characters like the lonely drifter or situations like the one-horse town or the swanky nightclub, we often perceive these settings perceptually which then set up associations and expectations which can then be played upon through cognitive elaboration. It seems that we unconsciously bundle images together as situations, settings, forms of life, and draw inferences thereby. The mind is engaged in analogical modeling, wherein connections are made between sounds and images across memories of visual media (Gabriel, 2023). The emotional associations that arise from these cues direct us to the relation between cinema and life, thus forcing various levels of cognitive reflection.

Other evolutionarily early forms of imagination which produce knowledge that is not declarative but rather poised between concept and intuition include image-based inferential processes, image grammar, body-task grammar, nonconceptual content, unconscious bundling, prototypes, and analogical modeling (Gabriel, 2021b). These capacities are formats for enactive knowledge which constitute a precursor to the full-blown representational capacities (Hutto & Myin, 2012).

The arts consist of techniques to craft objects and ideas that play with emotions and transform notions of space, place, identity, thoughts, and beliefs (Gabriel, 2021b). Through the affective system, direct perception, imagination, and knowledge by acquaintance, various forms of engagement with imaginative culture can engender sensible affective knowledge. This term refers to how perception (the sensible) and affect can mediate forms of knowledge that are not primarily propositional but that can be cognized as such. This can be illustrated by various examples drawn from drama, cinema, and literature, as well as music, dance, and cinema, in which reflexive knowledge is generated through manipulation of perception and emotions. Notable instances of such cultural practices include trance and play. For example, emotional contagion may provide the basis for cognitive empathy (de Waal, 2001), which then can engender feelings of alterity and metamorphosis. These can occur in the shared ritual experience of performance. Norms are often communicated but can also be adjudicated through simulations in fantasy worlds that are expressed aesthetically. In mimetic arts, image-based grammar bundles together situations and settings to generate analogical modeling and inferences based on interaction with culturally shared symbols (Gabriel, 2021b). Social norms expressed through imagination and culture artifacts are forms of affect management that can be perpetuated through rituals and traditions. In arts of immanence like music and theater, participation and aesthetic attendance to ritual and drama engender states of alterity in emotional experiences that may transform our belief states (Whitehouse, 2015). The kind of acquaintance knowledge gained thereby is analogical and discursive, it can thus supplement propositional and conceptual knowledge.

Sensible affective knowledge is contingent and context dependent; this reliance upon context and contingency is precisely what allows it to provide knowledge that nomothetic cognitive knowing-that cannot. The elements of direct perception which may mediate sensible truths when applied to the aesthetic intelligibility of art are affordances, effectivities, imperative representations, social and spatial navigation, and emotional contagion (Gabriel, 2021b). In the emotional states produced through the arts and in religious rituals, the sense of meaning becomes profound and noetically distinct because affect infuses the experience with salience. These kinds of experiences may provide the basis for cognitive belief formation (James, 1902/1948). This preliminary discussion of how the study of imagination can be enriched by a model that integrates affective neuroscience and 4E psychology is open to development through various interdisciplinary approaches.

6 Conclusion

In this chapter, I have briefly made the case for integrating 4E psychology with affective neuroscience. In this regard, the causal theory of action was discussed as a form of proto-representational mind. The role of affective signals as salience in decision-making served as another example of aspects of the mind that preceded cognitive evolution. In addition, the role of affect in motivation further distinguishes the aspect of mind which knows-how from the aspect of mind that knows-that. Finally, I sketched how this integrated model of mind can provide an avenue to study how imagination interacts with cultural artifacts as sensible affective knowledge. Several topics remain to be situated in this plan, for example it is important to consider how the interface between sensible affective knowledge and cognitive representation would allow for articulation, abstraction, and representation of embodied, affective knowledge.

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Stefan Milošević
University of Belgrade
Department of Archaeology at the Faculty of Philosophy
stefanmalteze@gmail.com

Janko Nešić
Centre for Philosophy
at the Institute of Social Sciences, Belgrade
nesicjanko@gmail.com

AUTISTIC TRAITS IN COGNITIVE AND MATERIAL ENGAGEMENT: TECHNICAL DESIGN AND MUSIC CAPABILITIES OF PALAEOLITHIC BONE FLUTES

Abstract: Bone flutes found in Palaeolithic contexts in Europe represent the earliest archaeological evidence of technically elaborated music instruments made by Palaeolithic humans. One of them was found at the site of Divje Babe, together with the Mousterian lithic assemblage typically associated with the Neanderthals. The other is the assemblage of bone flute fragments from early modern human sites of Hohle Fels, Vogelherd, Geißenklösterle, and Isturitz associated with Aurignacian lithic assemblage, but also with other numerous symbolic artefacts such as bone and ivory figurines and personal/cloth adornments. They both come from the brims of the Alps and date to modern human and Neanderthal cohabitation in Europe between 50–35 thousand years BP. While their context, manufacture technology, and modern archaeological experiment replicas are known, little has been discussed about the topics of cognition, epigenetic variations, and moods that affect the manufacture, playing, and listening to the music in the period of the Neanderthal and early modern human cohabitation. Based on the integration of insights from archaeology, evolutionary psychiatry and philosophy of cognition, we offer a cognitive archaeological discussion on how autistic traits could have influenced the development of these cognitive capabilities and particular musical inventions encountered in these cases.

Keywords: Palaeolithic bone flutes, cognition, autism spectrum disorder, autistic traits, absolute pitch.

1 Introduction

Ancient art has always been a fairly sustainable field in which to assess human cognition, mainly because it entangles pure technical processes with abstract thinking. Technical processes regarding the art encountered so far during the Palaeolithic that are reflected in the excavated artefacts are colour making, sculpting/carving, and instrument making. All of these involve knowledge of chemical processes, naïve physics, properties of the worked materials and specialised tool assemblage necessary to create it. Abstract thinking while executing the art is not only momentary but mainly a process devised far in advance—to paint, it is necessary to devise an image already before making the colour because it can dry and lose best painting properties if left to sit for too long; sculpting/carving is perceived imagination of three-dimensional object guided only by some of the features of raw material used as a blank; and in music, it is necessary to know how to apply mathematics while making the instrument to achieve right tune and pitch, and also thinking at least several bars in advance while playing the instrument. It is worth noting that technical and abstract parts are not necessarily executed by the same person, which is often so: the painter is not necessarily the colour maker, and the sculptor/carver is not necessarily the maker of carving lithic tools. The flute player is not necessarily the maker of the instrument. This persists in interpersonal links of a collective cognitive knowledge[1] and thus shows the effort and desire of society to emit and execute the art besides pure working hours calculated from the archaeological experiments required to execute a painting, sculpt, or make an instrument. Each of these materials and processes encompasses basic units of mental architecture consisting of mental actions from thoughts and memories to refined control of the action processes (Barnard et al., 2017).

Here, we will focus on the musical properties of the Palaeolithic flutes and discuss epigenetic and minimal cognitive requirements[2] necessary to produce the instrument and play the music. Most microtheories in psychology do not directly explain the link between artefact manufacture and use in all their phases. It is impossible to predict mental architecture from the behavioural or social architectures that leave their traces in the archaeological record. Additionally, because the basic components within mental architecture are thoroughly interconnected, analogies from constituents of mental architecture to

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1   And as an example of the division of cognitive labour.
2   See Killin (2017) and Currie & Killin (2019).

behavioural architecture are fraught with dangers. Pertinent macro-theoretic assumptions will either be absent or implicit. Although the problems of scaffolding from mind to behaviour within and among mental layers should not be underestimated, we can propose some criteria that may assist in the process. In the later sections, philosophical frameworks within which we can account for these will emerge.

We plan to do the following in this paper. In Section **2**, we present the archaeological findings of Palaeolithic bone flutes. In Section **3**, we investigate the technical design of the flutes and the cognitive and affective capabilities that the creation of such artefacts entails. Section **4** is dedicated to introducing several philosophical frameworks used to understand ancient cognition, like material engagement and enactivism, but also some new ones, like niche construction and predictive processing. In Section **5**, we argue that, in addition to these, we need to include the influence of psychopathologies of cognition and show, from the perspective of evolutionary psychiatry, that autistic traits could have been crucial for the cognitive feats and material inventions under consideration here.

2 Music in Their Bones

The period when bone flutes appear is notably interesting, as it is a part of a huge cognitive step in human evolution observed primarily in the spread of complex art, around 50–40 kyA BP (thousands of years ago before the present). Various humans expressed symbolic behaviour much earlier—engraving various line patterns, using colourants, and presumably using the voice and percussion for music—as far as nearly half a million years ago, but the rise of complex art forms is tightly tied to this period. Apart from cognitive evolution, an important biological evolution takes place in this period, as it is the last known period of cohabitation of two different humans known so far anywhere in the world—Neanderthals and early modern humans. Based on archaeological and paleogenetic evidence, we now know that this cohabitation occurred over tens of thousands of years, included population mixture, and ended with the gradual overflow of modern human populations over Neanderthal ones while also inheriting part of the Neanderthal genome. This genetic admixture could also have triggered the appearance of new cognitive and psychological stances in humans, as well as new psychopathologies. Knowing now that the oldest European modern human remains genetically all contain both very close or more distant Neanderthal forbearers—from 4 to 6 up to

70 to 80 generations ago (Green et al., 2010; Fu et al., 2015); it is now also difficult to tightly perceive from such a large time distance how the higher cognitive processes (language/abstract thinking) and lower cognitive processes (perception) behind artistic performance differed between them.

The appearance of collective cognitive knowledge is crucial, and whether it consists of broken or continuous cognitive traditions (temporally/spatially/(in)exclusively), that might lead, not literally, to the division of labour as the societies were not still large enough to sustain such divisions, but to the division of individual skills. Within them, cognitive-technical skills could be at least divided into high—and low-demanding ones. In general, executing complex art forms is regarded as highly demanding cognitive-technical skills, together with the ability to make fine and quality artistic media. Regarding the music, we will access it based on the technical design and music capabilities of Palaeolithic bone flutes.

Music is one of the most complex manifestations of human cognition and culture, so it is hard to understand its origins. Many scholars argue that music expression coincides with the appearance of complex language, while many contemporary cultures do not separate music from dance and have the same expression for it. It can be generally regarded as the art of expressing moods by arranging sounds and rhythm in a harmonic way that is different from noises. These moods are expressed through instrumental or vocal performance, either as composed/devised in advance, improvised/made at the moment, or a combination of these two—improvised on an already composed piece.

Music keys bring a wide array of moods expressed as they are played. In both devising a melodic/harmonic musical instrument and playing it, music is inseparable from mathematics because it revolves around intervals or distances between two or more tones played one after the other or simultaneously. The reason why instruments are designed, and music is played on a mathematical basis is that human brains are pre-set with tendencies of both visual and hearing senses to collect and group shapes and sounds into regularities. As such, music played with regular tones attains a larger variety and deeper feelings of moods than off-tune music. Nowadays, not all individuals are able to recognize these regularities, although they could improve in them if they practised. Interestingly, many individuals are naturally born with a good sense of relative pitch (Gregersen et al., 2001), and rare individuals (4% of good hearers and 1 in 10000 individuals in total) have an epigenetic variation that we refer to as absolute pitch. Physi-

cally and functionally, the auditory system of an "absolute listener" does not differ from that of a non-absolute listener. Also, an absolute listener's sense of hearing is typically no keener than that of a non-absolute listener. Absolute pitch does not depend upon a refined ability to perceive and discriminate gradations of sound frequencies but upon detecting and categorising a subjective perceptual quality. Identification (recognizing and naming a pitch) and discrimination (detecting changes or differences in rate of vibration) are accomplished with different brain mechanisms. Rather, it reflects one's ability to analyse frequency information, presumably involving high-level cortical processing. Thus, absolute pitch is an act of cognition, needing memory of the frequency, a label for the frequency (such as tone C), and exposure to the range of sound encompassed by that categorical label. As such, it is proved that cultural conditioning cannot explain reactions to harmony, dissonance, and perceptions of unison in music.

Absolute pitch may be directly analogous to recognizing colours (synaesthesia), phonemes (speech sounds), or other categorical perceptions of sensory stimuli, and it is influenced by genetic variation, possibly an autosomal dominant genetic trait (Bouvet et al., 2014). It is interesting to note a cross reference of absolute pitch with linguistics, as it is more often observed in individuals speaking tonal languages (Deutsch et al. 2006). Another fact is that absolute pitch appears much more often in special populations. It is observed that the prevalence of absolute pitch is higher among those who are blind from birth as a result of optic nerve hypoplasia and has a higher prevalence among those with Williams syndrome and those with an autism spectrum disorder (ASD) (Lenhoff et al., 2001; Martínez-Castilla et al., 2013; Loui et al., 2012; Wenhart et al., 2019). However, research found no difference between those with and those without absolute pitch on measures of social and communication skills, which are essential deficits in autistic spectrum disorders, meaning that individuals having absolute pitch sense are no smarter than those without it. These notions are worth discussing about the circumstances of when and why this epigenetic trait occurred in human evolution, as it could not be a trait originating in modern human cognitive capabilities but also of the Neanderthals as well, if not even earlier.

Tune features, playing, and range of moods of two musical instruments will be presented here—the late Neanderthal flute from Divje Babe cave (Turk et al., 2020) and the best-preserved early modern human flute from Hohle Fels cave (Munzel et al., 2016). We will show tune features based on the natural scales of the reconstructed instru-

ment. Flutes can be played from both ends. However, the position of the mouthpiece was defined by the blowing side from which it is possible to play a wider range of clean tones when played by professional musicians, after which we will emphasise the range of moods naturally evoked by scales that can be played.

Flute from Divje babe was first contested as a pseudo-instrument (D'Errico et al., 1998; Chase, Nowell, 1998; Diedrich et al., 2015). However, remarks in contesting papers are either too descriptive or contesting authors could not agree on whether the holes are wolf or hyena teeth scores. Diedrich et al. give a broad sample of hyena gnawing tooth punctures but without any mathematical functions of average shapes and sizes of large carnivore tooth punctures. Thus, there are infinite possibilities of carnivore taphonomy, but not definite ones. On the other hand, Turk et al. conducted numerous tests with models of hyena and bear jaws and found none similar to the original ones. Finally, when arguing about the lack of manufacturing traces, all the contesters failed to consider that the flute was embedded in breccia (Turk et al., 2002). The emergence of breccia means that CaCO3-enriched water heavily dissolved the bone, leading to the loss of several layers of bone laminae, thus obliterating any shallow striation marks that could originate from manufacture. The flute from Divje babe was made on cave bear femur diaphysis and has 4 tone holes——3 on the top (anterior side), 1 on the bottom (posterior) side, and a mouthpiece on the distal end. The sound was created by direct blowing against the sharp edge. The instrument was played two-handed, with bottom perforation being used to extend the air column to twice its length. This solution was not used by modern wind instruments and implies there is no need for the double length of the instrument and a higher number of holes. An opening on the distal part has the function of a bell or closure. With a finger of the right hand, the notch on the posterior distal aspect may be formed into an additional hole. The opening provides the possibility of playing on an open or closed bell, which additionally enhances the tonal range.

Dimkaroski experimentally concluded that every change in the system, whether changing the length of the instrument, adding or removing holes or the absence of the sharp blowing edge, resulted in poorer musical expression. Played in this way, the flute has a diatonic range of three and a half octaves, and unlike modern wind instruments, it is not completely tempered and sounds more natural when playing pentatonic scales (Dimkaroski, 2014). The instrument has only 4 fundamental tones, while the rest of the tones are derived from them. Thus, the instrument itself is not devised in diatonic scale——but

since the fundamental tones belong to a minor scale, the flute sounds more natural when playing minor pieces than major ones, although major ones can be well executed if the player is skilful. It is possible to play the tones in several techniques: legato, staccato, double and triple tonguing, flutter-tongue, glissando, chromatic scales, trills, broken chords, interval leaps, and melodic successions from the lowest to the highest tones. These techniques also involve specific breathing techniques in order to perform them—just like contemporary flutes.

A flute from Hohle Fels is the best-preserved specimen out of several partially preserved flutes and flute fragments, including 2 specimens from Geißenklösterle Cave and 1 specimen from Isturitz Cave. This specimen was selected because it has the highest tonal versatility. It was made on a vulture radius and has 5 tone holes on the posterior diaphysis and a mouthpiece on the distal end. The natural range of the instrument is 2 octaves, but if we look at 2 octaves chromatically, only 13 of the tones out of 24 are tempered. Nevertheless, other chromatic scale tones can be played but are not tempered. The flute has a completely diatonic scale, with the first octave being almost in the D# minor harmonic scale, while the rest of the instrument range generally belongs to this scale. It means that the maker of this instrument almost certainly had pre-devised a natural key to the instrument. Instruments in a pre-devised key are easier to play, as much less attention must be paid when producing most of the tones, which is the same as the contemporary concept when devising a musical instrument. Again, it sounded more fundamental if played in minor, but all other scales within the range of the instrument could have been played, provided that the player was skilful enough. Executing the tones using the same techniques as in the Divje babe specimen was possible.

The psychological influence of music scales and tunes upon human moods is an inseparable part of music listening, as most listeners claim to experience strong emotions in response to music at least half of the time they spend listening to it (Juslin & Lauka, 2004).[3] The notion itself is not new – in 1713, German music theorist and composer John Mattheson first published work on this topic (table). Naturally, not all persons have modelled emotions in the same way and intensity of music experiences. This study of music-induced psychological and emotional moods based on the music capabilities of Palaeolithic flutes is based on the results of the Geneva emotional music scale test. The results are presented below:

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3   For more on absorption in music and emotion regulation through music, see Kalebić Jakupčević, Reić Ercegovac, & Dobrota (2021).

Key	Mood
C major	Neutral, childish
C minor	Obscure, sad
C#	Unpleasant, dark
D major	Joyous, marching
D minor	Serious, pious
D#	Tragic, sad
E major	Quarrelsome, bolstering
E minor	Effeminate, amorous
e	Furious,quick-tempered
F minor	Obscure, plaintive
F#	Danger, evil
G major/minor	Serious, magnificent
G#	Anguish, sadness
A major	Joyful, pastoral
A minor	Tender, plaintive
A#	Irresolute, mourning
B major	Harsh, plaintive
B minor	Solitary, melancholic
Bb major	Magnificent, joyful
Bb minor	Obscure, terrible

3 Can You Hear the Music, *Homo Sapiens*?

The natural key of the Dive Babe flute (when all finger holes are closed) is in the D# minor scale that evokes a tragic, sad mood. Other fundamental scales for this instrument are: F–furious/obscure/quick-tempered/plaintive; G–serious/magnificent; and Ab–anguish, sadness. When played by a professional musician, a wide range of untempered scales could be used; however, these are much harder to execute and require a high level of playing technique. As shown by the experiment, tones were possible to play in legato, staccato, double, and triple tonguing, flutter-tongue, glissando, chromatic scales, trills, broken chords, interval leaps, and melodic successions from the lowest to the highest tones. This wide array of playing dynamics can be divided into smooth ones, like legato or melodic successions, which evoke happiness and peace; irregular ones, like broken chords, interval leaps, and chromatic scales, which evoke amusement or restlessness; while varied rhythmic ones, such as staccato, double/triple/flutter tonguing, glissando and thrills evoke joy.

The natural key of Hohle Fels flute is interestingly the same – D# minor scale evokes a tragic, sad mood. Other fundamental scales for this instrument are: D–joyous/serious; F#–danger/evil; A–joyful/tender; C#–unpleasant/dark; A#–mourning. Contrary to the Divje Babe flute, when played by a professional musician, only a small range of untempered scales could be used as this instrument has 13 tempered tones out of 24. This makes Hohle Fels flute a diatonic instrument, even a chromatic one if the player has a high level of playing technique. It is also possible to play tones in techniques similar to the Neanderthal flute, adding the ambience of happiness/peace, amusement/restlessness, and joy to the music.

Several points can be observed based on the musical properties of two Palaeolithic flutes. It is obvious that the makers of the flutes were thinking about pre-devising a natural key. Most probably, it was by accident that Divje Babe's and Hohle Fels' flutes were pre-devised using the same natural key of D# minor. D# or Eb natural key is also one of the most widespread in contemporary wind instruments: alto and baritone saxophones are in D#/Eb, as well as alto clarinet, and some english horns and trumpets. Other Upper Palaeolithic flutes have not preserved the complete length of the air tube, which makes it obsolete to discuss and compare with their natural key. These 2 flutes comprise a small sample to make any conclusions and observe regularities when asking what kind of instrument Palaeolithic humans demanded. Hence, we will only examine a range of possibilities emerging from ideas of making and playing these two instruments. To pre-devise natural keys and tempered tones, around which untempered ones can also be played, the individuals with absolute pitch must have existed. Since the absolute pitch is an epigenetic variation, it is possible to trace it as far back in the past as these two flutes. Even if the flutes were made or devised by individuals having excellent relative pitch, it only means that they were practising and using their sense of pitch, as it can be improved only through rehearsing—meaning that somebody else with either absolute or excellent relative pitch was teaching them music. Besides, manufacture of the flutes itself implies the knowledge of music mathematics, most principally mastering the use of cumulative fractions, as tempered tones—which both flutes possess are measured by precisely fractioning the total length of air tube of the flute, like in almost all wind instruments. This explains Neanderthal and early modern human understanding of why holes should not be made with equal distancing, reflected on these flutes.

From a technical point of view—what tones and range of tones can be executed; we saw that these two flutes are strikingly similar. However, they are completely different in the skills required to produce their whole technical range of tones. From the contemporary player's perspective, the flute from Divje Babe is much harder to play, as all tones are to be derived from 4 tempered ones. Since the Neanderthals and early modern humans were not within the full grasp of modern music theory—as achieved by J. S. Bach, we can assume from our perspective that it was either harder to grasp the Neanderthal flute or their music was less versatile than in early modern humans. It is easier to grasp the technique of the Hohle Fels flute because it has a lot more tempered tones, so even if a player does not know how to execute untempered tones, the one can still play a lot more versatile melodies than the Neanderthal flute. Further, it implies that it is easier to learn to play the Hohle Fels flute, and thus, it is easier to transfer the music knowledge with it. However, the notion that Neanderthals were executing a complex activity in a way that logically looks like a more complicated solution to us is not new, and it was first observed in the Levallois mode of stone tool production, which for us is also logically more complex to grasp than the lamellar based technology of early modern humans.

These help us decompose problems into smaller tasks that are more easily solved because they are smaller (Beer, 2003). Decomposing problems also makes it easier for multiple individuals to collaborate on solutions, thus opening up new possibilities for outcomes in addition to the variation gained through "difference, localism, and choice" (Robson, 2008, p. xxii). Solutions can take the form of artefacts, making them available to other individuals and future generations; this opens up further opportunities to refine or apply artefacts to new uses, thus affording additional possibilities for change (Damerow, 2010). Over even longer spans of time, new brain functions or regions may prevail. Various measuring devices and scales, for e.g. provide much on this ancestral cognitive activity as they are not invented out of nothing but rather from a number of concepts, numerical algorithms, and notations, available technologies, and repurposed brain functions realised through the past and present interactions, interdependencies, and multidirectional changes of brains, bodies, and materiality.

Numerical cognition in the Palaeolithic has been assessed by different authors (Rouillon, 2006; Bender & Beller, 2018; Reese, 2002) through analysis of line and hand stencil groupings in parietal art and stringed beads and pendants, both of them encountered in late Nean-

derthals and early modern humans in Europe, but also elsewhere. The latest accounted find of unequivocally Neanderthal parietal art in the form of incisions (Marquet et al., 2023) strengthens the assumption about their ability to apply numerical cognition to play music. Even if argued for the absence of Neanderthal figurative art, it would not necessarily represent a separate case; detecting a figure in the visual field would be basically exploiting similar basic visual principles as non-figurative art. That "figurativeness" cannot be a cutting line in the evolution of art is also supported by the fact that many traditional communities in the past did not produce figurative representations (Robson, 1983). Evolutionary differences in neuromotor skills in *H. sapiens* might be the appearance of the pyramidal motor system and particularly its corticospinal division. The corticospinal is the chief motor system for controlling voluntary movements, requiring the greatest skill and flexibility for fine movements of the distal extremities, particularly of the fingers (Masri, 2011). It is also the last motor system to mature, and the motor system most susceptible to "learning and forgetting", that is – dependable of everyday movement practice (Martin, 2005), meaning – even if once perfectly learnt, the execution of movements will deteriorate if not regularly practised. The corticospinal system gives the ability to move each finger independently, a skill that reaches its highest degree in musicians (Passingham, 2008), but a skill which is also encouraged to train children in early childhood development. Archaeologically, we know that both Neanderthals and modern humans had this ability developed as both produced microlithic artefacts.

4 Digging Up Ecological Niches

One could ask now if the mood of the music was the same for us and them. The oldest work regarding the connection between music keys and tones to moods and feelings dates back only to the period of baroque music. As we are able to observe the evolution of Western music from the Sumerian to Baroque periods, we can fairly clearly propose that moods and tones following the hearing of various keys and tones had similar moods and feelings.[4] Is it possible, and with what certainty can we trace these moods to late Neanderthals,

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4   However, cf. hunter-gather societies which we can ethnographically analyse today and whose traditional music can be discerned from the Western influence and/or tradition (e.g., African Pygmies or Aborigines)—their music is predominantly vocal with unpitched percussion, whereas the instruments (if used) are of organic material. Here the music also has ritual and communal usage, and presumably, evokes emotions in humans.

early modern humans? From our perspective, we only see that they both expressed a variety of joyful and sad feelings through music that could be played affectively and tenderly as well. It seems that both Neanderthal's and early modern humans' feelings of joy and sadness were quite complex and nuanced.[5]

Can we speak about other special conditions in humans that often go along with an absolute sense of pitch, like autism and Williams syndrome? In the next section, we want to discuss the cognitive abilities behind these Palaeolithic cases and shed some light on them by using some of the modern philosophical perspectives on the relation between cognition and materiality. We want to dig deeper into this connection in our discussion. We will focus on the psychopathology of autism spectrum disorder (mentioned earlier in the paper) and the cognitive abilities that accompany this disorder that have the potential to explain how human development progressed in the deep past. This could then unlock a better understanding of Palaeolithic cognition.[6]

What philosophical frameworks have been used to understand the relation of ancient humans to material objects and to shed light on the ecological cognition of man, according to modern cognitive archaeology? For example, an influential framework put forward by Malafouris is the material engagement framework (Malafouris, 2013). It combines anthropology and embodied cognitive science findings and follows the tradition of embodied, enacted, embedded and extended cognition (the 4E). Enactivism is a research programme based on cognitive science and phenomenology (Varela et al., 1991; Thompson, 2007). Enactivists understand cognition as embodied and (inter)active, meaning that every living organism acquires knowledge about the world through its embodiment and through activity, through interaction with the environment. The ecological approach is built on the notion of affordances as possibilities for action in the environment (Gibson, 1979). For the material engagement approach, cognition is in-

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5   Killin (2021) argues that the difference between bird-bone and mammoth-ivory flutes can be interpreted by using biological signalling theory. Thus, more sophisticated flutes could have been used as costly and hard-to-fake signals whereas bird-bone flutes low-stakes signals. Killin interprets this in the social key—as a gradual social differentiation in Upper Palaeolithic, so mammoth-ivory flutes were suggestive of both social status and skill of a performer (his unique importance in the community), whereas bird-bone flutes were suggestive of a more egalitarian society with aligned interests. Given specific emotional roles of the keys that could have been played on the two flutes you describe, Killin's proposal can be either refined or to some extent questioned.

6   One of us has written before on modern philosophical perspectives on autism (Nešić, 2023a, 2023b).

tertwined with material culture—it is an "enactive and inherently dynamic vision of participatory mentality where bodily acts and material affordances generate and constitute thought processes rather than merely execute them" (Malafouris, 2021, p. 109).

Anton Killin, for example, argued in recent work that human musicality, contrary to the standard biological adaptation or cultural technology views, should instead be understood through an evolutionary narrative of *socio-cognitive niche construction* without the use of the artificial separation of cultural and biological evolution (Killin, 2016, 2017). He proposes a coevolutionary/niche construction perspective from which to view musicality. In the hominin evolution, musicality is an integral part of the advancement of the unique hominin socio-cognitive niche. Developmental environment for children involved the expressive use of music and musicality evolved through feedback loops and social innovation, and this, in turn, led to neurological improvements that go back to better expressivity in music and so forth in the hominin niche construction (Killin, 2017, p. 9).

Niche construction theory comes from evolutionary biology and refers to the process through which organisms change their environment and steer their evolutionary path (Laland et al., 2015; Constant, Bervoets et al., 2020). There are four kinds of niche construction: (1) phylogenetic: the collective environmental modifications of an entire species, (2) sociogenetic: collective environmental modifications through the activities of a subgroup, (3) ontogenetic (personal), the individual's unique interactions with their environment, and (4) microgenetic (local): specific environmental changes occurring in the present moment (Coninx, 2023, pp. 3007-10). However, niche construction also has a dark side; negative niche construction can occur, leading to harmful environmental changes that become maladaptive and impede the well-being of individuals.

Another package of theories about life and the mind that have come to the fore in recent years is the free energy principle (FEP) and predictive processing (PP) frameworks. FEP (or active inference) purports to be a unifying framework of both biological and mental processes. In it, it is argued that an adaptive living system is organised by way of minimising its information-theoretic free-energy in engagement with the environment (Friston & Stephan, 2007). This minimization is attained either by way of predicting sensory input or through changing the environment to match what is predicted (*perceptual* and *active inference*, two ways to bring models and the world closer). This is the process of an organism attuning to its econiche. Predictive

processing is a framework similar to the computational tradition that explains the workings of the brain and its cognitive processes (Clark, 2013; Hohwy, 2014). It, too, is grounded on prediction-error minimization. It is said that the brain is in the business of minimising prediction errors about the body and the world. Frameworks of Predictive Processing and the Free Energy Principle have also been used to model how niche construction can influence evolutionary processes (Constant, Ramstead et al., 2018). In predictive processing, niche construction is understood as an organism's strategy for minimising prediction error through changes in the environment to conform it to its expected states. Niche construction can be seen as active inference in the aforementioned frameworks.

In line with what was said before, the ecological niche can be viewed as a meta-learning mechanism, enabling learning of what can be learned through sensory cues. It has been argued that artifactually supported rituals can regularise behaviours and thus stabilise expectations, improving predictability (Constant, Bervoets et al., 2020). Cultural affordances also have a significant role in estimating the precision of incoming sensory inputs (so-called *cultural niche construction*)[7] —e.g., rituals supported through artefacts increase the predictability of the environment.[8] This is evident in modern and ancient humans' material culture and rituals. The handling of material objects can be plausibly accounted for in these frameworks as a way of making the environment more predictable.

5 Was it the Palaeolithic "Yakkity Yaks"?

To fully understand cognitive modernity in humans (cognitively modern humans or CMH), we need to understand emotional evolution, as argued by Withley (2020). In tracing the path of the emergence of cognitively modern humans, one must follow the evolution of mental disorders in humans and find archaeological evidence for its occurrence. Whitley notes that certain genetic studies show how the

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7   See Constant, Ramstead, et al. (2018); Kirchhoff (2018).
8   One of us has written about how certain environments (e.g., monastic) can be seen as providing shelter for autism spectrum disorder individuals in the Middle Ages. We studied the case of Hildegard of Bingen, a Benedictine abbess from the 12th century We invoked contemporary embodied and ecological approaches to cognition to be able to understand how the medieval monastic sociomaterial ecological niche played a crucial role in the inclusion of autistic individuals in the past. See Nešić, Subotić, & Nurkić (2024).

introgressive hybridization of anatomically modern humans with the Neanderthal during the Upper Palaeolithic introduced genes that are associated with mental disorders such as major depression, schizoaffective disorder, schizophrenia, and autism spectrum disorder (Whitley, 2020, p. 452). This could potentially explain shamanism's appearance in the time of the Upper Palaeolithic, as cognitive archaeologists contend.

The presented cases make us wonder if certain specific neurodivergent cognitive styles are the driving force behind such human cognitive leaps. One modern mental disorder comes to mind first because it is characterised in such a way that it plausibly explains what is encountered in the cases under consideration. Could these feats of craftsmanship be explained by the exceptional sensory capabilities of the ancient autistic individual? And how could autism, as a distinctive cognitive style, drive the cultural evolution of humans in the past? In what ways does it help steer the evolutionary trajectory?

Autism spectrum disorder (ASD or autism, formerly including Asperger's syndrome) is a neurodevelopmental disorder, a type of psychopathology, that is characterised by deficits in social interaction and social communication (i.e., in social-emotional reciprocity and nonverbal communicative behaviours) and repetitive patterns of behaviour and interests (i.e., stereotyped or repetitive movements, insistence on sameness, highly restricted, fixated interests, but also very importantly, and this is the addition of DSM-5, hyper– or hyporeactivity to sensory input) (APA, 2013, p. 50). There are both social and non-social symptoms, as we can see.

The neurodiversity movement has argued against orthodox dysfunction-based approaches to mental disorders, that a radically different perspective has to be taken on autism, advocating for social justice and the end of the pathologization of human cognitive styles. It calls for acceptance of diverse cognitive functioning (Blume, 1998; Chapman, 2021). According to this movement, deviation from the norm is neither a disorder nor a mistake needing correction. Thus, proponents of neurodiversity argue against viewing these conditions as deficiencies. Instead, disabilities such as autism and ADHD should be recognized as different "cognitive styles" rather than medical pathologies. The term "autistic persons" is preferred over "persons with autism" to highlight that neurocognitive style is a fundamental aspect of an individual's identity (Chapman, 2021). Now, ideas and concepts from the neurodiversity movement are increasingly impactful in other domains and integrated with phenomenological and evolutionary approaches to cognition.

A recent paper (Hunt & Jaeggi, 2022) proposes an evolutionary explanation for individual differences in personality and psychopathology. They discuss the prevalence and adaptive nature of specialised minds in humans, the relationship between personality traits and evolutionary theory, and the connection between personality dimensions and specific psychopathological disorders. They think we should consider anthropological research and ancestral social structures in grounding psychopathology in an evolutionary context. Hunt and Jaeggi talk about the broader phenotype of autism and subclinical forms of schizophrenia; these are the target of evolutionary explanations. The bottom line is that personality traits and psychopathological conditions may arise from a shared evolutionary process of cognitive specialisation.[9]

Several accounts have focused on positive attributes in autistic and autistic-like traits (Baron-Cohen, 2020; Del Giudice, 2018; Crespi, 2016), like visual-spatial skills, abstract spatial reasoning, detail-oriented styles (boosting 'systemising'), etc. These authors see autistic traits as specialisations. According to the famous theory by Baron-Cohen (2020), autistics are hyper-systemisers; they are the "inventors and experts in areas of their obsession" in the human social niche. So-called cognitive specialisation for different styles would help the group function better and more successfully adapt to the environment (e.g., ADHD, autism, dyslexia). For example, the rapid attentional shift in ADHD is helpful in an environment full of uncertainty and danger.[10] Visual and spatial skills, the ability to focus and an increased awareness of the external, physical world—are all associated with autism.

Autism is more commonly connected to people with savant mathematical, visual and musical talents. Connecting autistic traits and absolute pitch has not been explored in much detail, although anecdotal accounts exist. The literature is scarce and far from conclusive, but it shows that absolute pitch and autism have shared and distinct neuronal and phenotypic characteristics (Wenhart et al., 2019). In addition, studies show that music elicits special attention in children with autism, and absolute pitch is a major recurrence in autistic children (Romani et al., 2021).

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9   Justin Garson has proposed and defended a similar understanding of mental disorders in several papers and books. He argues that instead of viewing mental disorders as harmful dysfunctions (Wakefield,1992), psychiatry should make a paradigm shift from "madness-as-dysfunction" to "madness-as-strategy" (Garson, 2022).

10   One of us has written about enactive and ecological approach to autism through affordance-based framework and predictive processing (Nešić, 2023a). On general application of enactivism and ecological psychology to psychiatric disorders, see Nešić (2022).

In coherence with the ecological, enactive, and computational approaches to cognition that have been introduced in the previous Section, autism can be understood through the specific ways autistic persons contribute to the ecological niche construction. They have such cognitive capabilities as to be "pattern-seekers" (Baron-Cohen, 2020), and because of the manner in which they predict and process the sensory information, they are able to innovatively shape the niche to lower the uncertainty of the environment (Constant, Bervoets et al., 2020; Nešić, 2023a). They can shape materiality and tools in the niche through their narrow interests and expert knowledge. Through peculiar material engagement, they contribute to the cultural niche construction processes. Given all this, it appears that autistic traits have played a major role in shaping deep past human cognition and designing human niche construction. Let us close with the words of autistic advocate Temple Grandin[11]:

> "Who do you think made the first stone spear? That wasn't the yak-kity yaks sitting around the campfire. It was some Asperger sitting in the back of a cave…" (Weiss, 2010).

6 Concluding Remarks

A lot of frameworks have been introduced in these few sections. We cannot say how useful all of them are. We wanted to show that the modern philosophy of cognition and its psychopathologies can offer the conceptual tools to refine our understanding of human cognition of the deep past. In this paper, we analysed archaeological cases of Palaeolithic bone flutes through philosophical frameworks that emphasise the close and essential connection between cognition and material artefacts to comprehend how musical instruments came to be made in the deep past. Particularly, we argued, from evolutionary psychiatry and philosophy of cognition and psychopathology and based on the archaeological findings of these bone flutes, that certain autistic traits have been beneficial for the invention and development of music and its instruments in the deep past. Given the topic at hand, much of this discussion can seem speculative. Thus, our modest aim was to show how these frameworks can be helpful and that there is great potential in them to apply to the problems of cognition and affectivity of humans of the deep past and not to give any final answers to those problems.

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11   Temple Grandin is an exceptionally intelligent woman with high-functioning autism, holds a PhD in animal science and has authored over 200 scientific articles and autobiographical works detailing her experiences with autism.

Hopefully, these considerations could move debates in cognitive archaeology towards future developments and possible solutions.

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William H. Krieger
University of Rhode Island
Department of Philosophy
krieger@uri.edu

PUBLIC PHILOSOPHY MEETS
COGNITIVE ARCHAEOLOGY

Abstract: Public philosophy asks us, as philosophers, to step outside of our domain specific research in order to have an impact on the world around us. While that work will look different when applied to different contexts and fields, I see some specific, and perhaps unique, ways where public philosophy connects with the epistemic pluralism found in cognitive approaches to archaeological theory and methods, This export of theoretical flexibility has resulted both in producing better explanatory models for the academic audience, and it helps to better inform the greater public about the complexity and underdeterminism at the heart of good archaeological practice. I will use a case study from the Tel Miqne/Ekron and Tell es-Safi/Gath excavations to demonstrate how this 'public' cognitive archaeological approach can positively impact epistemological work. I will then focus on archaeological looting and the black market, appealing to the same pluralistic goals mentioned above and using them as a way to showcase and engage in outreach to the public, exploring similar problematics and potential public cognitive solutions in archaeological justice.

Keywords: archaeological theory, public philosophy, cognitive archaeology, theory and methods, epistemology, justice.

1 Introduction

Philosophy (public or otherwise) and archaeology seem not to have much in common. Although there are a number of dig directors and theoreticians in the field (and although there are a limited number of journals and conferences devoted to theory), when the vast majority of archaeologists think of their kits, they generally focus on their field tools and not on theoretical models. This viewpoint (which is not

shared by this archaeologist) is supported by the literature, as archae-ological theory is rarely mentioned in the top journals in our field,[1] nor is it featured in archaeology's major conferences.[2] However, implicitly, epistemology and social philosophy play an important role in dig de-sign, excavation, and in the dissemination of results. Field archaeolo-gists have had to shoulder most of this burden, but several theoreti-cians (both archaeological and philosophical) have come together in ways that can best be described as doing what I am calling "public cognitive" archaeology. The goal of this chapter will be to show how cognitive approaches to public philosophy transform philosophical ideas surrounding epistemology and social justice into archaeological tools.

2 Archaeology and Epistemology

Processual (or new) archaeology was many 20th-century archae-ologists' first exposure to epistemology as it applies to archaeologi-cal theory.[3] Processualism was founded on the philosophical promise to transform archaeology into a 'real' science. This viewpoint began with Petrie (1904) and Kenyon (1953), who brought stratigraphy from geology to the archaeology of Israel and explicitly demanded that excavators pay attention to their assumptions and theoretical goals. Wissler (1917) and Taylor (1948) gave this program a name, the *new archaeology*, and laid out a strategy, a 'conjunctive approach' to archaeology. Binford (1962) and Clarke (1968) adapted philosophical 'covering law' models of science taken from Hempel (1942, 1966) to bring that new (or processual) archaeology to life.[4]

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1   As of March 1 2024, a Google Scholar search of the top five journals in archaeol-ogy (https://scholar.google.com/citations?view_op=top_venues&hl=en&vq=soc_archaeology) turned up 16 articles focusing on archaeological theory.

2   According to their latest conference proceedings, 2024 AIA had no sessions de-voted to theory. 2023 SAA had 1 session on theory and 1 on theory and methods, 2023 ASOR had 1 session on theory, and 2022 World Archaeological Congress had 3 sessions featuring papers on theory.

3   Although culture history predated the new archaeology, it was not explicitly epistemic, focusing on creating material chronologies mirroring those found in geological stratigraphy.

4   For a clear understanding of the philosophical issues undergirding explanation in the new (or processual) archaeology, see Salmon (1982) and Krieger (2006), who focuses on both the archaeological and philosophical development of phi-losophy (or philosophies) of archaeology.

Generally, covering law models moved science from description (what happened) to explanation (why did it happen). An explanation identifies individual actions (such as a pen rolling off a table) as instances of certain, universal laws (such as gravity). By fully capturing those laws (and the conditions necessary to activate them), our complete explanation of the event affords us understanding of exactly why it took place in the past (and by symmetry why it must happen under those similar conditions in the future), thereby providing a foundation in certainty for our expectations of scientific repeatability and predictability.

As a new science, new archaeology would focus on opening the past to the same sorts of scrutiny being explored in the physical sciences. Originally, processualist archaeologists sought to explain the past by tying archaeological evidence to universal laws. This was a major shift, as archaeology's previous model (called culture history) was focused on cataloguing materials to get a complete picture of events, time periods, and the like. This move from product to process is akin to replacing photographs with HD video. By focusing on fluid changes, archaeologists hoped to be able to understand (and then create predictive models) of how civilizations change over time.

Despite this hope, archaeologists struggled to figure out how to implement covering law archaeology. On the theoretical side, archaeologists (and, unbeknownst to them, all scientists) were largely unable to discover meaningful covering laws. This led them to gather every bit of data they could, with the hope that emergent laws would appear (an early implementation of big data). This change in focus then changed archaeological practice, first by increasing archaeological teams (with specialists representing these new data sources), and then by changing the ways and places materials were evaluated. New teams had to learn to work together and had to make sense of the large amounts of data they were taking in. Believing that data were objective and given the fact that archaeological study is a destructive process, archaeologists worried about what they left behind, how to catalog their data for future use, and how technological advances might change the nature of those data. Field manuals from the time, such as that at Tel Miqne (excavated 1981-1996) reflected this need: "It is the responsibility of the excavator to collect and record every datum encountered, employing all available techniques, so that scholars in other disciplines will be able to utilize the data (Gitin 1985, 3-4). Similarly, articles and books cautioned archaeologists against throwing away data considered inconsequential to get to the 'good stuff' that they wanted to excavate. "No archaeologist can ever complete

the work of discovery and interpretation: the past can only be seen from the perspective of the present. And since the concerns of the present are constantly changing, so are the questions which must be asked about the past" (Dothan and Dothan 1992, 257). Unfortunately, even with these troves of data, the new archaeology was unable to make good on its promises. As documented elsewhere (Krieger 2006), the cascade of data did not produce archaeological covering laws and complete explanations.

Cognitive approaches to archaeology were initially defined by Renfrew as "the study of past ways of thought as inferred from material remains" (Renfrew 1994, 3). Despite their appearance a decade into the processual/post-processual period of archaeological theory, in Renfrew's view, cognitive archaeology, "while willingly learning from any suitable developments in 'postprocessual' archaeology, remains in the mainstream of processual archaeology (Renfrew 1991, p 469). Of course, these updates moved cognitive archaeology away from the strict functionalist foundation and the uncritical objectivity of the original processualists, bringing in a focus on cognitive, psychological, symbolic, and ideological forces that shape individual and communal lifeways. That said, cognitive archaeology shared with the rest of processualism the belief that the large data sets taken from material assemblages would help archaeologists to be able to recognize cognitive and symbolic features of the ancient societies being studied.

These studies, moving from evidence to theories of mind have produced a wide variety of hypotheses, including Mithen's (1996) work using changes in flint napping techniques and measurements of skull topography along with elements of philosophy of mind to explain differences between ancient humans and their evolutionary cousins, creating an explanatory framework for the evolution of the human mind. Other studies, such as those cited in Coolidge, Wynn, Overmann, and Hicks (2014), range from providing evidence for the effects of leaving the trees to positing genetic factors that changed paved the way for what we refer to as working memory.

Whether these bridged inferences were simple, or if they required more subtle chains of inferences, the cognitivists (for the most part) rejected either the extreme *naiveté* of strict objectivity promised by the early positivists (the new archaeologists) or the extreme hermeneutic turn of early post processualists. Like the original positivist archaeologists, cognitive archaeologists looked to cognitive, psychological, neurological, or other similar laws which could be used to tell a causal story linking today's artifacts with yester-

day's mental states. This story would be told using Binford's (1972) middle-range theory, also known by Botha (2010) and Wynn (2009) as bridging arguments[5], which would connect artifacts with those theories of human cognition. To avoid the pitfalls shown above, cognitive archaeologists shifted their focus to newer Hermeneutic approaches that took theoretical cues from foundational psychological theories (Wynn 2002, 390) or they focused on larger questions surrounding the relationship between form, function, and intention, as represented by Malafouris' (2013) Material Engagement theory. Cognitive archaeologists have an almost endless variety of data sets (and sources) to employ in their quest to understand our cognitive development. "Currently, contributions from...disciplines such as paleoneurology, genetics, psychology, sleep science, and the cognitive sciences, as well as advanced methodological techniques such as fMRI and other neurophysiological measures, are making evolutionary cognitive archaeology a vibrant and provocative field," (Coolidge and Wynn 2016).

While a range of theoretical models (ranging from post-processual and interpretive archaeologies to more contemporary Thing-theories of interpretation) have attempted to either solve the problems brought to the fore by the New Archaeology or to completely change the direction of the field, none has proven to be the one theory to rule them all. This feeling continues until today, where there are about as many theories as there are theoreticians in the field. However, while many contemporary theoreticians would have us fuse archaeological practice onto these new models, I would argue against this impulse. Although one would hope that archaeologists learned during their first meeting with philosophy the danger of taking a theoretical model and applying it to archaeological practice, we can instead see this pattern repeating itself. To demonstrate this problem, I will use a case study from my research, changing ideas about the identity of the Ancient Philistines.

2.1 Archaeologies of the Philistines

In mid-20th century Israel, the new archaeologists mounted large scale archaeological excavations. This focus on cities (driven by the aforementioned quest for large amounts of data) led them to posit the existence of a Philistine Empire based in 5 capital cities, a viewpoint

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5   Wylie (2002, p 66) refers to these as 'linking principles. Wood and Powel (1993) and Krieger (2006) use the term 'bridging principles.'

borne out by the excavations at Tell Miqne/Ekron (cited above). When the new archaeology was largely replaced by post-positivist critiques of univocal objective approaches to science, archaeological explanations also shifted, and accounts of Philistines started looking less unified, focusing on conflicts between those large cities and on shifting alliances based on social class. Currently, as demonstrated in the excavations at Tel es-Safi/Gath including Hitchcock and Maeir (2018) and in line with LaTour's (1979) deconstruction of science and Hodder's (2011) Human-Thing Entanglement theory, the Philistines are seen as a mix of foreign and domestic actors, a group of pirates, fighting against the dominant power structures of Egypt and Mesopotamia.

Responding to this fragmentation of theory, some archaeologists argued for epistemic deconstruction (as opposed to material reconstruction) as an archaeological goal. Just a few years after Dever asked "Can we ever move from 'material culture' to Culture?" (Dever 1981, 21), Shanks and Tilley (1987) argued that since archaeology was at its root a political or social enterprise. As such, data, far from being the bedrock of scientific objectivity argued for by the new archaeologists, should instead be used as tools of liberation. This tendency again mirrors work in the philosophy of science, with Feyerabend (1975) analogously arguing that scientific under-determinism must result in a movement to decouple science from the state.

Although these discussions are on their own interesting (and here again, the archaeological community would have much to gain by studying philosophical responses to Feyerabend's position), an epistemological step back shows the real problem with this focus. In focusing on individual theoretical outlooks, we fail to notice that the one thing that has not changed over the past 150 years is our expectation that archaeological practice will flow unidirectionally from the field's theoretical framework.

Instead of arguing for and testing out the adequacy of the next theoretical foundation, I would argue instead that a multi-theoretical approach should not be seen as a bug, but as a feature of contemporary archaeological practice. Rather than look to new models to put archaeological practice on a new unified foundation, a number of theoreticians and field archaeologists have found strength in seeking disunity. In fact, I would argue that if there is theoretical innovation that can be pinned to current practice, it is just this recognition, that archaeological teams employ a number of different approaches simultaneously in order to address complex problems found on site. Theory is not a one size fits all enterprise. Bintliff (2000) goes as far

as saying that archaeologists should abandon attempts to lock theory down to one definition, instead looking to the many different ways that we can solve problems, treating various theories as examples of Wittgensteinian 'family resemblance. As a result, following actual archaeological practice, archaeologists should embrace the fact that archaeological work simultaneously involves cataloging (Culture History), explaining (New Archaeology), deconstructing (Post-Processual), positioning (Standpoint), incorporating disparate accounts (Entanglement), and many other activities that are associated with different theoretical movements. Rather than lead us to believe that archaeological theory has failed to live up to its promise (Sabloff 1981), the fact that archaeologists are able to pull so many stories while using the same data, gathered by the same means, should tell us that something is working. Instead of focusing on what Upham's (1987) saw as the "Tyranny of ethnographic analogy," fears founded in the perspective that we cannot objectively bridge past and future, new cognitive approaches, mirroring the multivocality of our data sets, sources, and perspectives, can tell a more diverse story than older, more unified approaches would have allowed. Making the conscious decision (instead of continuing to argue that theory begets practice) to look to a variety of theoretical approaches, allows us to employ these models when they can provide the proper tools to understand particular questions.

For instance, Wylie (1989) has argued that working from multiple standpoints allows the ship of archaeological research to tack back and forth, moving, albeit slowly, in the right direction. Continuing the nautical metaphor, Petursdottir and Olsen (2018) argue that theories, like driftwood caught in ocean tides, bump into each other, fragmenting or bonding together as they float into view. Pushing back against the worry that, following Feyerabend, working in multiple perspectives will undercut our abilities to separate archaeological signal from noise, Trigger rejects the idea that embracing multiple narratives forces the archaeologist to embrace a position where all narratives have equal value. "Multivocality enhances rather than relieves the need for archaeologists to weed out erroneous assumptions and interpretations and to synthesize divergent viewpoints to produce more holistic explanations of the past" (Trigger 2008, 190.)

Original cognitivist (like all positivist) accounts were centered on finding the 'right' theoretical foundation. "It requires that features of the reconstructed knowledge system be linked explicitly to elements of an established cognitive model." (Coolidge and Wynn 2016, 386). However, in the many years that cognitive archaeology has been refin-

ing (and redefining) its methods and models, philosophers of archeology such as Currie and Killin have recognized that the foundational theories might not be doing as much of the heavy lifting as we once thought. "Our claim that grander (capital "T") cognitive or psychological theories are not necessary for much cognitive archaeology is more precisely the claim that they rarely play the role of midrange theory. Most of the inferences cognitive archaeologists make are compatible with multiple general theories of cognition, and only once the historical sequence of events emerges might such theories be put to the test." (Currie and Killin 2019). In the past, this impulse to focus less on grand theories was generally based on under-determinism (the belief that the data are insufficient to nail down the right epistemic account). Today, as I and others (ranging from Marcus and Flannery 1994 to Currie 2016) believe, grander theories should be seen less like foundations and more like maps, only useful when employed on the proper level.

Given the fact that many archaeologists (and most of the non-archaeologist pubic) is largely unaware of the push for epistemological pluralism that this chapter endorses, the goal here (in addition to pushing these theoretical discussions forward) is to show the relevance of this multivocal, mid-range theory approach to the larger community. In this way, theoretical archaeologists need to act as public philosophers, moving these important discussions out of theoretical literature to better showcase their impacts on our understanding of ancient cognition. This work can be done (as it has been) by traditional means (in conference papers and articles), but it can (and should) also be done in person, by having theoreticians work with dig directors, museums, and with media outlets, explicitly pointing to the relevance of these theoretical discussions to our ability to make sense of the massive range of data we work with in the field.

3 Archaeology and Justice

As important as epistemology is to archaeology, Public Cognitive Philosophy may help to bring ethical and social justice issues to the archaeological community and the larger public. In a 2022 recent segment about museums, John Oliver brought up one of the most interesting and most relevant discussions going on in the archaeological community, a discussion about the ownership of our archaeological past. In this piece, Oliver argues on behalf of archaeologists and in-

digenous civilizations, showing that the black market, museums, even governments, are responsible for the destruction of intellectual heritage and the theft of cultural property. He spoke about issues of ongoing contention between the Global North and South, between the wealthy and dispossessed, questions surrounding museums' uses of provenance (contextual information), and in the end, he leaves the audience asking important questions about the status of pieces on display or in storage in our museums.

It would probably shock Mr. Oliver (never one for subtlety) to hear that the situation is much worse, much more complicated, and much more interesting than even he relates. The archaeological world, as we know it today, is built on the idea that the recovery of ancient materials, preserved with their full provenance, is a universal goal for humanity. Without these contextual materials, recovered artifacts are no more than trinkets, devoid of value other than as the street value of the precious metals or stones they comprise. Further, archaeologists and archaeological organizations require that we not involve ourselves in any pieces that come to the market without those contextual data. Archaeologists are often approached by people who would like to have their artifacts authenticated. In most cases, this is a case of a person cleaning up their yard and coming upon a single unstratified artifact, but there is no way to know whether authentication is innocuous, or if it will lead to the destruction and export of a site's heritage. Many archaeological organizations[6]' guidance documents state that we are not to participate in this process because it gives legitimacy to these stolen artifacts, and it provides demand for black market items, which then result in an expansion of the supply.

This is a good story, and it is the story that most in the archaeological community believe not only to be true but to be universally understood. but it is not the whole story.[7] Archaeologists are only one group of people that concern themselves with artifacts. There are other groups that do not, and generally archaeologists (and governing authorities) consider these groups the 'bad guys' of artifact collection. Despite this, governments, and non-governmental or-

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6   Including codes of ethics by the SAA (which differentiates responsible stewards from others), ASOR, the AIA (which notes that its statements should be taken as guidelines, and not rules), the RPA, and the SHA.

7   To those who believe that this is an overstatement, well known thinkers such as Appiah (2009) argue for a Cosmopolitan vision of archaeological ownership. In doing so, he argues that it might be detrimental for archaeological provenance to be required for ownership of sale, as providing that information would make it easier for those objects to be subject to antiquities trafficking laws.

ganizations traffic in antiquities, engaging in a dangerous and valu-able market for reasons ranging from seeking political or historical control to increasing wealth and prestige. Similarly, art dealers and museums don't use the archaeological definition of provenance[8]. Auction houses see provenance as the means to track ownership to be in accord with legal statutes for export, or to provide anecdotes designed to secure or increase a piece's monetary value. Museums generally see provenance as information to be provided in small print next to an artifact's display. Neither of these groups view provenance as providing context about the peoples the artifacts represent.

To complicate matters further, there are others, including the very people that live at these ancient sites, that cannot be categorized so easily as being on the wrong side of this universal story of good and evil, despite the fact they do not consider the archaeological position as correct. People who live at archaeological sites watch as their lands are taken away and then 'given' to archaeologists. These lands contain artifacts that the local landowners associate, whether rightly or wrongly, with their ancestors, and they see those treasures as their birthright, their property. They watch as foreigners come to their land, remove artifacts, and disappear. The locals are told that they are not allowed to have access to their artifacts, artifacts that could mean the difference between poverty and feeding a family, or even radically transforming a village. When the site's modern inhabitants are told that these artifacts are the property of the world, that they are things to be studied to understand a complicated spatial temporal landscape, they just see that another powerful group has managed to come in and take that which is rightfully theirs.[9]

Until relatively recently, the archaeological response has been, along with lawmakers, to penalize local diggers (Fincham 2009) along with the rest of the black-market system. Although these measures were done out of a sense of frustration, and with the intention of re-minding people of the universal need for the protection of archaeo-

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8   Cuno (2009) makes this point explicitly, arguing against archaeological accounts of provenance, arguing that we need to focus instead on policies that will ben-efit museum collection. A March 2024 article by R. Pogrebin of the *NY Times*, announcing that New York's Metropolitan Museum has just hired a restitution specialist from Sotheby's auction house to lead its new provenance research de-partment shows that this view of provenance continues, and that museum and auction house (and arguably the *NY Times*) ideas about provenance (focused on excavation dates and post recovery ownership) is radically different than the ar-chaeological focus on *in situ* context.

9   For a comprehensive introduction to these issues, see Kersel (2012).

logical heritage, these laws fail to separate predator from prey, doubling down on the injustice done to the very people whose land has been taken from them, land that was crucial to their survival, and ignoring those who really profit form the black market, large multinational black marketeers, museums, and private collectors who can hide behind the local diggers, and who are backed by legal and financial resources that make them untouchable.

3.1 Public Philosophy and Social Justice

Here, as in the epistemology section above, the lessons we learn from cognitive archaeologists provide us with another way to view this issue. Killin and Pain (2021) argue that the problem may again lie in our inability to leave behind our singular perspective. They believe that archaeology suffers from a focus on being WEIRD (Western Educated, Industrialized, Rich, and Democratic). Taking this claim seriously, the authors argue that cognitive archaeology, like the rest of the field, suffers from a sampling diversity problem. Just as it is easy (and wrong) to assume that everyone must share a unified cognitive evolution, we must break away from the idea that even idea(l) about the goals of archaeology must be unpacked, and not simply stated as fact.

Some anthropologists, archaeologists, and philosophers have shown just how damaging this WEIRD approach has been, and here, as above, by stepping outside of strictly archaeological contexts, public philosophers (and other specialists) can bring other perspectives to the conversation. In her publications and conference presentations (Kersel 2012, 2021) has focused on interviews with the very stakeholders who have been vilified by the archaeological community, proving that it is possible to fight for justice for local diggers and to simultaneously protect archaeological provenance from the real thieves, institutions who knowingly traffic in (and display) pieces of stolen archaeological heritage.

Another way into this problem focuses on messaging. To Krieger (2014), a part of the problem here is a lack of communication, both on the parts of the archaeologists and local diggers, but more importantly, on the part of a global audience whose ideas of archaeology are shaped by media outlets who do not know the difference between archaeologists and treasure hunters. When archaeologists argue that their position, that saving contextual information along with artifacts, is a universal value, they miss this important piece. Due to news stories and popular media accounts of archaeology, people generally as-

sociate archaeologists more with treasure hunting or as action movie stars who blow up sites than they do as careful scientists, and given that local landowners see archaeologists as foreigners removing artifacts from their ancestral lands, archaeologists are not going to find many allies among the people at large so long as they rely on legal strategies to keep other groups away from 'their' sites.

As discussed above, this lack of universal understanding in context is not limited to cinephiles or to local landowners. So long as collectors provide the demand, black-market organizations will provide a supply of artifacts, purposefully eliminating archaeological provenance to provide a fictitious 'bill of sale' provenance for the buyer. As distressing as this 'letting the market decide' position is to archaeologists, it is better that they hear it and that they see how other stakeholders view artifacts. These are the first steps to forming new alliances, repairing archaeology's image, finding ways to engage with those who see themselves as competitors to archaeologists, and then making the case for archaeological heritage as a universal value.

In fact, by moving outside of the mono-vocal archaeological perspective, archaeologists could do a much better job making their case for archaeological context. As Brodie (2010) notes, the short-term benefits of faking provenance may be outweighed in the longer term by having a market flooded with stolen artifacts. It might be to the current collector's advantage to strengthen provenance laws to protect her investments. Further, providing archaeological context could (given today's focus on indigeneity and ancient cultures) make an artifact more valuable. Rather than just paying to possess a shiny trinket, the collector might actually demand a true account of provenance, one that would both deter theft and (as importantly) change public perceptions of archaeology. Museum collections would change, oral and written histories would become integral to exhibits, and the public would have a better understanding of the cognitive, cultural, and religious (as well as the material) lives of our ancestors.

4 Conclusion

Although bringing others to the table is not something that philosophers are known for, in this context, public cognitive theoretical approaches are in a strong position to help mediate problems at the forefront of archaeology. Whether archeologists are engaging in mul-

tiple epistemic frameworks or are looking at archaeological problems through the lenses of ethics and social justice, public philosophers can provide an added set of tools to the standard pack archaeologists bring to the field. As public humanists and scientists, we must reach outside of our theoretical circles to engage the larger archaeological (and non-archaeological) community.

Critical, self-reflective reviews of archaeological practice (like Jaggar's 1989 review of scientific practice) can give more people seats at the archaeological table and will allow for multiple perspectives to be discussed (simultaneously) as data are remixed, preconceptions are reevaluated, and artifacts such as napped flints, grave goods, cave paintings, and musical instruments are used to hypothesize about our cognitive, ideational, and psychological pasts.

Wherever we have archaeological remains, if we can break from the rigidity of early processual thoughts limiting what those traces can show us, cognitive archaeologists do not suffer from a lack of data. "Human action is intentional action: Subsistence is not decoupled from the cultural or cognitive. Given this, any human remain will in principle carry with it rich information about the local and idiosyncratic culture and cognition underwriting it. The trick is to decode that information." (Currie and Killin 2019). Our goal should be to do just that, employing multiple models and asking others (whether they be from academic, indigenous, or other sources) to challenge our assumptions. These groups will aid us in identifying our biases and will help us to engage in metacognition (to think about our thought processes) as well as to help us make better decisions about what we should value (intellectually as well as socially).

Acknowledgments

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Noel E. Boulting
noelboulting@clara.co.uk

ON THE SEMIOTICS
OF CULTURAL HERITAGE

Abstract: Do different perceptions of an item of cultural heritage correspond to different ways of appropriating the past? Or is it, rather, that such kinds of appropriation derive from different strategies adopted by those interpreting it? Elsewhere, by making use of Peirce's semiotic theory, it has been argued that interpretative activities can take one of three forms. The most basic is an Iconic form of interpretation. Here something can be valued for its own sake as an artwork can be an end in itself and is significant for a person's individual experience—as in the case of a sacred or tabooed object—where different possible ways of regarding the object can be enjoyed. Consequently, the experiencer can be drawn into a world imagined making sense of why and how it was created, an experience where the distinction between the experiencer and the object may be dissolved to yield perhaps an aesthetic, sacred, or even religious awareness of the item concerned. The Indexical form of interpretation focuses upon an item's extrinsic value, pointing towards what exists beyond that item itself. Now instrumental rather than intrinsic value comes to the fore since the item is regarded as the outcome of creative processes and is thereby available for use in a public world, either as something to be sold for hard cash or as something that can be used for human purposes. The Intellective form of interpretation can mediate between these two interpretative dimensions. Its significance lies in the way thought is conveyed "to a mind" as an idea "about a thing", namely, about this item of cultural heritage. It initiates the idea of understanding such an item by seeking to place it within a cultural context of its origination within some given society. Thereby it might serve as a source of information—to be extracted by academically approved methods—so as to tell us something about the nature of such a society. Given these three interpretative strategies, how do they relate to each other? This concern will be illustrated by considering issues arising from excavations that have taken place at the Sutton Hoo site. But an answer to this question may throw light on the further issue as to how it might be possible to ascribe a specific kind of value to an item in such a way as to render it a more worthwhile consideration than its rival.

Keywords: cultural heritage, cultural artefacts, form of interpretation, C. S. Pierce, semiotics.

1 Introduction

The motivation for this paper was driven by the following considerations. The first lay in exploring the basis of the disagreements for interpreting cultural artefacts at Sutton Hoo in Suffolk. The second by a remark made by one of the speakers overheard at the Conference entitled: *Anglo-Saxon Landscapes—Real and Imaginary*: "It does seem odd to have a Conference on Archaeology where so much emphasis is placed on words."[1] Such a remark may indeed reflect an "epistemic anxiety" in regard to archaeological reasoning. (Riberio & Ion, 2022, p 26)

In order to explore these considerations, in relation to the way in which cultural artefacts can be interpreted, an appeal will be made to Peirce's semiotics. That is because three ways in which cultural artefacts might be interpreted emerged during that Conference. Once an account of Peirce's semiotics has been outlined and three difficulties in its application have been articulated, its practical value can be illustrated by explicating how a landscape can be viewed semiotically. His semiotics can be used to assist in interpreting objects of cultural heritage. Hoo environments in which discovered objects, in an area significant for Anglo-Saxon explorations in the Sutton Hoo environment, can be cast in one of three ways.

2 A Peircian Semiotic Approach and Some Problems

Peirce's semiotic theory can be set out by considering his distinction, articulated in 1908, between signs and interpretants: "I define a *Sign* as anything which on the one hand is so determined by an Object and on the other hand so determines an idea in a person's mind, that this latter determination which I term the *Interpretant* of the Sign, is thereby mediately determined by that Object. A Sign, therefore, has a triadic relation to its Object and to its Interpretant." (CP 8.343) Elsewhere, these three Signs are labeled Icons, Indices and Symbols (EP 2, p. 13) but in 1908 the first is characterized as the *Immediate Object* "... or the Object as the Sign represents it" whilst the second, an Index, is referred to as "...the *Dynamical Object*, or really efficient but not immediately present Object." Symbols are not referred to here and that may be because in 1894 Peirce remarked: "The word *Symbol* has so many meanings that it would be an injury to the language to add a new one". Yet he claims he is not introducing a new meaning but rath-

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1   Saturday, 16th. October 2004, Royal Hospital School, Holbrook, Ipswich, Suffolk

er returning "…to the original meaning." (CP 2.297) In 1903 a *Symbol* was defined as a rule-governed representation[2]: "A Symbol is a law, or regularity of the indefinite future." (CP 2.292)

Given this distinction between different kinds of signs or representations, Peirce distinguishes three kinds of Interpretant: "…the *Immediate Interpretant*, i.e., the Interpretant represented or signified in the Sign" which is separated "…from the *Dynamic Interpretant*, or effect actually produced on the mind by the Sign, and both of these from the *Normal Interpretant,* or the "…effect that would be produced on the mind by the Sign after sufficient development of thought." (CP 2.843) So, as Carl Hausman put it: "For a sign to be meaningful it must function in a triadic relation in which sign and object interact with interpretation." (Hausman, 1997, p. 9) The sign thereby stands for an object and gives rise to an interpretant so that what mediates between that interpretant and the object is a sign.

3 Three Problems in Interpreting and Applying Peirce's Semiotic Theory

A start can now be made on examining some problems raised in considering Peirce's semiotic theory. First of all, given this reduced sketch of Peirce's semiotics, it is not clear what is meant by claiming that his "doctrine of Synechism underlies Peirce's more well-known concepts." (Baron, 2021, p. 189). In searching for a new list of categories—I, IT, THOUGH in 1861[3] as an example—Peirce did come to establish his theory of signs in his 1867 paper "On a New List of Categories" where he distinguishes *Likenesses* from *Indices* and both from *Symbols* (CP 1.588). There is no reference to the doctrine referred to as Synechism and a concern for a sense of continuity appears only in discussions of Zeno's paradoxes. Furthermore, from a Whiteheadian perspective, there is no continuity at the level of actualities, though there is for potentialities. Such an attack on Peirce's doctrine in no way affects his semiotic theory and even if his Categories doctrine-Firstness, Secondness and Thirdness—were to be revised "Peirce's use of his categories in the theory of signs" would not be "diminished

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2   "A *Symbol* is a Representation, whose Representative character consists precisely in its being a rule that will determine its Interpretant." (CP 2.292).

3   C.S. Peirce "I, IT, and THOU" *Writings of Charles S. Peirce: A Chronological Edition* Vol. 1 Peirce Edition Project, Max H. Fisch (et. al.) Bloomington: Indiana UP 1982, pp. 45–46.

in value by" any proposed revision. (Hartshorne, 1980, p. 283) Again, it is disputable whether Peirce was Pragmatism's father. (Baron, 2021, p. 189) That accolade might be better attributed to its staunch advocate William James. In defending Pragmatism as a doctrine for philosophy, especially in view of criticisms of it by Bertrand Russell, James emphasized the practicality and usefulness of ideas, suggestions and human actions in the world. Peirce even spoke of James as the person who "first took it up" despite his admission that he, Peirce, had invented the word Pragmatism, yet coming to recognize that the term had been made subject to abuse; namely "that a conception is to be tested by its practical effects." In response, Peirce referred to his own doctrine as Pragmaticism, a term "…ugly enough to be safe from kidnappers.": "Consider what effects that might conceivably have practical bearings you conceive the object of your conception to have. Then your conception of those effects is the WHOLE of your conception of the object" (CP 5. 414 & 422)

A second problem arises from the way Peirce's semiotics might be employed in dealing with philosophic problems. Part of this is due to the possibility that Peirce may have become more tender-minded towards the artist's sensibilities after 1893 given his earlier concerns for the importance of science.[4] So Anderson applies Peirce's semiotics to distinguish metaphors in art from those in science; "with creative metaphors, the poet expresses artistic hypotheses". (Anderson, 1984, p. 466) He cites Rousseau's metaphor 'the smiling field' where the feeling is central, signifying the creation of an icon referring, if at all, to its own creation to render a self-signifying iconicity constituting a metaphor that is isosensic. In science, however, the scientist expresses scientific hypotheses through isomorphic expressions to elicit "…likenesses, which are the very hinges of the gates of their science. The utility of likenesses to mathematicians consists in their suggesting in a very precise way, new aspects of the supposed state of things." (CP 2.281) For a created metaphor in artistic creation, the resulting isosensic self-created entity is equivocal; "vagueness is appropriate for creative metaphors" because the feelings are "notoriously vague" or "imprecise". (Anderson, 1984, pp. 462 & 465) Alternatively for isomorphic expressions, the character or quality of resemblance is univocal. (An-

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4   Peirce admitted in 1905 that his own life had exemplified the experimentalist type, namely as having the disposition "…to think of everything just as everything is thought of in the laboratory, that is, as a question of experimentation." (CP 5.412 & 411); cf. N.E. Boulting *On Interpretative Activity* Leiden: Brill 2006 chapter 1.

derson, 1987, p. 69) Because Haley finds Anderson's case unconvivial, he speaks of a continuity between creativity in science and creativity in art. Now it would have to be shown that Haley does this since he is not satisfied with the idea of a metaphor having 'merely' an Immediate Object as a referent as opposed to a Dynamical one (Haley, 1989, pp. 24-5),[5] a consequence of Anderson's stance (Anderson, 1987 p. 75; cf. 1984, p. 458). But to pursue this debate further would be beyond the scope of this paper. The important lesson is that Peirce's semiotic theory does not provide a one-way ticket as to how it can be applied in solving any particular philosophic problem.

A third problem arises out of the fact that we enjoy or endure peculiar times. As human beings living in an advanced technologically orientated culture, we are bombarded with slogans, messages, and a mass of information, which can befuddle consciousness. (Indeed, it seems as if the more information we receive the less a capacity can be exercised to make sense of it all. (Weil, 1968, p.80; cf. Boulting, 2022, Ch. 3)) There is little place for reflection upon the significance of such stimuli, nor for considering other ways of interpreting them since the question will be posed 'What is the use of that? We need to get on and do something!' Hence a possible meaning of the remark made about words at the Conference referred to earlier. In semiotic terms, "the indexical meaning of things" (Ransdell, 1986, p. 243) controls the contemporary human condition so that other ways of viewing objects and events are undermined. Indeed, it can be argued that the academic system itself "…is more generally administratively fuelled by neo-liberal values of 'usefulness' reflecting the logic of a culture" (Stutz, 2018, p. 53) where the doctrine of scientism is taken for granted. (Boulting, 2015 & 2020) And if there is some truth in such claims, then archaeologists for example, may have to be on their guard against the possibility that this way of experiencing—characterizing people living in the 21st century—is not projected upon those who lived in a previous age. In response it is necessary to acknowledge "…that semiotic ideologies can actively create, contest, assemble or dissemble material worlds". Thereby "…the limitation of thing-centred approaches that discount various representational practices, including symbolic acts" can be recognized." (Swenson & Craig, 2021, p. 325)

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5   (…) *we have to distinguish the Immediate Object, which is the Object as the Sign itself represents it, and whose Being is thus dependent upon the Representation of it in the Sign, from the Dynamical Object, which is the Reality which by some means contrives to determine the Sign to its Representations* (CP 4.536).

4 Viewing a Landscape Semiotically

Before plunging into issues relevant to possible uses and abuses of cultural heritage, however, let us, for the moment, simply single out one element within discussions concerning our appropriation of the past. By considering our human perspective upon what we regard as landscape, the three interpretative strategies, identified, above, can be illustrated. Consider someone visiting Kimmeridge Bay, west of Swanage in Dorset, UK, for the first time. (cf. Boulting, 2006, p.6) Attention, at first, could be drawn towards fires, seemly to ignite spontaneously on the tops of its surrounding cliffs; the value of this place could be regarded as lying in the oil which can be located here: an *indexical* perspective. Someone, less instrumentally inclined, might be attracted by the play of the cliff-tops shapes, the way the sun illuminates them throwing shadows on the curved line of the beach below them. An *iconic* experience would then be enjoyed by contemplating this picturesque scene. For someone interested in geology, the curious rock structures may incite a reflection on the way these different rocks relate to each other to generate conjectures about their age and their relation to other geological formations in this area. Such a cognitive perspective would be a *rule-governed representation.*

It might be argued, however, that the view of Kimmeridge Bay just explicated, would posit nature as separate from society, so that such a specular view[6] results in a perspective upon the environment "that saves and purifies nature by eliminating the social, including local histories of human activities upon it." (Vandergeest & DuPuis, 1996, p. 14) In other words, the landscape is thereby "seen as a fixed objectifiable and measurable description of a surface which is not affected by the project of its representation and remembrance." (Kütchler, 1995, p. 104) This kind of objectification seems to apply whether landscape or the natural world is regarded "as a set of morally neutral processes" to be regarded cognitively or in a *rule-governed representation* as something to be controlled; romantically, given a kind of *iconic* perspective, as something sacred or opposed to being regarded for secular purposes alone; *indexically* as referring to some very old 'natural economy' undone by the 'immoral' advance of capitalism (Vandergeest & DuPuis, 1996, pp. 10-15).

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6   A perspective on something which is enframed – looking through a windscreen, a window, a reflection in a mirror—or seeing something created for the screen; the computer image or television. The term 'specular image' refers to what is created by this perspective. (Boulting. 2003, p. 299ff.)

Yet it can be demonstrated that even those living within what can be described as "lived landscapes" —"relational entities constituted by people in their engagement with the world" (Thomas, 2001, p. 176)—as 'insiders', they too may come to regard and interpret their landscape in different ways. Elsewhere, Christopher Tilley's simplistic dichotomy, between an objectivist view and experiencing a landscape more phenomenologically (Tilley, 1996), has been opposed. Someone can use their landscape to grow crops, ensure washing dries in the wind from a line, or secure proper fencing not only to protect some prized vegetation but also to distinguish that plot of land's ownership without employing necessarily an aesthetic dimension upon what is done in one's own backyard. Someone else may be excited by the long grass movements incited by a variable wind, straight furrows in a ploughed field or the shape of the hills within which they are enfolded. Or, from a cognitive perspective, another person may be interested in how inherent values[7], inspired by this locale, have been objectified in writings about it in the past. (Boulting, 2003, Ch. 6)

Now in the recognized literature, the indexical conception has been identified with the idea of landscape as a mark of or place for significant human actions. In this context, the phrase 'landscapes *of memory*' is employed to capture the significance of landscapes within human history where place names, for example, might "record the actions of human agents who played a role in transforming the country". (Bender, 1995, p. 14) This indexical standpoint contrasts with the iconic to signify 'landscapes *as memory*', important because of their spiritual significance, perhaps because certain holy, ancestral occurrences have occurred there and/or because such places were thought to possess some incorporeal influence relating them to "a cosmologically defined view of the world", "symptomatic of indigenous cultures." (Küchler, 1995, p. 86; cf. Munn, 186, Ch. 4) Thirdly, a rule-governed representation is manifested in "landscapes *for memory*", "futural" in their significance. (Thomas, 1995A, p. 32) In this case landscapes, with their associated artefacts and other such human markings, "assume a projection forward of social relationships, and often seek to influence the character of connectedness between past and present (Battaglia, 1990, p. 6)". So, given tomb formation in a land-

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7   *These values we cherish as citizens express not just what we want collectively but what we think we are: we use them to reveal to ourselves and to others what we stand for and how we perceive ourselves as a nation. These values are not merely chosen; they constitute and identify we who choose.* (Sagoff, 1984, p.175) For arguments used to distinguish instrumental from intrinsic values —the latter referring to inherent, innate and internal values —see Boulting, 2003, Ch. 12

scape, as found in County Sligo's landscape in Ireland, that landscape manifests what can be referred to as constituting a 'sacred geography'. (S. Bergh, 2021, p.9) Thereby Tilley argues that prehistoric monuments or tomb constructions are "events or happenings of *thought*" maybe representing rather perhaps "a will to dominate and control nature" (Tilley, 1995, p. 80) for the future.

In identifying how such distinctions have been elucidated, however, we may have over-reached ourselves in regard to artefacts created in a landscape setting. For the moment it is sufficient to point out that the standpoints indicated so far may not be co-compatible in the way it might have been implied they are in the way so far described, either from the standpoint of those living in them or for those seeking to make sense of them. In the former case, Julian Thomas—in referring to the work of Veronica Strang—points out that the conception of the Cape York Peninsula in Australia resonates in different ways for the Euro-Australian cattle herders as opposed to members of the Aboriginal community. For the former, the landscape may be regarded as "a hostile and dangerous wilderness" in an indexical sense, so cognitive strategies will have to be employed to control what happens within such an environment. Such a rule-governed representation would be an anathema for the Aborigines since for them each aspect of their landscape would be distinct, embodying ancestral beings. Thereby a conception of human life extending "between places of special spiritual potency which bring about birth and death" would be generated. Their *iconic* standpoint would not embrace a Western *indexical* conception since they can be claimed to be doing nothing with the land in order to accumulate wealth, (Thomas, 2001, p. 176–7) even if they use it to grow crops for themselves.

5 A Semiotic Approach applied to Objects of Cultural Heritage

So far, we have distinguished a way of casting a Peircian point of view. Three different ways have been identified in which an environment can be transformed by the manner human beings work upon or come to view it as a landscape, encapsulating certain values from an *indexical, iconic,* or *rule-governed representative* standpoint. Such a stance may enjoy certain family resemblances to what is regarded as object-orientated, archaeology (cf. Witmore, 2023, pp. 279–308) but without endorsing a particular kind of ontology. Yet in relation to ob-

jects of cultural heritage, problems of interpretation are considerably multiplied. After all, research expectations and preformed interpretative models apply and serve to analyse archaeological remains. (Swenson, 2018, p. 350) Moreover, unlike landscapes, objects of cultural heritage are more than transformations of what is found to be natural in an environment. Rather, human beings, through their own creative activities, produce them. And given the temporal distance[8] between our own culture and that of their creators, we can't be sure of knowing the nature of those imaginative processes creating such objects. Are these processes to be understood iconically, expressively, materializing what Geertz calls "a way of experiencing", perhaps incited by the idea that an artist, such as Matisse, could not separate the feelings he had towards life from the way he represented them in his creations? (Geertz, 1997, pp. 112 & 110) Given the danger of "overdetermination of facts by interpretative frameworks" (Parker Pearson, 1995, p. 205) may we not project upon some other culture's artefacts our own commonly accepted *indexical* standpoint, a problem referred to earlier? Thereby how conceptual precedents have "…dominated logical thinking for generations" being "based upon *a priori* sense of purpose, direction and use-value" (Lucas and Witmore, 2021, p. 65) would be generated. Consider Bloch 'reading' carvings on wooden buildings located in Madagascar in terms of their "functional role". (Hodder, 1999, p. 75) Might not such carvings signify a house's social importance rather than their expressive import?

Such a charge would, however, appear unfair for at least two reasons. The first would be that his argument would have to be considered in the way he makes his case (cf. Bloch 1995A).[9] Secondly, in his article "Questions not to ask of Malagasy carvings", he does honour the possibility of offering an *iconic* interpretation of the activities of a group of people; the Zafimaniry. He suggests that the carvings were created in order to 'honour the wood'. Thereby beautifying the wood: carving "'honours' the hardness of the heartwood and makes it even more evident and beautiful." For Bloch, such honouring becomes embodied in their sense of the indexical, since the beautifying of a house through such carvings is to be identified with "the continuation and magnification (as in *magnificat*) of the growth and success of the couple transcending the impermanence of life." (Bloch, 1995B, pp. 214–5)

8   If that phrase can be used without invoking what Bergson originally referred to as the spatialization of time (Boulting, 2022, p. 60).

9   "My first reaction and interpretation was to assume that the landscape was apprehended by the Zafimaniry in a purely utilitarian manner. I soon became aware, however, that this was quite wrong." (Bloch, 1995A, p. 65).

6 Problems with respect to Interpreting more Ancient Artefacts

In the case of these carvings, we have been discussing, they existed in a culture different from that of our own. Yet they exist in our own time. Thereby archaeologists do "…not discover the past as it was; archaeologists work with what has become of what was; what was, as it is, always becoming." (Olsen, 2012, p. 4) But what about a situation where we have no access to a particular culture as such, separated from us by nearly 1,500 years? So, for example, if a sword is found within an Anglo-Saxon inhumation, and if objects—whether natural or cultural"could incorporate the qualities of their owners", (Gurevich, 1972, p. 46) might not the conjecture be incited that from an *iconic* standpoint, the courageous spirit of the buried person had been celebrated. But this possibility is over-ridden by Härke, not by an *indexical* dimension—suggesting that the buried subject was a courageous warrior who had lost his life with honour—but rather from a *rule-governed representative* perspective. So, the inhumation "was furnished with weapons in order to display the status of a family which was of German descent and whose status was also linked to greater disposable wealth." Härke can offer defences for his position, one of which he does articulate specifically: the shift from warrior admiration to social status: "the transition from achieved to ascribed status in Anglo-Saxon society happened in the seventh century" (Härke, 1994, p. 155).

Furthermore, as we have seen already, the iconic and a non-modernist conception of the indexical are not polarized for such cultures as they are for us today: the person's inhumation may celebrate, at the same time indexically, that he was courageous and that such courage was manifested in his being a warrior. Thirdly, an ascribed status might be opposed to an achieved one, the former having nothing to do with something the subject achieved in his or her own life. Rather, in the transition into the seventh century, the family status might have included the courageous quality of a human being as well as a warrior status. But Härke gives the impression that such a status was rendered independently of either in order to impose a social significance upon the then existing culture and for its future development: an ideological matter.

7 The Case of Sutton Hoo

William Filmer-Sankey, however, in examining graves at an Anglo-Saxon cemetery some ten miles northeast of Sutton Hoo, in the UK,

though not denying that "status may be signalled by the contents or layout of a pagan Anglo-Saxon grave" argues that "the more powerful signals of religious belief" may be more relevant. A tripartite analysis for the significance of variations with respect to religious belief is then listed. Iconically, individual and even family preferences "for a specific family of gods" may be celebrated in these boat graves. From an indexical standpoint, however, it could be that "ethnic origin" is the important referent signalled by such boat graves or wrist clasps associated with them (Filmer-Sankey, 1999, p. 49). Martin Carver forwards a more rule-governed representative interpretation, at least as far as Sutton Hoo is situated: the site represents a defiant gesture against Morovingian Christianity by Wuffa and his successors, "cremated", thereby "giving a nod to their political mentors across the North Sea" (Carver, 1999, p. 366). Carver keeps his distance from deciding which of the Kings may be buried there, whether Raedwald, Eorpwald, Sigeberkt or Ecgric, even if he favours Raedwald. Again Filmer-Sankey too sustains an agnosticism as to which particular stance – whether iconic, indexical or rule-governed representative in character – best favours how choices "must reflect first and foremost the religious beliefs of the buriers and the buried" (Filmer-Sankey, 1999, p. 49) is best interpreted.

Carver's rule-governed representative approach, however, does not prevent him from employing an iconic perspective. So in referring to Mound 17 at Sutton Hoo, he speaks of the burial of a person, which "conjures up a heroic image worthy of a young Siegfried." After referring to items associated with horse dressage found in that human burial, Carver speaks of a young person's "early death", "mourned through the evocation of every young man's dream: to ride out well-equipped on a favourite mount, on a sunny morning, free of relatives, free of love, free of responsibility, self-sufficient and ready for any adventure." (Carver, 2002, p. 113)

Sam Newton, adopting a more indexical line, rejects the idea of providing such a "good story" (Carver, 2002, p. xii) to provide some kind of illumination upon the findings of Sutton Hoo. Indeed, he specifically opposes what he thinks is implied by Carver. So he rejects the idea that the 6th. Century burial mounds at Gamla Uppsala in Sweden – the Inglinga's traditional burial place – associated with mass sacrificial hangings of human beings and animals, as "reported by the missionary Adam of Bremen", thereby such mounds could have any significance at all for interpreting the 7th. century landscape at Sutton Hoo (Carver, 2002, p. 56; Newton, 2000). Moreover, Parker Pearson has

challenged Carver's strategy: other places in south-east England—in Oxfordshire, Buckinghamshire, and Essex—have boat-associated burials; "(a)spects of dress style are unique to Southern England". Carver's 'culture history' paradigm assumes that Sutton Hoo was not placed at the edge of a kingdom but at a 'central place'; an unjustified assumption. So, Saebert – son of Sledd and the sister's son of the king of Kent, Aethelbert[10]—as an East Saxon king—appears to be the more likely candidate rather than any king associated with East Anglia since the selection of grave goods, appearing in threes, may suggest the funerary gifts of three sons (Parker Pearson, 1995). Such speculations might be supported by Tom Williamson's argument concerning Sutton Hoo's geographical context. A major watershed divides Norfolk and Suffolk into two broad areas,[11] to initiate topographic constraints influencing Anglo-Saxon cremation cemetery distribution. Again, Scandinavian place names, even though thinly distributed in Northern East Anglia, disappear entirely towards the south. In eastern and northern Suffolk along with Norfolk, the inhumation and cremation of the dead occurred, reflecting practices in North-Eastern England and the Midlands, whereas in the rest of Suffolk and Essex, only inhumations took place, mirroring practices in Southeast England (Williamson, 2005). Sutton Hoo, then, might appear to be at the boundary of these two zones.

8 Difficulties with an Iconic Perspective

So far, we have been concerned with the problems associated with adopting a rule-governed representative mode of interpretation. But when we consider an iconic perspective, we have a series of more serious problems. These problems arise when considering the issue of whether we are speculating about the way cultural objects may have originated or with respect to the manner in which we are to interpret them. Let us consider the origination problem first.

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10   *Aethelbert was married to Bertha, a Frank. As a favoured sister's son, whose maternal uncle was married to a Frankish princess, Saebert was just the man to have had access to elite alliance systems in Europe and the gifts which cemented them.* (Parker Pearson, 1995, p. 207)

11   *The distribution of 'Anglian' material corresponds to the drainage basins of rivers draining into the North Sea, and fades out abruptly as the watershed is reached, beyond which river systems drain south to the Thames and the English Channel, or westwards to the Irish Sea.* (Williamson, 2008, pp. 2-3)

We have already noted, in relation to Maurice Bloch's analysis of the way the Zafimaniry beautifies their homes, the way in which the iconic dimension is embodied within the indexical in their home carving. A distinction of Peirce between his *logical* and *analogical* account of the nature of icons can prove useful here. For his logical account, an Icon is "a sign whose significant virtue is due simply to its Quality" (CP 2.92) compared to an Index. The latter's significance lies in its genuine relation to an object, or a Symbol, whose relevance is achieved through an Interpretant. On this *logical* account, an icon "…is a representamen which fulfils the function of a representamen by virtue of a character which it possesses in itself, and would possess just the same though its object did not exist" (CP 5.73). Bloch was tempted by this idea of the Iconic in considering the possibility that Zafimaniry homes' beautification through carvings represented nothing: "'there is no point to it'", "they were pictures of nothing", "they honour the wood" (Bloch, 1995, pp. 212-4). But this gave way, in his analysis to what can be called an analogical account of icons.

An *analogical* sense of an icon invokes some kind of qualitative similarity between the icon and something else so that such an Icon is a "diagrammatic sign" manifesting "a similarity of analogy to the subject of discourse" (CP 1.369). Peirce gives the example of a centaur's shape which might be embodied in a statue "whether there be a centaur or not" (CP 6.73). On the *logical* account, then, a feeling of "red" "is necessarily an icon" but a portrait is not whereas, for the *analogical* account, a portrait would be regarded as an icon (CP 6.336). Stephen Driscoll might be said to have used such an analogical approach to icon employment in identifying a "generally under-valued group of stone monuments". These may not be treated in indexical terms as say stones regarded as serving as inhumation burial markers located under round or square cairns. Rather, the former are to be located in what was Pictland in various places: "incised on stone slabs, carved into living rock faces and scratched on cave walls." For these reasons Driscoll identifies such stone creations in terms of what he calls "ceremonial contexts" citing "bull figures from Burghead and East Lomond" which may have been linked to fertility rituals. Driscoll wants to regard past social agents, as Bloch regards the present Zafimaniry people, as employing "a range of non-verbal expressions to negotiate their daily lives, as has been well documented for clothing —and folk housing." (Driscoll, 1988, p.226 & 219) Similarly, a stone or a stone cluster in a Gawan "garden may contain the spirit (*balouna*) of a dala ancestor." (Munn, 1986, p. 81) In the same way, Arnold cites the

case of women's' rich graves of the 6th. the century which, in contrast to those of males, are non-utilitarian: "richly decorated dress ornaments"; "a key and a coin"; "perforated spoons and crystal balls." Are "the privileges of privacy" and "the protection of self and property" (Arnold, 1998, p. 115) celebrated here?

Yet what is the warrant for such an Iconic strategy which might regard cultural artefacts as celebrating the very significant myths, constituting the creator's own origins? Tilley suggests the answer lies in "our own personal experience of architectural and environmental space and the way they play off each other to create a distinctive sense of *place*." (Tilley, 1995, p. 57) Williamson characterizes this iconic standpoint by referring to an attempt to interpret ancient monuments and their landscape contexts in relation to "…how these might have been experienced by contemporaries: it attempts, that is, to reconstruct not simply the physical world of the past, but also the emotional, psychological and spiritual values which people placed upon it." (Williamson, 2008, p. 1) On the other hand, Julian Thomas wants it both ways. On the one hand, invoking what I have called an iconic standpoint, it can only provide "a basis for understanding" how far past social agents "may have been unlike our own" whilst, on the other, claiming that in encountering monument sites we are "entering into the same set of material relationships in which people found themselves in the past, in order to produce our own interpretation" (Thomas, 2001, pp. 180-1)

Do we have an alternative strategy ready to hand? We have already indicated an indexical alternative in its dismissal of 'likely' or 'good stories'. In that case, archaeology must be understood as "a series of technologies for the extraction and treatment of data", whose goal is "the progressive uncovering" of "hidden" but "self evident" truths. Excavation is seen as the paradigm for archaeological activity, which is mirrored in its practice in miniature: the laboratory for fact discovery. Other techniques, "lithic technology, ceramic analysis, draftsmanship, field survey" and so on can be "considered as parts of a battery of approaches which can be used to develop an ever more complete picture of the past." (Thomas, 1995B, pp. 350-1) Ignoring for the moment the difficulty in the way "…the propagation of different media modifies the nature of archaeological work" (Witmore, 2009, p. 529)—even if such approaches may be suitable for explaining the nature of objects or indeed fossils in the natural world—they seem insufficient for understanding how such entities, never mind created artefacts, "intervene in the process of social life." In other words, it

seems impossible in relation to interpreting them, to consider them other than as entities that initiate texts, narratives or stories with respect to those who created them and for us today in interpreting such creations. In either case, however, such entities "fit into this structure of narrative by being engaged in or encountered in the course of human projects." (Thomas, 1995C, p. 211) Our problem, however, lies in the fact that the human project, in which such artefacts came to be created, is markedly different from the way in which they may be interpreted today.

Given all this, and Julian Thomas's insight that created artefacts and other "things in the world are always experienced-as, through a structure of pre-understanding" (Thomas, 1995C, p. 211), the interpreter has to construct a conception of what is regarded as such an artefact and can't help but regard it "from the point of view of his or her own time". In this way a rule-governed representative strategy is acknowledged, throwing doubt upon the conception that it is possible somehow "to 'resurrect' the past", "to 'live themselves into it'": "The historical source is not a kind of 'window' through which it is possible to glimpse historical reality. The source is not transparent and unblurred, but it takes a great effort on the part of the scholar to penetrate its meanings, for it is a 'prism' that refracts the 'rays' coming from the past according to its own complicated structure." (Gurevich, 1995, p. 160)

Nonetheless, Tilley argues that if such artefacts or monuments can be seen within the context of their own setting, "its siting determines how that setting appears to an observer" thereby establishing "a stable framework for viewing the world". But are such settings to be understood in a rule-governed representative way, futurally "to create specific experience effects on populations entering, coming out of and moving around them" (Tilley, 1995, p. 81)? Or are they to be grasped iconically as celebrating the past being "constituted in the present" (Parker Pearson, 2000, p. 248) as in ritual communication? Thomas offers the suggestion that they can be understood from both perspectives. Quoting Battaglia, with respect to Neolithic cultural innovations, artefacts can be regarded as "'vehicles for the active reconstruction of remembrance, lending that inherently fluid process an aura of stability'". Yet, at the same time, they can be cast as "a projection forward of social relationships" seeking thereby "to influence the character of connectedness between past and present". (Thomas, 1995A, p. 32) Such a stance can be regarded as emphasizing the way, for example, how County Sligo's prehistoric heritage will be realized in the future. (S. Berg, 2021, p. 2)

9 Conclusion

In this paper, three possible forms of interpretative activity have been considered: the iconic, the indexical, and the rule-governed representation. Using the possibilities suggested by the relationship of landscape to memory, the iconic dimension was characterized in terms of something qualitative—for a '*landscape as memory*'—thereby regarding cultural artefacts as **expressions** of a form of life manifested in the spatial area where such artefacts were located. The indexical strategy focuses upon what such artefacts can tell us causally about the place where they are found and the people who made them, **indicators or markers** then within a culture embedded in a '*landscape of memory*'. Employing a rule-governed representative approach would enable a viewer to appreciate artefacts created in the past as **culturally embodied** meanings created in a '*landscape for memory*' for those coming after such a culture had passed away. Thereby a vision for inheritors of this spatial area would be initiated, thereby placing "(...) intuition, emotional allure and tacit engagement with things on the same footing as any intellectual rationale for the discipline" archaeology (Olsen, 2012, p. 4).

It might still be objected that such a semiotic approach objectifies what is experienced, regarding artefacts and their place within some location in a distancing fashion. However, it was argued that a serious employment of an iconic strategy could negate this difficulty. Nonetheless, even those living in such an environment ready-to-hand might not exercise such a perspective upon their own landscape. Indeed, it can be argued that John Clare expressed in his poetry this tension, even a shift from the insider vernacular experience of a sense of place to a more distanced specular view characterizing "an elitist aesthetical" perspective (Bender, 1995A, p. 2). But this in no way implies that someone working on the land today necessarily views it as a natural world embodying "human analogy and symbolic meaning" thereby sustaining a sensitivity to human behaviour cast in a symbolic or spiritual sense (Bender, 1995B, p. 259) as might have been the case for people prior to Clare's own time.

What such an objection reveals is that before modernism's headlong development, the indexical was entwined with the iconic. Difficulties were then revealed for contemporary interpreters such as Maurice Bloch. Three difficulties arose in relation to understanding artefacts in a different contemporaneous culture, never mind those created 1,500 years ago such as objects excavated at Sutton Hoo, hav-

ing "lost their contexts when chosen for the grave." As Jane Roberts, referring to a possible musical instrument, remarks: "Its presence in the hoard at Sutton Hoo bears witness to lost happiness (*dream, gomen, gliw*), an abstraction that is not to be found in the soil." (Roberts, 1999, pp. 185-6) To assist such a non-utilitarian understanding, a distinction was drawn between a logical analysis of an icon—regarded in its purest qualitative senseand an analogical one. To see an indication of a Saxon instrument as expressing something Utopian is to see it in analogical iconic terms, and such an approach was shown to have application in understanding past cultural artefacts placed within special spatial positions. And despite the difficulties in adopting such a strategy—whether the iconic dimension can be separated from the indexical besides the issue as to how any kind of experiential affinity, between those who created such entities and those interpreting them today, can be assumed—an absolute recourse to the indexical alone—fact discovery—cannot really be secured. This is because it is not possible to identify such bare 'facts' readily since they are always elicited within some conceptual framework, either acknowledged at the level of intention or simply taken for granted unconsciously at an intensional level.[12][11] Consider Martin Carver's remarks, in comparing Saxon words constituting their language and "the language of things" to be found at Sutton Hoo. He argues that, for the latter, "the trajectory from encounter to understanding will be a long one, and digging is only the beginning" (Carver, 1992, p. x) as opposed to an obsession with simply getting on "(...) with the empirical work that needs doing." (Wylie, 2017, p. 118) Hence his scepticism towards a straightforward indexical approach to the ship burial in Mound 1 at that site which "(f)ar from being hard evidence for the reality of the heroic world of *Beowulf* " is akin more to "a heroic dirge declaimed in a theatre of death, which (assuming we can read it) carries all the aspirations and agonies of the Anglo-Saxon political soul in transition." (Carver, 1999, p. 350) But to forward such a rule-governed representative strategy, in embodying the indexical and iconic perspectives within the interpretative activity, implies regarding non-verbal communication through created artefacts as akin to verbal communication. Whilst the latter may provide "a window onto the human mind", the former can be in-

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12   Margolis defines the intensional: "It designates any form or structure of meaning, significance, sense, symbolic or semiotic or rhetorical or similar function or role assigned to a suitable vehicle (a sentence or semaphore signal or artwork or action or custom or text—or thoughts, if thoughts may be singled out.)" (Margolis, 1995, p. 13; cf. p. 48 for the contrast between the intensional or the extensional.)

terpreted expressively, indicatively or as culturally meaningful in providing illuminations upon human community organizations in the past. (Richards, 1999, p. 132) Given this kinship, then, it is hardly surprising that a conference on archaeology should place so much emphasis on words!

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Stephanie Koerner
University of Liverpool
School of Architecture
Stephanie.Koerner@liverpool.ac.uk

WONDER IN VICO'S NEW SCIENCE AND UPPER PALAEOLITHIC "ENACTIVE IMAGES": DECENTRING ORIGINS RESEARCH AND THE HUMANITIES

The timely focus on 'origins' of this collection of studies in *Philosophy, Archaeology, Cognition* offers this essay an opportunity to try to bring answers to the following questions together.

- What contributions might rethink (in the form of defamiliarising, historicising, or estranging) hitherto predominant paradigms for human origins be able to make to recognise that *We Were Never Modern* (Latour, 1993) in ways in which highly problematic narratives about the Scientific Revolution, Age of Discovery and Disenchantment of Cosmology claim?

- Why might new forms of collaboration between philosophy and archaeology be needed to address challenges suggested, for instance, by "cognitive archaeologies" of the "ancient mind" (Renfrew and Bahn, 1994; Renfrew and Zubrow, 2004) of exploring hypotheses about roots in experiences of the wonder of human capacities for imagination, reason, and cognition?

- Would it be useful to ground these collaborations in connotations that 'wonder' in Giambattista Vico's *New Science of the Common Nature of the Nations* (1744) shares with "enactive images" that picture "more than meets the eye" (W.J.T. Mitchell, 1986;) that the specialist in Upper Palaeolithic murals Lambros Malafouris (2007, 2013; Renfrew and Malafouris, 2010) is studying?

This essay is divided into three sections. Each section addresses one of the above listed organising questions. Many of the sources used for this aim come from areas of disciplinary specialisation, which have not been brought together Rather than seeing this as a problem (in line with the adventurous purposes of *Philosophy, Archaeology, Cognition*) I see it as a wonderful opportunity to provide general orienting details throughout. A useful way to conclude is with some suggestions about the decentring of the humanities' relevance for attending to the roles of agencies of wonder in archaeology. (In this essay, the 'humanities' is used in ways that include, for instance, history, anthropology, archaeology, and such *Geisteswissenschaften* (Daston, 2016) as what Vico called "philology." In addition, it is not over speculative to suggest that Vico used ancient textual sources archaeologically to make discoveries about the emergence of human forms of life long before there were "books" and even "words" in the world.)

This essay builds upon my studies of connotations that "imaginative universals" or "concrete symbols" in Vico's *New Science*, and "enactive images" that have "cognitive lives" in Malafouris (2007, Malfouris and Renfrew, 2010) share with the key subject matter of "object oriented" approaches to decentring the humanities (e.g, Bal, 2003; Bussels et al, 2024; Cooke, 2022; Jones and Galison, 1998; Noyes et al, 2023; Porras, 2016, 2023; Smith, 2006). Key terms for subject matter include such puzzlement eliciting expressions as, "nature-culture hybrids," (Latour, 1993), "epistemic objects and images" (Payne, 2015), and "things that talk" (Daston, 2000) and have had complex "social lives" (Appadurai, 1986). I attend, in particular, to connotations that have parallels (or roots) in conceptions of *wonder* (*thauma, thamazien*) in ancient Greek and Roman epic poetry, philosophy and proto-humanist texts on the origins of human capacities for poetic (creativity) (e.g., Cicero (106-43 BCE), 1942; Horace (65-8 BCE), 1928). There is, of course, huge diversity amongst connotations of *thauma* (Hesychii, 6th century AD/ 1966; Lightfoot, 2021; Most, 1986, 1999; 2019; Sommavilla, 2005). But if we focus on connotations that revolve around the ideas of agencies of the "more than meets the eye" (Mitchell, 1986) and/or that make things visible that are otherwise invisible (Most, 1986), we find three issues that are especially recurrent, and useful for relating this essay's organising questions to the themes of *Philosophy, Archaeology, Cognition* edited volume:

- the historical – contextual contingency and fundamentally inter-subjectivity of human experience, perceptual interest, or, what we see things as;

- the dynamics of aspect perception and aspect blindness (what we see as insignificant or
- counter-intuitive, or do not see at all),
- distinctively human cognitive capacities for wonder, and for using reason and imagination to see the seemingly counter-intuitive anew (Koerner, 2019, 2022).

These connotations are of jointly epistemic and ethical ("or "moral political," Galison, 2008) significance. They go against the grain of the answers to the question "What does it mean to be human" (Gamble, 2007, p. 33), which have been grounded in beliefs that there can only be one system for adjudicating Truth, and it must be an altogether context independent one (Friedman, 2008; Prigogine, 1997; Rorty, 1979; Rouse, 2002; and see, Bintliff, 1995; Wylie, 1994, 1995; Yoffee and Sherratt, 1994). These beliefs see the pursuit of altogether context independent knowledge as philosophy's primary task. Throughout this essay, the emphasis falls on that there have always been critics of these views. For Vico, following Cicero – as for many critiques of notions of a rational atomic individual, these traditions assume an "ethics of solitude," which alienates intellectual culture from pressing matters of "civic" concern. (NS/1106; Cicero *De Oratore,* Book 1.8.33, 1986). Today, analogous matters of civic concern innovation in integrate research, teaching and other forms of social practice, and in taking the philosophical (ethical and epistemic) significance of differences between the strengths and limitations of the sciences, humanities and arts very seriously (Geertz, 1983; Jasanoff, 2013; Funtowicz and Ravetz, 1992).

For example, the sciences of the physical world have developed extraordinary methods and instruments for addressing questions that we are sure we need more information to answer, which reduces vast materials to specific forms of information. However, there are times when we are unsurefor instance when we face a conflictan irreducibly complex moral dilemma of having to choose between two pathways that are both right in some respects, but we cannot do both—and the choice we make matters a great deal. It is valuable to know that we do not need to try to reduce complexity by seeing the problem as only calling for more information. Throughout the histories of practices we call arts and humanities; there have been strong arguments that these have advantages for avoiding risks of reducing problems (which we may hope will resolve conflict, but actually force us to choose between vexed options of reticence or indifference). For some, such as Rivka Feldhay (2019), it has been because the arts and humanities originated in "conflict zones," that they have prioritised developing

tools for "prudent circumspection" on dilemmas in light of concrete examples with family resemblances. What bears stressing here is that "instantiations" are not merely "imagined" —they are "found" through human capacities for doubt, critical questioning and seeing the hitherto overlooked anew.

Question 1: Rethinking Alleged Incommensurate Paradigms in Contexts

> *Dualisms are distinctions whose components are conceived in terms that make their characteristic relations to one another unintelligible (Brandom, Making It Explicit. Reasoning, Representing and Discursive Commitment, 2004, p. 615).*

The last several decades have seen deep and far-reaching changes in the humanities' perspectives on the philosophical significance of history (e.g., Chandler, 1991; Daston, 1991; Kuhn, 1962; Marr, 2016; Marr and Heuer, 2020; Noyes, 2023; Payne, 2015; Rheinberger, 2010; Schatzki, 1991). Behind many instantiations, there are questions about relationships between disciplinary histories of the humanities, patterns of jointly epistemic and social crises, and the emergence of a series of 'meta-narratives' about when, why and how modernity's supposed unique identity emerged and separated the history of early modern Europe both from its precedents and the histories (or evolutionary trajectories of the so-called 'Rest' (Brennan, 2021; Daston, 2006; Herzfeld, 1987; Koerner, 2023; Latour, 1993; Plantzos, 2023; Shapin and Schaeffer, 1985). For Peter Galison (2008), numerous still "outstanding problems" in relationships between the historical study of science and the specialised field of philosophy, called Philosophy of Science have roots in that:

> *For a half century or so after World War II, discipline after discipline split its goals along the axis of autonomy and dependence. Formalism in art history set itself against the social history of art. Literary studies were marked by a division between those who wanted text-alone readings and those who sought to set novels (for example) in their time and place. And history of science produced its own intellectual civil war, with internalists on one side and externalists on the other (Galison, 2008, p. 112).*

Michael Friedman's *A Parting of Ways. Carnap, Heidegger, and Cassirer* (2000) throw interesting light on debates over "analytic" versus "continental" traditions.

[The 'analytic' position]—in the eyes of the latter—ignores and obscures the significance of such issues as "the meaning of life, the nature of humanity, the character of a good society – in favor of an obsession with specific technical problems…. [The 'continental position] in the eyes of the analytically inclined appear to throw off all concern with clarity of method and cooperative cumulative progress in favor of deliberate and almost wilful obscurity more characteristic of poetic use of language than of ostensibly logical argument (Friedman, 2000, p. ix).

Paradoxically, at the heart of these patterns of fragmentation, there have been numerous problematic shared preoccupations, categories and narratives about the supposed unique identity of Europe and modernity (Brennan, 2021; Daston, 2006; Herzfeld, 1987; Koerner, 2023; Latour, 1993; Plantzos, 2023, Shapin and Schaeffer, 1985). The polemics that Galison and Friedman describe share roots in debates that split European intellectual cultures between Enlightenment and Romantic movement positions on the question of whether the 'events' that supposedly produced early modern Europe's unique identity should be interpreted as a triumph or as a tragedy. The situation was, as Stephen Toulmin points out, extremely paradoxical.

Romanticism never broke with rationalism, it was rationalism's mirror image. Descartes exalted a capacity for formal rationality and logical calculation as the supremely 'mental' thing in human nature, at the expense of emotional experience, which is a regrettable by product of our bodily natures. From Wordsworth or Goethe on… nobility attached a readiness to surrender to the experience of deep emotions…. This is not a position that transcends dualism… but votes for the opposite side of the dichotomy (Toulmin 1990, 148).

This paradox has many corollaries (e.g., Wilson, 1995). For instance, behind the opposition "between Enlightenment rationalism and counter-Enlightenment romanticism that has dominated Western social thought since the eighteenth century" (Trigger, 2004, p. 47) there have been problematic assumptions that the supposed determinants of modern Europeans were also the 'prime movers' in the origins and history of Society (e.g., Bredekamp, 1995; Latour and Strum, 1986). These were the sorts of assumptions that fostered the standardisation of narratives about the Age of Discovery, the Disenchantment (or Secularisation) of Cosmology and Art, and the Scientific Revolution. (e.g., Elkins, 2007; Farago, 1996; Hagberg, 1995; Haskell, 1993; Wood, 2008).

These narratives vary in detail. However, they share numerous paradoxical features. Their plots are structured around such "key timbers of modern cosmology" (Toulmin, 2000) as the dichotomies of

nature —culture, art—science, mindworld, and moderns versus 'others'. In addition, there were shared assumptions that the "events" in these "beginnings"(Said, 2013) narrative were not of local, but of world historical significance. Paradoxically, in tandem with claims about 'value-free' research, highly 'value–laden' versions of 'beginnings' narratives emerged. Behind many debates over the beginnings of the Renaissance are there have been disagreements over whether the supposed 'autonomy of art' should be celebrated or mourned (Elkins, 2007; Haskell, 1993). Behind debates over the impacts of the Scientific Revolution, there are disagreements over what Catherine Wilson (1995) calls the "burden of privilege." It took a long time for mainstream intellectual culture to critically question what Renato Rosaldo (1986) calls "imperial nostalgia") for fictive worlds lost.

In 2006, Lorraine Daston published an extremely illuminating article on such problems to call attention to the "sea of change" evidenced by that extremely conservative Erasmus Prize for work in the history and philosophy of science had been awarded that year to Simon Shaping and Steven Schaffer for their jointly authored study, *Leviathan and the Vacuum Pump Hobbes, Boyle and the Experimental Life* (1985). For Daston (2006), the award evidenced a deep turning point in the historical study of science (and the humanities in general, towards questions of whether "we were ever modern" (Latour, 1993, pp. 15-35) in the ways in which received "self-portraits" claim. In order to appreciate the depth of the changes evidenced by the award, Daston draws attention to that, during the latter half of the twentieth century, the historical study of science became

> *paradoxically... [the] most and ... [the] least historicised of all branches of history... . The most, because the history of science seemed to be the fastest paced part of history and arguably (along with science-based technology) the force of propulsion behind all other parts of history.... The least because the history of science was written as if context and contingency, the marrow of history, were irrelevant to its subject matter* (Daston, 2006, p. 531).

In turn, the story of the Scientific Revolution became an assumption, and also often a more or less explicit paradigm for human "origins" in anthropology and anthropological archaeology (e.g., Ingold, 1986, 1995, 1998; Rowlands and Gledhill, 1977). It came to be seen as the point of departure for pushing answers back in time to the supposedly universally important question,

> *What was so distinctive about Europe that encouraged the development of modern capitalism there and nowhere else, and what were the origins of that distinctive developmental sequence* (Rowlands 1984, p. 147)?

New versions of early modern theories about the origins and history of "human sociability" (Latour and Strum, 1986) played central roles in narratives about the supposed universal historical significance of the Scientific Revolution. Theories about human origins, which suited, the "evolution of civilizations" (Farago, 1995) and Scientific Revolution theories developed in tandem with (and, in many respects dependent on the narratives about the secularisation, disenchantment of art, and the "autonomy of modern art" that became predominant in the mainstream historical study of art (e.g, Belting, 1994; Wood, 2008). Several of the problematic presuppositions, which have motivated these narratives bear stressing. One is that the Disenchantment of Art was a necessary consequence of the central place of artworks in the wars over Protestant and Counter-Reformation Catholic claims about the threat that said "enemy" doctrine posed for Human Salvation (Koerner, 2019). Another is the presupposition that the importance of innovations in "pictorial realism" to the Scientific Revolution was accompanied by the replacement of art tradition tasks of sacred images by the Art World (Belting, 1994; Danto, 1995). In this view, art lost its tasks of producing sacred images that could elicit viewers' wonder, doubt about the profane world, critical questioning, and seeing otherwise invisible sacred realms anew. Art has, in these views, only vexed options, namely, the pursuit of success on the art market, or the pursuit of art for the sake of art's autonomy or detached aesthetic contemplation alone (Koerner, 2022). None, if any, of all this had standardised forms during the times that these narratives point to—they developed again around polemic rooted in Enlightenment and Romantic movement clashes over whether the said modernity of science or the impacts on the art of modernity should be interpreted as a triumph or as a tragedy (e.g., Latour and Weibel, 2002).

At the core of these paradoxes, there has been the belief that the disenchantment of modern cosmology provides evidence that the more rationally human beings see (and mechanise) the world, the less they wonder. Behind this notion, there is the ancient deterministic idea that this process will eventually result (triumphantly or tragically) in human beings becoming able to realise the supposed rational ideal of not wondering any more about anything at all (Hegel, 1956 [1824]; Lightfoot, 2021; Wood, 2008). We will be examining the key roots of this idea and its impacts on relationships between philosophy and archaeology in the next section of this essay.

1.1. Crises

The publications of Eric Wolf's *Europe and the People without History* (1975) and Johannes Fabian's *Time and the Other* (1983) marked turning points in the humanities experiencing "crises over representation" (Certeau, 1986; Lyotard, 1979) over the uncanny magnitude of evidence that "we were never modern" in the ways in which mainstream narratives have claimed. Mainstream humanities differed in terms of factors they saw as most important to modernity's unique identity (e.g., art, science, rational individualism). However, behind many of these variations, there have been deeply anachronistic and historically unsupportable notions, which variously equate culture differences with some form of temporal distance that "denies the coevalness" of "moderns and all the Rest" (Fabian, 1983, p. 31). This problem relates to difficult questions about historical connections between the humanities (and intellectual cultures) and "nationalist, colonial, and imperialist (Farago 1995; Trigger, 1985) ethical—political policies.

In tandem with these developments, especially, archaeologists working in universities adopting "Anglo-American" (Preucel, 1991; Yoffee and Sherrat, 1994) orientations came to characterise their field as experiencing severe crises over representation. At issue were concerns that new scientific technologies for data identification, chronological ordering and analyses were both leading to wonderful discoveries and revealing deep problems with hitherto predominant paradigms' presuppositions about periodisation and explaining archaeological evidence in "culture history" or culture evolution" terms (e.g., Renfrew, 1973; Renfrew and Bahn, 1994; Renfrew and Zubrow, 1994). In *Before Civilization. The Radiocarbon Revolution and Prehistoric Europe* (1973a) Renfrew drew attention to the problems within hitherto predominant traditions:

> the first step in the dating of prehistoric Europe was the dating of prehistoric Crete and Greece by cross-dating, through direct contacts with the historic civilization of Egypt. The next step was the extension of this chronology to the rest of prehistoric Europe. In the absence of direct contacts, this had to be done on the basis of [morphological] similarities between the monuments and finds of Europe and those of the east Mediterranean, interpreted in light of the diffusionist assumptions that [Childe derived from] Montelius's initial statements in Der Orient und Europa [The Orient and Europa, 1899] (Renfrew, 1973, pp. 36-37).

Technologies for obtaining radiocarbon dates (C^{14} dates) and methods for calibrating radiocarbon dates against dendrochronology (tree-ring dates) provided chronologies for European prehistory,

which did not depend on the historically dated chronologies for the ancient Near East and Aegean. J.G.D. Clark, David Clarke, and Colin Renfrew's initial arguments for the need to rethink European prehistory were based almost entirely on radiocarbon dates and calibrated radiocarbon dates which showed that prehistoric sites found to the north and west of the Aegean were much older than scholars, such as Montelius and Childe, had assumed on the basis of cross-dating (Clarke, J.G.D, 1952, 1976; Renfrew, 1973). Radiocarbon dates showed that numerous 'events' that culture historians had mistakenly treated as contemporary were separated by many centuries. Radiocarbon chronologies made nonsense of the numerous large arrows 'evolutionists' and 'diffusionists' had superimposed on maps to represent what they envisaged as the spread of peoples, ideas and inventions from the supposedly more 'civilized' Near East and Aegean into the 'savage' regions of eastern, central, western, and northern Europe. There was considerable agreement amongst those arguing for the need for fundamental change. However, from the very beginnings of debates over challenges facing archeology, there were contrasts in terms of priorities. According to David Clarke, traditional culture history frameworks needed to be replaced by "new paradigms" (the term came from Thomas Kuhn's *The Structure of Scientific Revolutions* (1972/1962). While Renfrew was very much in agreement with many aspects of the approach Clarke proposes, the emphasis fell already in B*efore Civilization* (1973) on prioritizing challenges (as well as possibilities for) seeing prehistory anew.

> *Radiocarbon dating has now replaced the traditional methods for dating with their very questionable assumptions. But a good objective chronology does not say what happened in the prehistoric past, only when it happened: it offers no explanations. We are left with an alarming void –– with a mass of well-dated artifacts, monuments and cultures, yet no connecting interpretations of how these things came about, and of how culture change took place.... That is the great challenge which the new situation presents: it forces us to go beyond the diffusionist notions of culture contact, and to look at the cultures and peoples in their own right, seeing 'events' of European prehistory as the result of local processes, in essentially European terms* (Renfrew 1973, p. 109).

In *Analytic Archaeology* (1963) Clarke introduced a strongly analytic logic based framework grounded in "types of method" and "types of ancient systems," for "testing hypotheses" about ancient social systems in light of new lines of evidence. In a series of influential studies, Renfrew (for instance, 1972, 1973a) combined Clarke's idea of "systems" with new approaches to ethnographically informed

social archaeologies being developed in north America by Lewis Binford (1972) and, especially, Kent Flannery (1968), in order to provide "processual" solutions to anomalies in European archaeology (for instance, Renfrew and Bahn, 1994; Renfrew and Zubrow, 1994). Looking back at those times in a paper entitled, "Social Archaeology, Societal Change and Generalization" (1984) Renfrew recalls:

> Usually...my starting point has been a specific problem arising within the geographical area and the time range of my work at that time. In many cases the problem has proved, at least in part, to be simply a variant of one very general question which recurs time and again in different parts of the world over the past century of archaeological research.... The solutions which emerge are, however, emphatically not specific to the single instance in relation to which they were originally conceived (Renfrew 1984, p. 5).

The emphasis Renfrew places on the complexity of the human past stands out in this passage. For Renfrew, solutions to particular complex problems can become instantiations of issues that can illuminated by comparison with other equally well researched discoveries (see also for very important examples of this, Halstead and O'Shea, 1989). Renfrew's prioritization of methods and discoveries provides a window into, very interesting differences between Clarke and Lewis Binford's (strongly analytic philosophy based) emphasis on methods that are modelled on convictions that the ideal task of science is "reduction to simplicity" (Prigogine, 1997; Watson et al, 1971) and the focus in Flannery and Renfrew on the importance to the archaeology of complexity (e.g., Flannery, 1973). Emphasis falls on the complexity of the magnitude of hitherto overlooked materials in "The Olmec and the Valley of Oaxaca: A Model for Interregional Interaction in Formative Times" (Flannery, 1968) and *The Early Mesoamerican Village* (Flannery, 1976), and in Renfrew's *The Cyclades and the Aegean in the Third Millennium B.C.* (1972) and "Monuments, Megaliths and Social Organization in Neolithic Wessex" (1973b). There are also close parallels in terms of the sophisticated use of anthropological (ethnographic and ethno-historical) studies of "chiefdoms" (Leach, 1954; Sahlins, 1963), and of avoiding anachronistic generalisations about supposed "primitive beliefs" by studying relevant "contextual materials" (Flannery, 1968, 1976).

A detailed exploration of these contrasts lies beyond the present essay's scope and aims. However, it bears mentioning that key features of Renfrew's and Flannery's approaches can be seen as important precedents of (and contributors to) "cognitive archaeology" (Renfrew and Bahn, 1994), as well as of 'object oriented' approaches

to decentring the humanities today. The features that the works by Renfrew and Flannery mentioned above share, which are particularly interesting include:

- use of puzzlement (defamiliarising) as a strategy for bringing light to clashes between hitherto taken for granted assumptions and actual material—or, put another way, for bringing light to the anachronistic implausibility of problematic assumptions
- highly "object oriented" jointly contextual and comparative methods approaches to the magnitude of evidence that had been hitherto misinterpreted and/or eclipsed.
- very direct bearing upon the pressing jointly epistemic, ethical, and political issues that were raised by Wolf's *Europe and the People Without History* (1975) and Fabian's *Time and the Other* (1983), and that are now recognised as pivotal challenges facing efforts to decentre the humanities.

I will return to these points in this essay's conclusion. Here, I need to resume considerations of David Clarke's work, and its roles in the history of responses to the above noted crises, especially in the English language based archaeology to the most controversial paradigms of the times (e.g., Friedman, 2000; Galison, 2008). The publication of David Clarke's now legendary article, "Archaeology, The Loss of Innocence" (1973) marked a turning point in that history. Published in *Antiquity*, Clarke's article introduced a model of the disciplinary history of archaeology, which stressed progressive connections between "thresholds" of methodological innovation and philosophical orientation. Building upon Thomas Kuhn's (1970/ 1962]) "New (post-analytic and historicising) Philosophy of Science," Clarke developed a three "threshold" model of archaeology's history, first of the "consciousness" that separated modern archaeology from "antiquarian" predecessors, then of "self-consciousness" when "schools' of thought" developed and programmes were designed to teach students specialised methods for collecting and interpreting finds; and in Clarke's times, the "critical self-consciousness" threshold. For Clarke, the "New Paradigm" of "critical self-consciousness" was distinguished by critically questioning archaeological methods and theory in light of the multiplicity of new scientific lines of evidence, on the principles being developed in the contemporary philosophy of science.

It bears noting that Clarke's proposal of a "New Archaeology" was not widely adopted for a variety of contextual reasons (Chapman, 1979). There were also conflicts within that proposal. On the one

hand, Clarke's account of the history of archaeology was based on the model that Thomas Kuhn (1962, 1972) proposed for a New [historical] Philosophy of Science by Kuhn in *The Structure of Scientific Revolutions* (1962, 1972) On the other hand, Clarke looked for solutions to said "crises" in methodology and theory in the very "principles" at the heart of what Kuhn critiqued as the deep a-historicism of "received" or "standard" logical positivist and logical empiricist ideas.

We can avoid repeating unproductive polemics by attending to the cross-disciplinary appeal of those radically innovative ideas in contexts (Friedman, 2008; Galison, 1990; Richardson, 2008). Logical positivist and logical empiricist (or analytic) traditions emerged in Germany and Austria between the world wars through the collaboration of philosophers and scientists working on the 'cutting edges' of 'hard sciences.' They stressed the need for new ways to address profound epistemic, political and moral problems, which had been eclipsed by notions that 'facts speak for themselves' to supposedly detached (unbiased) observation (Binford and Sabloff, 1982), and contributions that insights of Einstein and other scientists into Relativity could make to addressing that need. The historian and philosopher of these developments, Merilee Salmon, has studied analytic philosophers' arguments that the philosophy of science's aim should be that of establishing rigorous standards for evaluating scientific knowledge:

> as close to the standards of science itself as the subject matter would allow.... [To this aim they carried out] sophisticated logical analyses of the nature of scientific concepts, the relation between evidence and theory, and the nature of scientific explanation. In their desire to be precise, they made extensive use of the language and techniques of symbolic logic (Salmon, 1992, p. 2),

These orientations marked a radical divergence from the authoritative positivist traditions in European humanities of the times (e.g., Hempel and Oppenheim, 1948). Their convictions and practices were complex responses to dangerous political conflict crises, which played key roles in the remarkable innovations that were taking place in Applied Arts, Architecture, and Design, especially in Berlin and Vienna. Peter Galison stresses that,

> Any attempt to link philosophy and art in the interwar period must go further than merely identifying parallelisms between movements. In fact, core members of the logical positivist and Bauhaus groups self-consciously sought to articulate a view of the world in which both would play essential roles.... Further, the two movements faced the same enemies-the religious right, nationalist, anthroposophist, volkisch, and Nazi opponents-and this

drove them even closer together, toward the conjoint life they had in mind (Galison, 1990, p. 710).

By the mid-1930s, those threats had become horrifying realities on hitherto unimagined scales. What Galison useful characterised as "Aufbau––Bauhaus" movements in philosophy of science and applied arts were driven away——characterised as "decadent" (while work was zealously confiscated)——in tandem with the brutal destruction of innumerable human lives. Salmon notes that at the time of World War II, many analytic philosophers left continental Europe for England and the United States where their works significantly influenced the development of the philosophy of science. An excellent example is Carl G. Hempel who came to the United States from Berlin. His book on the *Philosophy of Natural Science* (1966) literally defined the philosophy of the natural sciences for a generation of students. The international cross-disciplinary influences of Hempel's approach are a good reason for calling it 'the standard view' of the philosophy of science (M.H. Salmon, 1992, p. 3).

By the 1990s, the most influential critiques of these Anglo-American "New" or "processual" paradigms built upon "continental" traditions mentioned earlier that objected to the "analytic" traditions said disregard the concerns they saw as essential to the humanities (see also, Bintliff, 1991). In his introduction to the collection of essays boldly entitled, *Processual and Post-processual Archaeologies, Alternative Ways of Knowing the Past* (1991), Robert Preucel foregrounds the roles played in the parting of the ways of influential researchers' preoccupations by their reaching out to contested "Analytic, Continental and Sociological Critical Theory" paradigms for philosophy.

> *Positivist programs stress theories of knowledge that seek to explain empirically based observational statements in terms of general laws.... Hermeneutic programs share an interest in eliciting meaning through interpretation.... Critical theory grew out of sociologically oriented hermeneutic philosophical traditions [, which are concerned to change society] by revealing the ways in which ideologies 'mask' social contradictions* (Preucel, 1991, pp. 18, 21, 24).

Influentially opposed participants shared paradoxically convergent preoccupations,

> *Do archaeologists discover an objective past? Or do they create alternative pasts? Is archaeology properly considered a human science or a natural science? In the course of dealing with these and related issues, archaeology has turned once again to philosophy for guidance. Just as positivism*

was adopted by processual archaeology in the 1960s, postpositivism is currently being embraced by the movement now known as postprocessual archaeology. The postprocessual movement is signified by an attack on the scientism of processual archaeology ... and the exploration of alternative interpretive frameworks (Preucel, 1991, p. 17).

1.2. Puzzlement as a Methodological Strategy

Over the first two decades of the twenty-first century, researchers have been exploring contributions that historicising such preoccupations can make to decentring humanities' research, teaching, and relationships to wider society (e.g., Richardson, 2008). New light is being thrown on the extent to which the international prominence of such polemical debates, as those noted by Preucel (1991) alienated readerships and lines of publication in many countries (Platzos, 2023; Koerner, 2023). Current arguments for decentring the humanities have interesting precedents in arguments against the prioritisation of intellectual cultures grounded in what Cicero and Vico called an "ethics of solitude" (NS/1106; Cicero *De Oratore,* 1986, 1.8.33). For Cicero—as for his Renaissance humanist followers, and for Vico—traditions that are grounded in "ethics of solitude" divide and exclude, cultivate anachronistic and erroneous ideas, and alienate intellectual culture from matters of pressing moral-political concern. (NS/1106; Cicero *De Oratore* 1986, Book 1.8.33 1986).

Two complementary pathways have been pursued over the last three decades by efforts to decentre intellectual culture. One focuses on studying the historical circumstances under which narratives about the Scientific Revolution, Age of Discovery and Disenchantment of Cosmology developed, and became accepted without questioning. The other focuses on developing new ways to study the uncanny magnitude of the evidence these narratives have eclipsed (e.g., Belting, 1994; Bussels, 2024; Cohen, 1994; Farago, 1996; Mignolo, 1995; Said, 1978, 2013; Shapin and Schaffer, 1985; Toulmin, 1990; Wood 2008). There is great diversity amongst the new fields of cross-disciplinary specialisation pursuing such efforts. However, behind this diversity, there is a striking range of shared methodological and substantive features, and concerns. These include (expressed in terms that have analogues in Renfrew (1972, 1973b) and Flannery (1968, 1976):

- use puzzlement (defamilarising, rethinking) as a key methodological strategy (Ginzburg, 1996);

- "object oriented" (Bal, 2003, Smith, 2006) approaches to materials long eclipsed by standard paradigms, and use of such terms as, for instance, "things that talk" (Daston, 2004), and have had complex "biographies" a/or "social and cognitive lives (Appadurai, 1996; Malafouris and Renfrew, 2010; Russo, 2014);

- explicit engagement with the "moral—political" (Galison, 2008) significance of efforts to decentre the humanities, including, in light of their recurrent locations in "conflict zones" (Latour and Weibel, 2021; Feldhay, 2019)

The publication of Bruno Latour's study, *We Have Never Been Modern* (1993) marked a turning point in these developments.

> *[I]f we have never been modern—at least the ways criticism tells the story—the torturous relations we have maintained with other nature cultures would also be transformed. Relativism, domination, imperialism, false consciousness, syncretism—all the problems that anthropologists summarize under the loose expression of the 'Great Divide'—would be explained differently, thereby modifying comparative anthropology* (Latour 1993, pp. 11-13).

Latour's arguments build upon his work with the socio-biologist, Susan Strum on their path breaking essay, "Human Social Origins. Oh please, tell us another story" (1986). Their essay drew attention to complex relationships between the histories of stories about "human social origins" (1986), the Scientific Revolution, the Age of Discovery, the Disenchantment of Cosmology; and "beginnings" of modernity's break with "other" cultures (Certeau, 1980, 1986; Said, 1978, 2012). Strum and Latour (1986, p. 173) emphasize that there are only minute differences between "human social origins" stories by comparison with the huge problems they share. These include that they are anachronistic, evidentially implausible and eclipse materials that would be highly relevant. It bears stressing that such work as Strum's and Latour's raises several different sorts of questions, which have answers that relate to one another. For instance, "What have been the circumstances under which highly anachronistic stories about "human social origins" or "human identity origins" (Gamble, 2008) developed, and became linked to problematic narratives about modernity (Latour, 1993)? For Vico, this would have been the kind question that his typology of "*boria*" (conceits, or anachronisms) was intended to address.

1.3 Nothing 'Mere' about Historical Circumstances

The publication of the exhibition catalogue and collection of essays entitled *Iconoclash. Beyond the image wars in science, religion, and art.* (Latour and Weibel, 2002) marked a turning point in terms of calling for cross-disciplinary awareness of the extent to which models of the "origins of human identity" (Gamble 2007) and/or human beings supposed "step out of nature" (for instance, Ingold, 1986, 1995, 1996, 1998) mirror models of modernity's supposed to breakup with both its own past and the histories of all so called 'others'. The project called for critically questioning the circumstances under which images of breaks with "all that went before" emerged, became seen a thoroughly credible, and gathered moral-polical authority. It would be difficult for *Iconoclash* (Latour and Weibel, 2002) to be more explicit about the central role played in the project of puzzlement as a methodological strategy.

> *Iconoclasm is when we know what is happening in the act of breaking and what the motivations for what appears as a clear project of destruction are; iconoclash, on the other hand, is when one does not know, one hesitates, one is troubled by an action for which there is no way to know, without further inquiry, whether it is destructive or constructive* (Latour, 2002, p. 14).

The brief or question that Latour and Weibel invited contributors and audiences to address is:

> *What has happened that has made images (and by images we mean any sign, work of art, inscription, object, picture that acts a s a mediation to access something else) the focus of so much passion? [Under what circumstances have] destroying them, erasing them, defacing them...been taken as the ultimate touchstone to prove the validity of one's faith, of one's science, of one's acumen, of one's artistic creativity? To the point where being an iconoclast seems the highest virtue, the highest piety, in intellectual circles?* (Latour, 2002, 14).

More recently Latour and Weibel collaborated with contributors to *Iconoclash* and specialists in earth sciences and ecological Humanities on what would become their last joint project, the international conference, exhibition at the ZKM | Center for Art and Media, Karlsruhe, Germany, and collection of studies—all with the title, *Critical Zones. The Politics and Science of Landing on Earth* (Latour and Weibel, 2021). As with "iconoclash" the expression, "landing on earth" in the project's title is intended to be puzzling. The former focused on, amongst other things, situations where we cannot tell

of we are seeing the making or the breaking of images. In the latter "landing on earth"—refers amongst other things to the problem that "key timbers of modern comology" (Toulmin, 1990) portray the world they thrive in ways that eclipse the realms in which all living things originated and have lived from. A central question of the project is one that shows that we no longer can afford such dichotomies as those of art versus science, mind versus world, and nature versus culture: What have been the particular circumstances under which the meta-narratives about modernity, and dichotomies developed, and became seen as, not just credible, but even universal facts about the world?

To the best of my knowledge, few scholars have addressed questions posed by *Iconoclash* and *Critical Zones* in ways that throw more useful light on the historical and philosophical roots of problematic models of modernity's said "revolutionary identity" (Cohen, 1994) and of the origins of "human identity" (Gamble 2007; e.g., Ingold 1986, 1995, 1996) than Steven Toulmin in *Cosmopolis. The Hidden Agenda of Modernity* (1990). For Toulmin, such questions need to be pursued in ways that are joint,

- *Historiographic*—What have been the circumstances under which highly contradictory narratives emerged and became treated as the a priori premises from which all said relevant debates must proceed?
- *Historical*—What actually happened in the times these narratives claim to explain?
- *Philosophical* —And how might answers to these questions bear upon one another, as well as the problem of resistance to arguments for taking the philosophical significance of history seriously? (Toulmin, 1990, pp. 13-22).

One of the most interesting ways in which Toulmin links answers to these questions is by investigating a series of historical situations in which epistemic, political, and moral crises were never resolved, but new versions of "myths of the clean slate" rendered them invisible to rulers engaged in violent pursuit of power and privilege. In many early modern situations:

> *The longer the bloodshed continued, the more paradoxical the state of Europe became. ... For many of those involved, it ceased to be crucial what their theological beliefs were, or where they were rooted in experience, as 16th-century theologians would have demand. All that mattered, by this stage, was for supporters of Religious Truth to believe, devoutly in*

belief itself. For them, as for Tertullian long ago, the difficulty of squaring a doctrine with experience was just one more reason for accepting this doctrine that much more strongly (Toulmin 1990, p. 54).

This catastrophic condition was rooted in a long history of violent conflict, which escalated around claims made by powerful ruling adversaries' that unlimited brutality was necessary because of threats that "enemy" beliefs posed for even for all of Human Salvation. Toulmin (2000) stresses that these conflicts were, of course, never resolved. Instead, new versions of ancient "myths of a clean slate" were created to supposed settle conflicts (in their favour) by claiming that the "state of emergency" of contemporary affairs demanded demolishing all that went before, in "Quest of [context independent] Certainty" (Dewey 1929) altogether from scratch (a *tabula rasa* in Plato).

In Toulmin, as in Latour (1993), key timbers of modern cosmology became the foundations of such supposed 'settlements'. They are the vexing categories still with us today, for instance, in the forms of "the mental and the material" (Malafouris, 2007) and the "aesthetic versus the functional" in theories about human origins, as well as many about "globalisation." What Latour (1993) called the "modern constitution" is explained by Toulmin as having two sides.

> *On the Nature side ideas emerged that, Nature is governed by fixed laws; Objects are themselves composed of inert matter; Natural objects relate to one another in relation to universalisable and hierarchical systems of 'higher' (more complex) and 'lower' (simple) things analogous with 'action' in society, 'motion' in nature operates in accord with these systems.... On the Human side ideas arose that, The 'human' thing about humanity is rational thought and action; Rationality and causality follow different rules (have different origins and trajectories); Humans can create systems and things (like society and culture) that can be explained along lines appropriate for explaining natural objects Humans and societies are split entities – part rational, part causal, part intellectual and spiritual; part bodily or 'animal'. Humanity is likewise split between Reason and emotions – the former is reliable and to be encouraged, the latter is unreliable and should be restrained* (Toulmin 1990, pp. 109-110).

These catagories became the foundations of early modern theories about "human social origins" (Strum and Latour, 1986) and about candidates for a "science of man" (Mali, 1992), which Vico's *New Science* rejected. Alexander Koyré's study of "The Significance of the Newtonian Synthesis" (1965) brings light to the strange "atomic" images of individual humans that such claims depended on. In the midst of civil violence and international wars, "belief in nature... was so

strong" and the "prestige of the Newtonian (or pseudo-Newtonian) model of order arising automatically from interaction of isolated and self-contained atoms... was so overwhelming that nobody dared to doubt that order and harmony would is some way be produced by human atoms acting according to their nature, whatever this might be" (Koyré, 1965, p. 22). In this context, theories about "human social origins" (Latour and Strum, 1986) became based on "an atomic psychology, which explained (or explained away) mind as a mosaic of sensations and ideas linked together by 'laws' of...attraction (Gravity); and an "atomic sociology, which reduced society to a cluster of human atoms, complete and self-contained each in itself and only mutually attracting and repelling each other" (Koyré, 1965, p. 22). These features provided foundations for early modern claims that candidates for a "science of man" must show that:

- Although humans may seem unique in many ways, their constitution is a natural as any other bodily-intelligent being in obedience to Newtonian laws – they are driven to pursue control of resources and "persevere";
- The forces of "self-preservation" of Newtonian (and also Cartesian) mathematical principles of Matter and Motion in Nature have the same function in the "science of man."
- The methods of this science must be methods for Newtonian social physics;
- The aim of an empirical study of society should be the reduction of the complex diversity of the "secondary qualities" of cultures to the supposed simplicity of invariable "primary qualities" of human nature, which remain constant.
- The language of a "science of man" must be precise or "natural" rather than "human" because the latter is only about "secondary qualities," and is vague (Mali, 1992, p. 26).

New versions of these sorts of premises came to play central roles in connecting anachronistic and historically implausible narratives about the Scientific Revolution, Age of Discover, and Disenchantment of Cosmology; to narratives about the "origins of human identity" (Gamble, 2007), "modern humans" Ingold, 1995), and, "modern human cognition" (Gabora, 2007). Few scholars have thrown more important light on the lasting impacts of key timbers of modern cosmology than Tim Ingold. He has examined the ways in which new versions of its categories continue to divide:

- socio-cultural and biological anthropology;
- psychology and social anthropology;
- the human body and its ontological development;
- innate capacities and culture traits; and
- the biological evolution of humans and the histories of cultures (Ingold, 1998).

Ingold's work has also drawn attention to family resemblances between anachronistic paradigms for 'prime movers' of human origins and for the Scientific Revolution. In the former paradigms,

> our ancestors [are portrayed as having had to] step beyond the old world of nature into a new world of culturally constructed meanings. The image of the Stone Age hunter-gatherer standing at the dawn of history sounds suspiciously like an imposition onto the Palaeolithic of decidedly modern political rhetoric. And it has set prehistorians on a frantic and much publicized search for the point of origin of what they nowadays call "modern humans," people, they say, who were just like us anatomically, though of course not culturally. This point is said to mark nothing less than the "human revolution" (Ingold, 1996, p. 174).

These paradigms are linked to stories about the Scientific Revolution in strangely paradoxical ways:

> we have one theory (of evolution) to explain how our apelike ancestors became human, and another to explain how humans became scientists; and at the intersection of the two, the point of origin where the axis of history rises from the axis of evolution lies the figure of the "anatomically modern human." And we are left with the paradox that the claim of biological science – namely, that humans differ from their hominid or pongid ancestors in degree rather than in kind – presupposes a human history that differs in kind, not degree, from processes of evolution. That is why we do not hear of anatomically modern elephants or anatomically modern chimpanzees. Only with human beings is it found necessary to distinguish cultural from anatomical modernity, and the respective processes leading up to them. Every human is a potential scientist, but there are no scientists among animals (Ingold, 1996, p. 174).

Question 2: Challenges

> [A]ny history written on medieval Christian models will necessarily be: universal, providential, apocalyptic, and periodized. It will be a universal history, or history of the world, going back to the origin of men. It will describe how the various races of men came into existence and peoples

the various habitable parts of the earth. It will describe the rise and fall of civilizations and powers. Greco-Roman oecumenical history is not universal in this sense, because it has a particular centre of gravity (Collingwood, [1949] 1956, p. 49)

Three years after Latour published *We Have Never Been Modern* (1993), Philippe Descola and Gisli Palsson edited a collection of studies (*Nature and Society. Anthropological perspectives,* 1996) that throws important light on the range of problems (or challenges) that what Latour (1993) called an "anthropology of the modern world" would need to address. There are at least three reasons why their typology is highly relevant for our purposes, namely, it:

- draws attention to the special decentring the humanities relevance of many of the works that we have considered thus far, and will considering next;
- brings parallels in the work of Malafouris and Vico's *New Science* into relief;
- offers an important window into the decentring the humanities relevance of taking the philosophical significance of new discoveries in history, archaeology, and philology very seriously.

Three features of Descola and Palssen's (1996, pp. 12-16) typology bear foregrounding.

- First, it stresses that that there is nothing 'mere' about the nature—society dichotomy, it is a "key timber" (to borrow Toulmin's terms) of modern epistemology.
- Second, it concerns obstacles that institutional divisions between sciences of physical and organic realms, and the arts and humanities pose for efforts to give "new life to the idea of the unity of human being."
- Thirdly, it highlights challenges that have parallels with problems that concern Malafouris's (2007) study of Upper Palaeolithic murals and Vico's New Science.

Descola and Palssen (*Ibid*) are particularly concerned that: "[g]oing beyond dualism opens up an entirely different landscape, one in which states and substances are replaced by processes and relations; the main question is not any more how to objectify closed systems, but how to account for the diversity of the processes of objectification."

2.1 The Ancient Mind has Histories

Few objects studied by archaeologists are likely to provide more marvellous subject matter for addressing the problems outlined by Descola and Palsson identified than the magnificent murals that have been found in caves and dated to the Upper Palaeolithic starting as early as 40,000 BCE (for instance, Halverson, 1992). The literature (popular and professional) on these ancient objects documents the problematic persistence of thinking about the distant human past in terms of such key timbers of modern cosmology as those of nature versus culture, mind versus world, and modern versus pre-modern, and Europe versus 'others." Fortunately, the last decades have seen deep and far-reaching changes in approaches to studying these wonderful murals, including in ways that bear very directly upon Descola and Palsson's (1996) arguments. The publications of the collection of studies edited by Colin Renfrew and Ezra Zubrow, Ezra (eds.) entitled *The Ancient Mind. Elements of a Cognitive Archaeology* (1994) and the continuously updated textbook by Colin Renfrew and Paul Bahn, *Archaeology—Methods and Theories* (original issue, 1994) marked key turning points in archaeology's bearing upon the problems that concern Descola and Palsson's typology. The innovations in cognitive archaeology represented in these works evidence deep awareness of problems with standard dualist categories. They also show the importance of collaboration across conventional disciplinary boundaries. Of special interest for our purposes, both the text book and collection of investigations of *The Ancient Mind* suggest that it is difficult to imagine that any subject matter could be more useful for illuminating the "diversity of processes of objectification" (Descola and Palsson 1996, pp, 12-14) than irreducibly complex, and it bears stressing, extremely puzzling and wonderful Upper Palaeolithic murals.

However, several difficulties bear highlighting. One has been the tendency amongst participants in debates over cognitive archaeology, and their critics (for instance, Julian Thomas, 1995) to take sides on issues that parallel those so vividly represented *Processual and Postprocessual Archaeologies, Alternative Ways of Knowing the Past* (1991), (Preucel, 1991) that we looked at earlier. Examples include the divergence amongst specialists in cognitive archaeology between researchers who advocate an "evolutionary cognitive archaeology" (which seeks to understand human cognitive evolution from the material record, including evidence of ancient bodies) and those who advocate an "ideational cognitive archaeology" which seeks to reveal the symbolic meanings and aesthetic experiences behind the formal—material di-

mension of the archaeological record (e.g., Patrik, 1985; Barrett, 1994, 2021). There is also the problem (with parallels throughout the humanities) of disagreements around dichotomies, which can be expected to impede fresh perspectives on the diversity of processes of objectification. These include such dichotomies as those of functional attributes versus aesthetic qualities, and human versus non-human agency.

What is missing is the suggestion that we can address these problems in new ways along two pathways. One would step out of debates over which category of these dualisms is better towards research into the history of roles these categories have played in contexts with family resemblances. An excellent example of this in *The Ancient Mind* (1994) is Schnapp's (1994, pp. 40-44) investigation of the question, "Are images animated?" in lights of ancient texts representing "the psychology of statues in Ancient Greece." Daston's (2005) historical epistemology of "non-human agency" is another important example. Daston puts aside such questions as, for instance, whether "non-human agency" should or should not figure amongst causal factors in human history, and focuses instead on the question of the particular historical circumstances under which "non-human agency" became a key feature of contemporary culture. Daston's historical epistemology addresses that question by studying "non-human agency" in two contexts: 13th century angelology Thomas Aquinas and John Milton's Paradise Lost late 19th and early 20th century approaches to comparative psychology after the publication of Charles Darwin's 1871 *Descent of Man and Selection in relation to Sex.*

The second pathway would step out of debates over dualist categories, by asking whether new forms of collaboration between philosophers and archaeologists can help us fresh approaches to taking differences between the strengths and limitations of the sciences, humanities, and arts very seriously (Geertz, 1983; Jasanoff, 2013; Funtowicz and Ravetz, 1992). This is a question with close parallels in the features of Vico's *New Science* that we will focus on in a bit. However, it is useful to consider Clifford Geertz (1973, 1983) on this matter here. It bears underscoring that Geertz never adopted forms of anti-scientism, that risk disregarding the importance of clarity to intelligibility, technological achievements and discoveries, which have made seeing things once assumed to be counter-intuitive anew (Daston, 2008). However, for the anthropologist, it was important to investigate differences in special advantages. For Geertz, the arts and humanities have special advantages for avoiding taking risks of adopting models from science that were designed to dissolve complexity and instability. They have a

long complex history of developing methods that can render irreducibly complex problems intelligible by comparison with instantiations, with very significant family resemblances.

For Geertz (1983, p 54), we can have confidence in such methods because of the "mystery of the human moral imagination" which makes it possible for us to appreciate that other people's way of seeing the world are both completely their own and deeply part of us." This leads to an argument with close parallels both in Malafouris's (2007) approach to "enactive images" in Upper Palaeolithic murals and what Vico (1744) saw as key principles for a satisfactory "philosophy and science of humanity."

> The truth of the doctrine of historical of cultural (or historical relativism – it is the same thing) is that we can never apprehend another people's or another period's imagination neatly, as though it were our own. The falsity of it is that we can therefore never genuinely apprehend it at all. We can apprehend it well enough, at least as well as we apprehend anything else not properly ours; but we do so not by looking behind the interfering glosses that connect us to it but through them (Geertz, 1983, p. 44).

It is difficult to overstate the relevance for our present purposes of Geertz's reference to the importance of "mystery" or "puzzlement" as both a methodological strategy for historicising anachronism and as subject matter for seeing the wonder of the "experience far" (even counter-intuitive) anew. It provides us with a window into the consequences of something that has been missing from archaeologists' debates over the relative merits of influentially opposed received philosophical paradigms. What has been missing has been serious engagement with the historicity of key areas of disagreement. In consequence, they do not ask whether key lines of disagreement might actually be variations or versions of one (indubitably multi-stranded) side of supposedly self-evident answers to the question: Why have experiences and agencies of wonder been of such pivotal importance to the most influential accounts of the origins of human critical questioning, of systematic inquiry and (most famously) of philosophy?

For some, such as Plato, the answer is simple—philosophy originates in wonder, however, the philosopher's key task is that of the pursuit of recognising that the more we understand, the less we wonder—until, ideally, we do not wonder anymore about anything. For others, such as ancient Greek epic poets and playwrights, founding figures of ancient Roman proto-humanities, and Vico, the question is not at all easy to answer. Experiences of wonderas well as amazement, horror, terror, and shock can indeed be dangerous if they make

us blind to everything else. However human capacities for imagination enable us to recognise that these experiences make doubt, self-questioning and seeing things anew possible. In these views, the more we understand, the more we appreciate the philosophical significance of recognising human limitations (e.g., Alexandrini, 6th century/1966/). It is puzzling that this sort of insight went overlooked—despite (as I have tried to stress) the importance of many archaeologists' amazement, shock, and wonder at the results of new dating technologies to their turn to contemporary debates in philosophy as means to see materials anew. For the purposes of this chapter, it bears stressing the approach to cognitive archaeology that comes closest to such insights in Vico's *New Science* is Malafouris's (2007) study of Upper Palaeolithic "enactive images."

2.2 Making Upper Palaeolithic Murals Strange

At the beginning of his article on magnificent Upper Palaeolithic murals that were discovered in caves during the twentieth century Malafouris (2007, p. 187) says:

> *A famous philosopher wrote in his Philosophical Investigations that the reason '[w]e find certain things about seeing puzzling' is 'because we do not find the whole business of seeing puzzling enough'* (Wittgenstein, 1953/1958, 212).

The quote from Wittgenstein has a context. Ludwig Wittgenstein ended his early *Tractatus Logico-Philosophicus* (1922)—saying "Whereof one cannot speak, thereof one must be silent." This statement echoes the book's arguments concerning the limitations of writing and speaking (and logical propositions) for grasping and responding to the complexities of human experience. "Things that cannot be put into words... make themselves manifest" – how the "miraculous" brings people together (*Tractatus*, 6.52). A key argument in his *Philosophical Investigations* (1958, p. 212) is the frequently cited statement—"We find certain things about seeing puzzling because we do not find the whole business of seeing puzzling enough." To illustrate this point—Wittgenstein invites us to "point to a piece of paper," "its shape," "its colour," and "its number," and then by asking,

> *How did you do it? – You will say that you 'meant' a different thing every time you pointed. And if I ask how is that done, you will say you concentrated your attention on the colour, the shape, etc. But I will ask again, how is that done?* (Wittgenstein 1958, p. 16).

One of the difficulties with Wittgenstein is what Stephen Palmié (2018, p. 20) eloquently characterises as the philosopher's "refusal to historicise" his preoccupations. Palmié is particularly concerned about Wittgenstein's lack of attention to questions about how his preoccupations might relate to the contexts of the horrors of the world wars of his time. But for our present purposes, Palmié's observation is useful for several reasons. First, the most immediate is that the emphasis Wittgenstein placed on the philosophical significance of wonder is not at all original. Starting with Plato and Aristotle, the idea that philosophy originates in wonder (*thaemazien*), came to play highly problematic central roles in traditions grounded in notions that "the more we understand, the less we wonder" that we consider in a bit. If Wittgenstein had acknowledged that caveat, he might eventually have come to the question, which we will be trying to address in the final section of this chapter, namely? Why has wonder figured so centrally in the history of arguments over the origins of critical inquiry and the tasks of philosophy? Here, however, it is mainly important to stress that it might have been more widely useful if Wittgenstein had been forthcoming about sources.

It bears appreciating that Malafouris and Renfrew have been collaborating for a very long time in the study of the "ancient mind," and in terms of contributing to the foundations of "cognitive archaeology." They have also collaborated extensively in bringing some of the key advantages of Arjun Appadurai's framework for studying the *Social life of things* (1986) together with philosophies of "the extended mind" (e.g., Clark and Chalmers, 1998; Dennett, 1996) in order to study "the cognitive life of things" (DeMarrais, 2004, Renfrew 1986; Renfrew, Frith and Malafouris, 2009; Malafouris and Renfrew, 2010). Malafouris's direct reference to Wittgenstein is quite unique in those contexts. For Malafouris "our viewing Upper Palaeolithic images of animals provides striking evidence" of contributions that Wittgenstein's insight of the contextual contingency of what humans "see things as" can make to fresh approaches to human visual culture, in particular, and of human cognition and forms of life in general. Malafouris invites us to look at the two drawings that are on the so-called 'Panel of the Horses' of the Chauvet cave (Vallon-Pont-d'Arc, France):

> *If we ask ourselves what we see when we look at this image the majority of us will immediately and without any particular effort recognize a pair of rhinoceroses facing each other. The ease by which we are able, as modern human perceivers, to make such identifications belies the complexity of the cognitive processes behind them and, I suggest, renders in-*

visible some phenomena of special interest in the study of the Palaeolithic image (Malafouris, 2007, p. 289).

For Malafouris a critical challenge for attempts to address this problem is the division of the mental (cognition) from materiality. For Malafouris and numerous others engaged in *Rethinking materiality: the engagement of mind with the material world* (DeMarrais et al, 2004), [p] laced against an evolutionary background the hypothesis of extended mind raises the following possibility: that the intelligent use of material culture precedes intelligent thinking, [and] the symbolic usage of material culture precedes symbolic thinking" (Malafouris, 2007, p. 293; see also, Piprani 2011). We will consider parallels in Vico's *New Science* shortly. What bears stressing here is the novelty of Malafouris's reference to "tool use" as a window into the "engaged" Upper Palaeolithic image as, perhaps, an "epistemic image" into relief (e.g., Daston, 2015; Marr and Heuer, 2020; Noyes, 2023). For Malafouris (2007, p. 293), if "the tool is often smarter than the tool maker," it can come to "possess a mind of its own," as suggested by the philosopher, Daniel Dennett. Dennett argued in his influential philosophical investigation of *Kinds of minds* (1996, pp. 99-100), that: "tool use is a two-way sign of intelligence: not only does it *require* intelligence to recognize and maintain a tool (let only fabricate one) but a tool *confers* intelligence on those lucky enough to be given one." Such insights suggest that:

> *as long as we treat cognition and material culture as separate and distinct epistemic domains of human experience our chances of understanding the nature of either are very limited.... The image, I will propose, is not simply the object of human perception; it is itself a historically situated component of human perceptual and cognitive architecture* (Malafouris, 2007, p. 289).

Here Malafouris's critique relates to wider problems in the humanities. His "enactive image" brings forward the possibility that the most significant innovation evidenced by the said "pictorial naturalism" of Upper Palaeolithic images is not an innovation in showing how a pair of rhinoceroses facing each other look in nature or zoos to viewers today. Malafouris, 2007, p. 290) stresses that it would be highly problematic to assume that the ancient people who made the images saw them as "representations" of those animals. It is much more likely that ancient innovations in "pictorial realism" were innovations in thinking and communicating about the "more than meets the eye" —realms that exceed ordinary perception—along lines that agree with the insight of a major critic of dualist traditions in art history, W.J.T. Mitchell:

We never understand a picture unless we grasp the ways in which its shows what cannot be seen.... This notion of picturing the invisible may seem less paradoxical if we remind ourselves that painters have always claimed to present us with more than meets the eye (Mitchell, Iconology. Image, Text, Ideology 1986, 39-40).

Malafouris goes on to stress wider philosophical—ethical risks of anachronistic notions that the Upper Palaeolithic murals show how rhinoceroses ordinarily look in nature.

From a certain viewpoint this may not seem to be much of a problem. After all it is precisely our perceptual familiarity with the image as a representational phenomenon that transforms, for example, Palaeolithic cave art to an open window on the mind of the past. However although representation might offer the most familiar path to follow if one wishes to approach and understand the coming-into-being of an image, it can also lead to a series of problems. These problems... become even more acute when we examine the role of the image in human cognitive evolution.... It is no longer simply a question about the coming-into-being of the image itself (parietal or mobiliary), it now becomes a question about and the coming-into-being of modern human cognition (Malafouris, 2007, p. 290).

Here, on the one hand, Malafouris's article invites us, to historicise standard conceptions of "representation" (conceptions of representation based on interpretations of "mimesis" as "copying" how things ordinarily look); and to ask ourselves if using this conception in a theory of "human cognitive evolution" might be an anachronistic and historically implausible mistake to use this conception in a theory of "human cognitive evolution." On the other hand, Malafouris's article suggests the need for an approach, which sees the Upper Palaeolithic "image" as an object and as an agency of wonder, for instance when it says that:

the image is undoubtedly the trait that, in spite of probably coming last chronologically, puzzles and fascinates us the most.... The crucial question facing us then, is how those images should be understood and upon which aspects or properties of those images we should focus (Malafouris 2007, p. 290).

It bears noting parallels between Malafouris's approach to "enactive images" and studies of critical junctures in the histories of art and of science (for instance, Payne, 2015; Noyes, 2023), which focus on "epistemic images." The emphasis in these studies falls on close contextual and comparative analyses of the roles of images in the dynamics (to use terms borrowed from ancient optics) of human capacities for seeing, understanding, inter-subjectivity and acting intentionally

with reason and imagination in the world—and as sources of authority. The shared use of the term "image" bears stressing. In these studies, as in Malafouris, there is an outstanding contrast between images and pictures. Mitchell's (1986, 1994) lucid distinction between an immaterial "image" (something that can put otherwise invisible things—mentally or spiritually—before the eyes of viewers' imaginations) and the material "picture"—the drawn, painted or printed "representation" (thing). There are also remarkable parallels between Malafouris's "enactive image" and one of the two most influential approaches to "epistemic images." The more general one is that of Christoph Lüthy and Alexis Smets, which says that an "epistemic image" is any image that was made with the intention of expressing, demonstrating, or illustrating a theory. While this has had some advantages for rethinking the tasks of "scientific illustrations," it is paradoxically too general for jointly contextual and comparative studies of scientific illustration change. The Lüthy and Alexis Smets definition sees a theory represented in text as prior to its supposed pictorial representation. It draws attention away from the abundant evidence of the use of pictures (drawing, sketching, maps and diagrams, for instance) as tools for identifying problems, as a research method, and as a means to render theoretic entities that exceed ordinary perception—in particular, counter-intuitive—entities visible. Interestingly, there may be closer parallels between Daston's highly focused "epistemic image" and Malafouris's "enactive image. For Daston:

> An epistemic image is one made with the intent not only of depicting the object of scientific inquiry but also of replacing it. A successful epistemic image becomes a working object of science, a stand-in for the too plentiful and too various objects of nature, and one that can be shared by a dispersed community of naturalists…. An epistemic image earns its name by translating abstract epistemological priorities [for instance the essence of a specimen] into concrete pictures [that portray that essence in ways that are] true to nature (Daston, 2015, pp. 17-18).

According to Malafouris:

> The Palaeolithic image-maker constructs an external scaffold that affords the world to be seen and experienced in ways that the physiology of the naked eye by itself does not allow. This scaffolding also enables a new direct understanding of the human perceptual system and thus offers to the Palaeolithic individual the opportunity to become in some sense, maybe for the first time, the engineer of his or her own perception. The image, as it is also the case with language, enabled humans to think about thinking (Malafouris, 2007, p. 300)

All this goes against the grain of such highly problematic narratives about the 'origins' as those, which have been criticised by Ingold as well as by many of our other sources. It also points to the high relevance of Mitchell's insights of picturing "the more than meets eye" for future collaboration between philosophers, archaeologists, and cognitive scientists in the study of 'epistemic images' in the histories of art and science as "tools" for understanding things that exceed ordinary perception (e.g., Biagre, 1986; Daston, 2008; Payne, 2015).

What bears our focused attention here are remarkable parallels between the roles that "enactive images" play as focal methodology and subject matter in Malafouris's study, and his hypothesis about the roots of "symbolic thinking" in the ways in which these images were made and used in ancient Upper Palaeolithic contexts. These parallels bring light to connotations that "enactive images" in Malafouris share not only with the "more than meets the eye" in Michell (1986) but also with "wonder" in ancient Greek and Roman epic poetry, philosophy and accounts of the origins of human capacities for poetry (creativity) (e.g., Cicero, M. T. (106-43 BCE), 1942; Horace (65-8 BCE), 1928). Put another way, these parallels suggest the special usefulness of research on the most ancient "symbolic thinking" of attending to: the historical contingency and inter-subjectivity of human perceptions—what humans see things as; uncanny relationships between objects of our perceptual interest and realms that we see as insignificant or do not see at all); human capacities for wonder, and for using reason and imagination to see the uncanny seemingly counter-intuitive anew.

I do have a worry, however. First, I need to stress that I am not at all worried about Malafouris's (2007, 2010) treatment of "enactive images" as examples of very ancient "cognitive lives of things." This is because (as said earlier) we do not need to become embroiled in polemic over whether things can have meanings apart from those given to them by humans. We do not need to debate whether we should place agency on the side of (the aesthetic qualities of) things or on the side of (functions for) humans. We can investigate, instead, questions about what these categories have meant in other historical contexts (as in Schnapp's, 1994, study of ancient Greek psychological theories about the statue, and Daston's, 2005, study of "non-human agency" mentioned earlier). This could help to address other (perhaps highly decentring the humanities relevant) questions as: What have been the circumstances under which polemic over non-human agency

(animism) came to figure centrally in conflicts over knowledge that have also been conflicts over claims about social order and ideals (e.g., Shapin and Schaeffer, 1985)? Can answers to this question help us to render irreducibly complex circumstances today intelligible in light of contexts with family resemblance? These were the sorts of questions that were variously raised by the *Critical Zone* (Latour and Weibel 2021) project mentioned earlier. My worry is that Malafouris's final conclusion might be misinterpreted.

> *Once that happens [images enable human to think about thinking] then this basic scaffolding role of the image withdraws and higher (representational) functions for the image can now be introduced* (Malafouris, 2007, p. 300).

It bears, underscoring those key issues raised by this passage, are addressed at length in Malafouris's book on *How things shape the mind* (2013) in light of a wide range of examples and hypotheses about "extended mind, enactive signification, and material agency." But my worry is based on our considerations above of problematic connections between anachronistic and historically implausible narratives about the supposed Disenchantment or Secularisation of Art, the Scientific Revolution, and human origins. I am worried that some readers might misinterpret Malafouris as saying that, once the most ancient humans became able to "think about thinking" they supposedly abandoned their wondrous "enactive images," and took up the supposedly self-evident 'rational' conclusion that the more we understand, the less we wonder. Such misinterpretations have a long and significant history. For instance, for Bacon as for Plato, Upper Palaeolithic arts are likely to have been seen as having vanished because later "marvel makers" (Lightfoot, translation of Plato's *Republic*) "hid their knowledge behind myth" (Bacon 1884/1609; Plato, *Phaedrus*, 2013). These are problems that we will attend to in relation to our third organising question.

Question 3: Why Wonder?

It is difficult to overstate the enormous contributions that the work of Malafouris on "enactive images" and of other researchers on the "engagement of the mind with the material world" (Demarrias et al, 2004) and the "cognitive lives of things" (Malafouris and Renfrew, 2010) have made to path breaking lines of collaboration

between archaeologists and philosophers. However, the worries that I just mentioned relate to still outstanding challenges. We may need additional forms of collaboration in order to both historicise polemic over "non-human agency" (animism) and to explore materials that the most influentially opposed positions in that polemic have eclipsed. One of the hypotheses suggested by Malafouris's study of Upper Palaeolithic "enactive images" is that experiences of the world as an agency of wonder, horror, terror, amazement and shock may have figured essentially in the emergence of human capacities for "thinking about thinking" (Malafouris 2007) and for imagination, reason and cognition.

Our second organising question has been whether new forms of cross-disciplinary collaboration are needed in order to explore that hypothesis. Thus far we have only addressed that question indirectly in relation to our considerations of the high degree of bearing that research on *The Ancient Mind* (Renfrew and Zubrow, 1994) the "cognitive life of things" (e.g., Malafouris and Renfrew, 2010) has upon problems stressed by Descola and Palsson in *Nature and Society* (1996). In turning to Vico, several additional questions arise.

- What are the most influentially opposed Euhemerist theories of myth, and what presuppositions do they share? Have these and other problematic explanations of myth figured amongst key supports of what have been, since Plato and Aristotle, very influential paradigms for wonder and the origins of philosophy?

- Is the history of paradigms that see wonder as having been a necessary, but only preliminary step (not sufficient) in the beginnings of philosophy related to the history of the famous notion that 'the more we understand, the less we wonder'.

- Have these been the only explanations or paradigms? Have there been opponents to these arguments, paradigms, and their supporting Euhemerist theories about the 'myths of others'? Have there been alternative approaches to the philosophical significance of wonder?

These questions have close parallels amongst the issues that concern Vico's *New Science. A* detailed treatment of these questions cannot be pursued here. Instead, I begin this concluding section with a survey of materials, which provide preliminary answers to these questions, as well as a useful introduction to the novelty of Vico's *New Science*.

3.1 Historicising Notions that 'The More We Understand, the Less We Wonder' and Euhemerist Theories about Rational Truths Hidden Behind Myth

Mainstream human sciences and philosophy have conventionally seen wonder—horror, terror, and amazement as predominantly emotional states along lines that have given rise to a paradoxical convention. This is the convention that sees wonder as a state that we should immediately pull away from, especially, through inquiries that pursue bringing an end to wonder. This paradox is as ancient as the idea that 'the more we understand the less we wonder'. It is a paradox at the heart of traditions of philosophy, which came to see not marvelling at anything at all as an ideal condition. It is a recurrent paradox in the long history of Stoic and Neo-stoic traditions, which came to see refusing to marvel at anything at all as an ideal. It is worthwhile to suggest that these traditions have frequently become popular under circumstances where catastrophic moral and existential uncertainly made it extremely difficult to distinguish true from false and good from evil. The history of notions that the more we understand, the less we wonder has also been the history of what scholars who study the history of culturally constructed 'other' describe (with reference to the name of the ancient author who has been credited for discovering such constructions) as Euhemerist.

The late 4rth century historian and theorist of myth, Euhemerous, has long been credited for establishing a theory, that rationalized the 'otherness of myths' by explaining that they were irrational fanciful misinterpretations and/or manipulative reinterpretations of what has actually been real historical people, places and events. This became called a "historical theory" of myth (Bulfinch, 1867). These sorts of explanations are important precedents of Enlightenment rationalist and empiricist theories that myths are marvellous and elicit their audience's amazement, which distorts, hides, and misrepresents either more rational truths or more direct cognition of empirical things-in themselves (for instance, Francis Bacon, *The Advancement of Learning*, 1605/ 1889-1902; *On the Wisdom of Ancients*, 1609/ 1884; *Novum Organum* 1620/ 1995)

Early modern preoccupations with 'the ancient mind' shaped these theories (e.g., Bono, 1995). For Bacon (1609/ 1884), the leading purpose of studying ancient myths was to reveal aspects of the most ancient mind (by which he meant an Adamic mind, before the Biblical Fall), which would provide evidence that supported his theory about

the Adamic mind's perfectly rational—empirical observations on and classifications of God's Book of Nature. For Bacon, the original Adamic language was the language that Adam used to accept God's said invitation to control Nature—and to name all creatures to that task. Towards the end of the *Novum Organum*, Bacon presented an especially vivid version of his views on the Salvational significance of philological evidence of Adamic names for things in God's Book of Nature. Towards the end of the *Novum Organum*, Bacon presented an especially vivid version of his views on the Salvational significance of evidence of Adamic names for things in God's Book of Nature. For Bacon, such evidence confirmed that, although "by his fall man lost both his state of innocence and his command over created things... both of these losses can to some extent be made good even in this life, the former by religion and faith, the latter by the arts and sciences" (1996, Rees et al, volume 11, p. 447).

Of course, there were, for Bacon (e.g., 1620/1995), huge obstacles facing contemporary efforts to see the empirical world of things-in-themselves, God's Book of Nature. Some were physiological limitations and distortions of human perception, which for Bacon could be addressed by such new "machines" for seeing and understanding as telescopes and microscopes. But the most formidable obstacles, for Bacon, were the human traditions that he called Idols of the Tribe, the Den, the Market, and the Theatre. One of the central conclusions that Bacon drew, especially, from his analyses of obstacles that Idols of traditions pose for the pursuit of knowledge concerning the "facts" of the Book of Nature, and thus for supposedly restoring human control of Nature's purposes, was the idea that more we understand, the less we wonder. This is not surprising. The history of these ideas, and of traditions that have seen the pursuit of not wondering about anything at all as the ideal condition, has also been the history of extremely influential theories about ignorance (e.g., Koerner, 2019; Lightfoot, 2021).

These traditions have seen expressions of wonder in society as 'barometers of ignorance' and irrationality—as threats that make hierarchical divisions and boundaries necessary for protecting social order. In these claims, a 'barometer of ignorance' supposedly 'measures' the necessity of controlling and/or educating social sectors that are made up of people who are 'ignorant', 'childish', 'irrational', and 'superstitious'—people who supposedly cannot control their wonder and bring it to an end. Such theories of ignorance have numerous companions. They belong to the history of the highly paradoxical beliefs about (or beliefs in) errors in the beliefs of said 'others'. An espe-

cially prominent example has been the belief in the notion that 'other modes of thought' are "animistic" (Daston, 2004), that is they fail to be able to distinguish between human agencies and non-human (even inanimate) things and thus, between symbols and things they represent (Latour, 1993). Negative conceptions of wonder motivate these problematic notions' presuppositions. These include presuppositions that 'others' who see the world as 'enchanted'—'animated' are not able to perceive 'rational' realms that are outside of their myths and states of amazement and/or enchantment. These presuppositions motivate highly problematic claims about capacities for distinguishing the true from what is false. Because so-called 'others' (including, 'ordinary publics') are (the story goes) are supposedly unable to distinguish 'myth from reality' they are prisoners of their susceptibility to illusions and deceits. This story is vividly portrayed in what, Jennifer Lightfoot is likely to be right to characterize as "possibly the most famous single passage of text in Western philosophy. The passage (frequently called "Plato's Cave Allegory") appears at the beginning of Book 7 of the *Republic*, where Socrates invites his companion, the young mathematician, Theaetetus, to see a strange world. In Plato's account, Socrates's words (*ekphrasis*) bring an estranging [in]sight to Theaetus's mind (soul's) eye, by saying that now that we discussed all "these things" relating to the truth:

> compare our nature, with respect to education and the lack of it, to such an experience as this one. See, as it were, men in a cave-like subterranean dwelling, with a long entrance facing towards the light along the entire length of the cave. The men have been in this cave from childhood, bound by their legs and their necks, so that they remain in the same place and see only what is before them, unable to turn their heads around in a circle because of the bonds. The light of a burning fire is above them and a long way off behind them, and in between the fire and the bound men there is a path going upwards, beside which see a little built-up wall, just like the screen which hides the marvel-makers (θαυματοποιοῖς), above which they show their marvels (θαύματα δεικνύασιν) (Lightfoot 2021, p. 174, translation of Plato, *Republic* 514a–b).

This passage relates very directly to the emphasis Plato places on restricting the importance to philosophy of wonder to only an initial and very dangerous step towards the supposed true task of philosophy—pursuit of Ideas for their sake alone. What bears our attention at this point is that the problematic ideas about wonder and the supposed ignorance of 'others', which we considered above may seem very distant from decentring the humanities relevant issues. But they have close parallels amongst the ideas, which shaped the wider

socio-cultural contexts of the beginnings of the modern humanities, in general, and of 'human origins research', in particular. For instance, according to Clive Gamble's study, *Origins and Revolutions. Human Identity in Prehistory* (2007, 33), these are the sorts of ideas that continue to motivate problematic preoccupations with the question, "What is it to be human?"

3.2 *"Yes, truly, marvels are many"* (Pindar, ca, 518–438 BCE, Olympian 1.28) (Lightfoot2021, p.1)

Few topics have occurred more often than wonder in the long history of debates over the origins and the tasks of philosophy, and what often became the predominant stories about the supposed parting of the ways of the tasks of philosophy and of the arts. In the early Greek epics of Hesiod and Homer, terms for 'wonder' (*thauma, thaumazien,* etc.) have connotations of nouns as well as verbs. Both see wonder as a crucial agency in recognising the importance of humility for illuminating blindness of things of great meaning that are eclipsed by hubris and understanding grounds of true wisdom anew. As noun, *thauma* refers either to things, events, or agencies, which elicit overwhelmed surprise, marvel, admiration, horror, terror, awe, and shock (Hesychii, Alexandrini, 6th century/ 1966, Somavilla, 2005; Koerner, S 2022). As a verb, *theaomai* concerns what people do – how they respond to agencies of wonder on multi-sensorial interfaces of perceiving and trying to understand. Ancient interpreters saw wonders (as well as horrors and terrors (amongst many other things) along three roughly distinguishable lines. These include agencies or states:

- of amazement, enrapture, astonishment, awe, as well as horror or terror⸺a state that can go out of control and be extremely dangerous, for instance, by rendering humans incapable of perceiving anything outside of the power of their experience,
- of translation, in particular, agencies that render things and processes of great significance visible⸺that have been hitherto invisible to us, or even hitherto seemed to us to be or even seen as impossible (or counter-intuitive)
- of uncanny realms⸺or realms that disturb and/or threaten what we assumed hitherto to be self-evidently permanent grounds of reason, which elicit such responses as⸺"this cannot be happening⸺this cannot be real" (Daston 2019).

Ancient epic poets, such as Homer, most famously, often portray agencies of wonder as things that can elicit dangerous states of puzzlement or confusion. But two features of these pre-Classical philosophy poetic account s bear underscoring. One important thing that is missing from these accounts is the absolute polarisation of visible and supra– or sub-visible realms. Another is the notion that for humans living in the Fallen profane world, the most appropriate response to wonder is "fear of God" (Most 2019). By contrast, in ancient poets—as well as in later Greek and Roman paradigms for the "poetic origins" of humanity in "wonder" (e.g., Cicero (106-43 BCE), 1942; Horace (65-8 BCE), 1928) emphasis falls upon that agencies or states of wonder can speak to human capacities of reason and imagination under circumstances where we need ironic recognition of that "it is happening—it is real" and/or that we were hitherto extremely mistaken. Such uncanny agencies became seen as of special importance for eliciting our doubts, and critical questioning and making it possible for us to respond to what we would have seen as impossible through our imaginations' capacities for seeing grounds of reason anew. In his study of the necessarily metaphorical foundations of philosophy, Ernesto Grassi (1994, p. 4) raises the question, Why is the sense of wonder, as the origin of inquiry (indeed of critical questioning) of primary importance to the essence of philosophy? Why is the sacred significance attributed to this sense of wonder?" For Grassi, important light can be thrown on these by the materials that the late sixth century grammarian and lexicographer, Hesychii Alexandrini (1966) studied. Hesychii developed a complex system of synonyms for *thauma*, *ekplexis* (shock); *xenisma* (estrangement); and for *thaumazie*, *theasthai* (to look) and *manthanein* (to look and understand). According to Grassi (1994, p. 6) in Alexandrini's system, "relation between wonder and the need to question emerges only if something presents itself to us a problem—people do not question what is equivocal."

For Daston (2019) the need to question arises more vividly when we experience events, which elicits such responses as, "This cannot be happening—this cannot be real!" For Grassi—as for Daston—such responses give rise to forms of "passionate" (Fischer, 2002) critical questioning. They arise in situations where the events we experience are so disturbingly incomprehensible that they feel intolerable for reason as well as imagination to proceed (go on) without clarification. Importantly relevant clarification does not come through (or alone through) the pursuit of information that exceeds the situation, but through recognition that our experience of events is uncanny and that we need to find ways to see what we previously saw as self-evident

anew. What we saw as most worthy of attention becomes strange as a result. This may help explain why the entry in Hesychius's lexicon on *thauma* places on experiences of "shock" (Grassi, 1994, 6). For Hesychius, as for many of the ancient Greek epic poets he studied, one of the most important things we can learn from such agencies is that recognizing human limitations is an essential step towards being able to distinguish true from false under circumstances of deep uncertainty (Most, 2019).

In Vico (NS/ Book IV), it took thousands of years for human beings to develop this insight. Moreover, for Vico, striking patterns in the philological evidence of patterns (*corsi—recorsi)* in the histories of "nations" reveal how easily this insight can be forgotten when intellectual culture becomes alienated from civic affairs. Vico's ambitions with the *New Science* include a "science and philosophy of humanity" to address this problem. I will conclude this essay by suggesting that collaboration between philosophers and archaeologists may be relevant for addressing the current manifestations of this problem.

Specialists in ancient Greco-Roman philosophy have long studied the ways in which Pre-Socratic philosophers, such as Thales of Miletus, and then Plato and Aristotle reinterpreted connotations of *thauma* in ancient epic poetry (and contemporary theatre) for the purposes of developing paradigms for the origins and tasks of philosophy. In works called *Dialogues*, Plato has Socrates say to Theaetetus:

> This experience—wondering—is very much characteristic of the philosopher. There's no other beginning to philosophy than this (Lightfoot 2021, p. 1, translation of Plato, *Theaetetus* 155d)

The most famous version of this account of the origins of philosophy is Aristotle's. His version parted ways with Plato's exclusive arguments that capacities for philosophical reflection are highly restricted to elites who were eligible to become "philosopher king." Aristototle's aimed to be inclusive (decentred) by stressing the universality of human experiences of wonder.

> For men were first led to study philosophy, as indeed they are today, by wonder. At first they felt wonder about the more superficial problems; afterward they advanced gradually by perplexing themselves over greater difficulties; e.g. the behaviour of the moon, the phenomena of the sun, and the origination of the universe. Now, he who is perplexed and wonders believes himself to be ignorant. (Hence, even the lover of the myths is, in a sense, a philosopher, for a myth is a tissue of wonders.) Thus if they took to philosophy to escape ignorance, it is patent that they were pursuing science for the sake of knowledge itself, and not for any utilitarian applications (Most 2019, translation of Aristotle, *Metaphysics* 982b).

Aristotle famously objected to Plato's excusive paradigm for require-ments of a candidate for philosopher. However, as the end of this passage shows, for Aristotle in *Metaphysics*, the ideal philosopher dis-tanced him or herself from everyday human affairs. More broadly— over the centuries, the idea that experiences and agencies are mere and irrational steps towards philosophical ideals came to figure ever more centrally in traditions that came to reject 'merely sensorial per-ception of the world' in favour of abstract rational thinking, and de-bates over *mythos*, *logos* and the tasks of philosophy (Somavilla, 2005, pp. 7-9). These preoccupations shaped the long history of traditions, which polarise, for instance, prose versus verse, myth versus history, reason versus imagination, image versus text, and art versus science, in relation to complex historically contingent conceptions of true ver-sus false (Most, 2019). They have likewise shaped the long histories of traditions, which have polarised the mental versus the material (mind versus world) (Malafouris, 2007), the aesthetic versus the functional (Marr, 2016; Marr and Heuer, 2020); and reason versus imagination (Daston, 2008, 2019) and human versus non-human agency (Daston, 1991; Park and Daston, 2000). Today similar reoccupations perpetuate problematic unilinear narratives about the origins of "human sociabil-ity" (Latour and Strum, 1986), "human identity" (Gamble, 2007) and "beginnings" of modernity's supposed break with the histories of all so-called 'other' cultures (Said, 2012; Toulmin, 1990).

What bears stressing here is that there has always been opposi-tion to Plato⸺Aristotle paradigms for the origins and tasks of philoso-phy, and to dismissal of the philosophical significance of the arts and history (Plantzos, 2016). In many critical respects, Classical Philosophy invented the idea that wonder is only an initial impetus to philosophy, along with other ideas that have shaped predominant theories about how philosophy supposedly broke away from precedents in myth, epic poetry, and what became called Pre-Socratic philosophy (Most, 1999). Although alternatives to these paradigms have been extremely diverse, they have variously shared roots in connotations of "won-der" in ancient Greek epic poetry, which have variously linked our ap-proaches to this chapter's organising question. Many aspects of this chapter are grounded in my research on the long history of the ways in which later artists' innovations in picturing the "more than meets the eye" (Mitchell, 1986) opened these connotations to new interpre-tations. Examples include such interpretations as "visible speech" and "prudent circumspection" in Aligheri Dante's (1265-1321) *Divine Come-dy* (1982) and Giotto di Bondone's (1267-1337) Scrovegni Chapel murals

(Koerner, 2022). In these innovations—as in Malafouris (2007) Upper Palaeolithic "enactive images":

> *To observe is not the same as to look or to view.... One observes in order to see more than we would have seen at first glance* (Wittgenstein, 1992, 76).

3.3 Wonder and the Historical Contingency of Cognition in Vico's New Science (1744)

To the best of my knowledge, it is unlikely that any contribution to the "modern humanities" (Celenza, 2021) relates in more interesting ways to Malafouris's insights of Upper Palaeolithic "enactive images" than Vico's *New Science* (1948 /1744). Vico's work offers a remarkable alternative to the problematic paradigms for a Natural Law of "human social origins" (Latour and Strum, 1986) and for a "science man" based on Newtonian "atoms, which we studied in relation to *Question 2: Challenges.* Vico's work critically engaged ancient and early modern versions of Aristotelian arguments that a true science (episteme) of things human was impossible (for instance, Sprat, 1669/ 1958). Vico's work goes against the grain of claims that a "science of man" was only possible if it satisfied "certainty" criteria set out, for instance, by Rene Descartes's (1984) "mechanical philosophy;" by Isaac Newton's (1934) mathematical–geometric Principles of Matter and Motion, and/ or by Natural Law paradigms for "human sociability" (Latour and Strum, 1986).

Vico's objectives were not at all restricted to critique (e.g., Vico, 1963, 1965/ 1709, 1988/ 1710). But he believed our first step must be grounded in "Critical Axioms" that show that (and why) these claims were anachronistic and historically implausible. By historicising these claims' errors, we also develop foundations for the constructive methods we need in order to study the magnitude of materials these claims eclipsed. These orientations have close parallels in *We Have Never Been Modern* (Latour, 1993), *Nature and Society. Anthropological perspectives* (Descola and Palssen, 1996), and projects to decentre the humanities by historicizing narratives about the Scientific Revolution, Age of Discovery, Disenchantment of Cosmology, and other portraits of modernity's supposedly unique identity. Vico wanted his *New Science* to address the need for a counterpart to sciences that focus on Nature by establishing new grounds for collaborations between philosophers and philologists. Vico was very concerned about the unsatisfactory state of "philology." Vico's "philology" shares many features

with innovations, which brought about what Amos Funkenstein (1986, pp. 205-208) called the "revolution in historical reasoning." These featured included,

- the use of the notion of a historically contingent "point of view" "derived from Leibniz' Monadology" (Funkenstein 1986, p. 209)—as a methodological strategy for (defamiliarising) historicising anachronistic generalisations (e.g., Kosselleck 1985, p. 179-207/1979);
- objections to traditions that refused all materials except texts, accompanied by novel object-oriented approaches to the magnitude of material (material–visual) culture those traditions had eclipsed (e.g., Schnapp, 1993),
- emphasis on the moral and political significance of taking a plurality of "interpretation" (Funkenstein, 1986, p.7) into consideration.

Vico's "critical axioms" focused on what he saw as the immense dilemma of philosophers' and philologists' mutual disregard for each other's insights and materials. This disregard made philosophers blind to their anachronism, and philologists blind to obstacles their narrow practices posed for appreciating the philosophical significance of evidence that went unnoticed. On the other hand, the extraordinary complexity of the "science of humanity" relevant and highly "experienced far" (Geertz, 1973, 1983) evidence posed hither unimaginable difficulties. In order to address these problems, philosophy and philology needed principles for new forms of collaboration in addressing those difficulties from perspectives offered by such "discoveries" as those presented in the *New Science* concerning events and processes, that had occurred thousands of years before there "books and academies," or even "words" and the most elementary social institutions (NS/330). In what follows we broach this chapter's third organizing question by focusing on aspects of Vico's *New Science*, which have parallels in 'object oriented' approaches to historicizing problematic narratives about modernity and investigating hitherto eclipsed materials anew. These include the emphasis the *New Science* places on:

- intellectual cultures' joint epistemic, moral and political responsibilities;
- puzzlement as a methodological strategy ("critical axiom");
- a highly "object oriented" approach to focal subject matter, namely discoveries of the rootedness of the contemporary world in proto-human wonder and "poetic wisdom."

3.3.1 A New Science to Counter Intellectual Culture's "Ethics of Solitude"

Vico (NS/138, 163, 140) was keenly aware that the idea of a science of historically contingent human creations had been forcefully excluded from predominant philosophical agendas since the time of Aristotle (384-322 BC) and was being rejected in his own times by the Natural Law theories and atomistic paradigms for human psychology and sociology, which we considered earlier in this chapter. Aristotle (*Metaphysics*, 1994, 1027a20-27) has long been credited for developing a framework for comparing his views with Plato's on the requirements of any field aspiring to science (episteme) status. The scheme departs from the question: If something can be said to be subject to change, what is the essence of that something? (1) The unchanging aspect, (2) the changing aspect, or (3) both, that is, the interaction of changing and unchanging aspects? For foundationalists (like Socrates and Plato), the answer must be (1), and the others have to be reducible to it. Candidates for scientific (or episteme) object-hood must exhibit regularities that are universal and demonstrable by the chain of both necessary and sufficient causes. For probabalists (like Aristotle), things that are "always or for the most part" can satisfy the requirements of science if they can be described as examples of essential states or substances (Aristotle, *Metaphysics* 1994, 1027a20-27; Daston, 2000; Koerner, S. 2010). In these lights, for Aristotle, in the *Nichomachean Ethics* (VI.7.1141) a science (*épistéme*) of human relationships and creations (no matter how otherwise historically significant) was impossible, for these were contingent and governed by time, circumstances and chance--and "of chance there can be no science."

What bears stressing here is that Vico was, equally alert to both severe critiques of Aristotelian epistemology coming from contemporary mechanical philosophy (Cartesian) and experimental science (Baconian and Newtonian), and to the attention that centuries of humanist scholarship had devoted to showing that Aristotle never said that an "episteme" was the only form of systematic practice, and of the highest importance to the knowledge and society. Aristotle (1984, 2007), for instance, in his writings on *Rhetoric* and *Topics*, stressed that an episteme's needed the "logic of rhetoric" and the empirical case studies of "topics" in order to "find" the questions it aims to address, to identify relevant lines of evidence, and to communicate its answers. Relating to that emphasis, for Aristotle (as for Geertz, 1983, and Vico) fields that we might call humanities today were needed to address complex human problems in pursuit of a (virtuous) "good life." Thus, in Aristotle, an episteme has the disadvantage of being static, and can-

not help us recognise the importance of the imagination to reason's capacities to doubt, critically question, acknowledge mistakes and see the priorities of the "good life" anew.

For Vico, philosophy had two tasks: Nature and Humanity. One of the novel features of Vico's *New Science* is the emphasis it places on both the achievements of Newton's science and philosophy of Nature and on the explosion of new lines of evidence of the diversity of ancient and contemporary forms of life (e.g., Vico, 1710/ 1984). For Vico, Newtonian science and philosophy were addressing the task of Nature in ways that had a bearing upon both of philosophy's tasks. Newton's discoveries about Matter and Motion were transforming philosophy's task of illuminating Nature as much as was humanly possible. At the same Newton's (and Bacon's) emphasis on that such categories as Matter and Motion, as well as the *Principles of Mathematics,* are human creations, provided Vico with a critical reference point for his arguments that the Certainty we can have about our finding concerning Humanity is greater than the Certainty of Newton's categories because history was a human creation. For Vico (e.g., 1988/ 1710), those arguments were supported by the explosion in his times of new lines of evidence of the previously unimagined diversity of New Worlds, and carefully translated, researched printed publications of ancient authors. For Vico, the pursuit of science that stressed the philosophical significance of such evidence was a matter of high epistemic and ethical importance.

> *Philosophy contemplates reason, whence comes knowledge of the true; philology observes that of which human choice is author, whence comes consciousness of the certain. This axiom shows how the philosophers failed in half in not giving certainty to their reasoning by appeal to philologists, and ... how the latter failed by half by not taking care to give their authority the sanction of truth by appeal to the reasoning of philosophers* (NS/138, 140).

These were pressing epistemic and moral—political problems for Vico (Mooney, 1994). Such "sceptical philosophers" as Descartes, Hobbes, and Spinoza ignored the moral-social consequences of anachronism, and of their "ethics of solitude" (NS/1106; Cicero *De Oratore* 1986: Book 1.8.33 1986). For Vico, at the heart of these problems, there were "conceits (*boria*) of scholars, who will have it that what they know is as old as the world" (NS/ 127). In consequence, contemporary intellectual culture's "descent into scepticism" ignored "new forms of "barbarism," namely, "barbarisms of reflection" that were far "more inhuman" than the "barbarism of sense" of ancient times (NS/951, 1001, 1102).

3.3.2 Puzzlement as a methodological strategy or "critical axiom"

For the broader purposes of this essay, it is useful to compare Vico's objections to "ethics of solitudes" with important objections today to paradigms that see detached abstract ideas as the ideal or standard for evaluating all knowledge (Rouse, 2002; Wylie, 1985, 1994), and as an ideal that demands the pursuit of those abstract ideas for their sake alone. Paradoxically, these paradigms (as well as the very notion of 'value freedom') have powerful normative implications (e.g., Binford and Sabloff, 1982). They lead to seeing contexts, contingencies and engagements in contemporary human affairs as threats —causes of deception and illusion (Koerner, 2010; Prigogine, 1997). Michael Williams (1991, p. 22) explains that such notions see the ideal tasks of philosophy as "an *assessment* of the *totality* of our knowledge of the world; issuing in a judgement delivered from a *detached* standpoint and amounting to a verdict on our claim to have knowledge of an *objective* world."

For Vico, one of the key tasks of the *New Science* was to both reveal and explain the roots of such anachronistic and historically implausible notions. To this task, Vico developed a whole typology of "boria" (anachronisms and conceits) as "Axioms for a New Art of Criticism" (NS/127). The typology focuses particular attention on supporting his arguments for grounding forms of collaboration between philosophers and philologists in the study of otherwise unimaginable evidence of the extraordinary poetic foundations of the earliest human forms of life. The "principles" Vico proposed for such collaboration, were also Vico's requirements of a "science of humanity":

- "philosophy undertakes to examine philology" on the basis of the *verum et factum convertuntur* principle (NS/7, 331); and
- scientific "doctrines must take their beginnings from that of the matters which they treat" (NS/314).

What would be lost, for Vico, without such collaboration was a science that could illuminate the highly contingent—context dependent roots of the diversity of "this world of sciences, which specialized studies of scholars have since clarified for us by reasoning and generalization" (NS/778). The implications for philosophy, archaeology and cognitive science of Vico's arguments and discoveries are remarkable to this day. Vico used his critical and constructive "axioms" to make discoveries, which go against the grain of paradigms that see "human nature" and "human sociability" (Latour and Strum, 1986) as static,

unaltered and unalterable. In Vico, the highly decentred diversity of the contemporary world was rooted in "poetic" responses to the earliest human experiences of wonder, puzzlement, terror, horror and shock by objectifying the world as the agency (cause) of those experiences in such "imaginative universals" as the storming sky, "Jove." Put another way, the experiences that the most ancient humans had of the storm as directed towards them by Jove were so powerfully estranging that they produced the unprecedented need for what the aforementioned sixth century scholar, Hesychii Alexandrini (1966) called explanation or clarification. Simultaneously using and making their most ancient capacities for imagination, reason and metaphorical objectification (interpretation) the earliest *primi uomini* began to be amazed by and to try to understand the world and to transform their worlds and themselves (Berlin 1976, p. xvi, 1980). It is useful to underscore the novelty of this idea by expressing it in another way. In Vico, the very sorts of things that that Aristotle (and many others) saw as making a "science" of human realms and impossibility became grounds for seeing the conditions if possibility for human origins and the histories of "nations" "public grounds of truth" anew.

> So that, as rational metaphysics teaches us that man becomes all things by understanding them (homo intelligendo fit omnia), this imaginative metaphysics shows that man becomes all things by not understanding them (homo non intelligendo fit omnia); and perhaps the latter proposition is truer than the former, for when man understands he extends his mind and takes in the things, but when he does not understand he makes the things out of himself and becomes them by transforming himself into them (NS/405).

Vico's constructive *verum factum convertuntur* principle was intended to address the long history of scepticism about the philosophical historiography of humanity from perspectives offered by a radical restatement of the requirement of science. Vico approached the problem from the standpoint of a novel Newtonian restatement of the ancient notion of 'maker's knowledge'. In Vico's restatement, philosophy had two major tasks: nature and humanity. With the achievements in mathematics of Descartes, in natural history and philology of Bacon, and in the workings of the physical world (Nature) of Newton and Leibniz in physics, Vico believed that the mathematical and physical sciences had come to the limits of what they could and would contribute to philosophy. Moreover, he argued, the principles of sciences of Nature (no matter how reliable) were merely fictive entities (or at best, following Newton, highly probable inductive generalizations).

By contrast, for Vico, the *verum et factum convertuntur* principle indicated that history was well adapted to being a science because it was a human creation, and, as an alternative to physical science, had the potential to make previously unimagined contributions to philosophy. Vico expressed this idea as follows.

> For the first indubitable principle posited above is that this world of nations has certainly been made by men, and its guise must therefore be found within the modifications of our own human mind. And history cannot be more certain than he who creates the things also narrates them. Now, as geometry, when it constructs the world of quantity out of its elements, or contemplates that world, is creating it for itself, just so does our Science, but with a reality greater by just so much as the institutions having to do with human affairs are more real than points, lines, surfaces, and figures are (NS/349).

Vico's restatement of the notion of "maker's knowledge" underpinned his distinction between two forms of knowledge: (a) *scienza* (or true science, that is, the knowledge of the cause and laws by which things are governed; and (b) *coscienza*, the knowledge human beings have of things in common sense experience. The capacities humans have for *coscienza* can be used to formulate a *scienza* of science if these are applied to the appropriate subject of study, namely, the origins and histories of human ways of life and polities.

3.2.3 Discoveries

There are indubitably huge differences between Vico's *New Science* and the efforts to decentre the humanities we have been considering in this essay. But there are striking parallels between the problems that preoccupied Vico and the problems that concern the editors of *Nature and Society. Anthropological perspectives* (1996). Firstly, for Vico—as for Descola and Palsson—problematic disciplinary relations are expressions of much wider problems with predominant mainstream cosmology. Secondly, both emphasise the need of new forms of disciplinary collaboration in order rethink the "unity of human being" (Descola and Palsson, 1996, p. 14). Thirdly, and relating to our considerations of, for instance, "enactive images" and "cognitive lives of things" (Malafouris, 2007, Malafouris and Renfrew, 2010) what Vico called *the New Science's* "master key" bears upon the argument that: "[g]oing beyond dualism opens up an entirely different landscape, one in which states and substances are replaced by processes and relations; the main question is not any more how to objectify closed systems, but how to account for the diversity of the processes of ob-

jectification" (Descola and Palsson, 1996, p. 12). That "master key" was, for Vico, the discovery that human capacities for imagination, for reason, and for diversifying processes of objectification metaphorically ("symbolic thought," in Malfouris, 2007) emerged in response the earliest human experiences of wonder, amazement, horror, terror and shock. It is remarkable how similar Vico's "master key" is to the extremely puzzling focal subject matter of "object oriented" (e.g., Bal, 2003; Smith, 2006) studies of, for instance, "things that talk" (Daston, 2004), have "social lives" (Appadurai, 1986) and "cognitive lives" (Malafouris and Renfrew, 2010). The focal subject matter of the latter is not at all ordinary. Their "social" and "cognitive lives" are rooted in the wide range of experiences that Hesychii Alexandrini (1966/ late 6th century) included in his typology of synonyms for *thauma* in ancient Greek sources. Daston stresses:

> [T]he words 'object', objectus, object, Gegenstand, oggetto, voorwerp all share the root meaning of a throwing before, a putting against or opposite, or opposing. In the English verb, "to object" the oppositional, even accusatory sense of the word is still vivid. In an extended sense, objects throw themselves in front of us, smite the senses, thrust themselves into our consciousness (Daston, 2000, p. 2).

Vico's "discovery" goes against the grain of the assumptions about supposedly altogether context independent "states and substances" that are now key foci of critical questioning (e.g., Latour, 1993; Descola and Palssen, 1996; Malfouris, 2007). Many—but not all —terms being historicised today differ significantly from those in Vico's times. However, there are close parallels in Vico's critiques of his contemporary's polarisation, for instance individual atomic human agent versus Society, mind versus body (and material world), nature versus culture, and reason versus imagination. From perspectives offered by Vico's *New Science*, the strange "atomic psychology and sociology" (Koyré, 1965) is a product of intellectual culture's "ethics of solitude." The *New Science* objects to the anachronism and historical implausibility of paradigms that claim that "human sociability" (Latour and Strum, 1986) was determined by solitary human atoms having been forced to choose between vexed options of the absolute random violence of "war of all against all" and the deterministic Social Contract of Natural Law. Joseph Mali highlights the novelty of Vico's rejection of these traditions.

> For theorists of Natural Law since antiquity, what mattered were only individuals not groups; in their accounts, it was always the individual who makes the community, rather than the other way around.... Like their

counterparts in antiquity, Hobbes, Spinoza, and their followers held to a moral philosophy of solitaires" [For Vico, in contrast, humans are] *individuals "whose nature has this principle property: that of being social [d'essere socievoli]* [NS/2] (Mali 1992:91).

From perspectives offered by Vico's *New Science*, the division of the substances, "mind" versus "body" and "world," which is presupposed by both rationalist and empiricist philosophers is likewise an anachronism, a "boria" (conceit). Vico's "philosophy and science of humanity" stresses obstacles such categories pose for fresh perspectives on the actual "unity of human being" (Descola and Palsson, 1996, p. 14).

> *We cannot at all imagine and can comprehend only with great effort" the forms reasoning and life ways of the primi uomini.... . The nature of our minds is so detached from the senses, even in the vulgar, by abstractions corresponding to all the abstract terms our languages abound in, and so refined by the art of writing, and as it were spiritualized by the use of numbers, because even the vulgar know how to count and reckon, that it is naturally beyond our power to form the vast image of this mistress called "Sympathetic Nature." Men shape the phrase with their lips but have nothing in their minds; for what they have in their mind is falsehood, which is nothing; and their imagination no longer avails to form a false image. It is equally beyond our power to enter into the vast imagination of the first men, whose minds were not in the least abstract, refined or spiritualized, because they were entirely immersed in the senses, buffeted by the passions, buried in the body.... [Thus,] we scarcely understand, still less imagine how those first men thought who founded gentile humanity* (NS/378).

Vico specialist, Phillippe Verene (1982) has studies how radically Vico's discoveries of the embodied, intersubjective and mytho-poetic roots of human cognition diverges away from the long history of ancient, medieval and especially modern rationalist and empiricist theories about cognitive processes and knowledge. All of these traditions start with the presupposition that their substantive division of the mind from the world is a timeless 'fact' about human beings, and then proceed to the conclusion that philosophy's (or theory's) greatest task is to explain how these 'substances' can (in lights of that 'fact') possibly be connected. For Vico, the key task of a satisfactory "philosophy and science of humanity" is not at all that of constructing yet another anachronistic abstract model. It is to investigate philological (again, I believe that Vico) would have embraced what we call evidence of the circumstances that made it possible for the earliest proto-human (*primi oumini*) communities to create human (cultural–symbolic) worlds.

Thus, Vico's *New Science* devotes huge attention to investigating philological evidence of the strange (for us extremely experience far) circumstances under which *primi oumini* began to 'hear' and see' by imagining the world as a creature with capacities for subjective emotions, for acting intentionally (for reasons) and directing communication towards much smaller creatures like them. They did this long before they had acquired such capacities to 'hear' and 'see' by metaphorically objectifying (creating) a wondrous world centring on such "concrete symbolic forms" as the sky's thunder and rain. This radical shift in orientations enabled Vico to avoid imposing anachronistic and historically implausible "key timbers of modern cosmology" (Toulmin 1990) and to try to make the sorts of "discoveries" that would help satisfy what he set as the two principle requirements of a "philosophy and science of humanity." It is remarkable how close Vico's approach comes to studying the emergence of the "social and cognitive lives" (Malafouris, 2007, Renfrew and Malafouris, 2010) of concrete "imaginative universals."

It bears underscoring that, in Vico, "imaginative universals" are not abstract ideas. They are not even words. They are the marvellous things (perhaps "epistemic objects") that made up the proto– human symbolic reality. The sky, the movement of the sun, the activities of plants, the voices and gestures of animals, and the mountains and forests became metaphorical symbols (NS/431). Vico explained that "imagination is the eye of ingenium" (NS/303). It created the most ancient "topical" reasoning. Together with the emergence of proto-human experiences of wonder, horror, terror and shock, human imaginations began to "find" the concrete metaphorical objects that addressed their amazement and spoke to their needs (NS/300-301, 424).

It is difficult to overstate the depth of the emphasis that Vico placed on the most ancient "imaginative universals" that had been responses to proto-human cognitive experiences of wonder, horror, terror, amazement and, especially, shock. In Vico, the proto-humans' communities' emerging capacities for imagination (*imaginatio, ingenium*) and creativity (poetry) enabled them to respond to these powerful embodied experiences by trying to make sense of them in such "concrete" symbolic forms as the sky, forests, and mountains (NS/34). Mali can help us with understanding the importance of these discoveries to Vico's aims with the *New Science*:

> [If Vico's work] was to be a true science, it must start from the point where the matter of which it treats—the logos—first began to take shape, which means that it must retrace it evolution in and through and out of mythos. The primary task of Vico's new history and philosophy of humanity,

then, is to reconstruct a true mythology, a task which must begin where the term itself began. Mythology, Vico reasoned, when taken in its original etymological sense and historical perspectives, means a primeval history with logos, or a history of primeval logos. Both of these—the poetic logic which permeates ancient narratives, as well as the mythological origins and poetic development of logical thinking—must be regained if we are to understand the mental modes, the modificazioni, which actually constitute our mondo civile (Mali 1992, pp. 151-2).

This strange passage links the "discoveries" concerning the origins of the most ancient "public grounds of truth" in "poetic wisdom" to the *verum-factum* principle of the *New Science*.

But in the night of the thick darkness enveloping the earliest antiquity, so remote from ourselves, there shines the eternal and never[-]failing light of truth beyond all question: that the world of civil society has certainly been made by men, and that it is in our ability to retrieve its principles from within the modifications of our human mind (NS/331).

Vico's exemplary "imaginative universal," the "sky god, Jove" illustrates the emphasis his work places on the rootedness of human cognition in "society with nature" (Descola and Palssen, 1996). Jove is a "nature-culture hybrid" (Latour, 1993) that attributed the world ancient humans lived in to the forces of the earth they lived from (in Latour and Weibel, 2021, it would be the "critical zone"). Vico's account of the creation of Jove begins in the "night of the thick [materially and cognitively] darkness" of humanity's antiquity. Jove has parallels in what present day earth systems scientists call the ancient "critical zone." The critical zone is the region that extends a few hundred metres above and below the earth's surface—the earth's fragile skin, where the interactions of weather, water, soil, and stone form the conditions for life (Latour and Weibel, 2021). It is the realm that all living things live in and from—and is so complex that it can only be rendered a bit intelligible in light of instantiations with metaphorical family resemblances. It is the site where Vico's account of the creation of Jove begins:

after the Flood in Mesopotamia...for it took that much time to reduce the earth to such a dry state that, dry of moisture of the universal flood, it could send up dry exhalations or matter igniting in the air to produce lightening.... [T]he sky fearfully rolled with thunder and the flash of lightening.... Thereupon a few giants, who must have been the most robust, and who were dispersed through the forests on the mountain heights where strong beasts have their dens, were astonished by the great effort whose cause they did not know, and raised their eyes and became aware of the sky (NS/377).

Vico's account goes against the grain of such dichotomies as those of, mind versus body and world, individual versus society, and reason and imagination. Again, Vico's intent with the *New Science* is not to explain how such supposedly timeless mutually exclusive states and substances could possibly become connected. It is to provide a philosophy and a historical (philological) methodology for investigating how proto-human creatures came to live with one another and their bodies in a "world" in the first place. Thus, a key question in the *New Science* is: How did the *primi uomini*'s inter-subjective and embodied experiences of wonder, amazement, horror, terror (of some form of "this cannot be happening—this cannot be real," (Daston, 2019) lead to something that did not exist in the same way before, namely, "awareness of the sky" (NS/377). How did the ways in which the most ancient humans listened to the world, watched the sky, smelled the lightning, felt the hail, tasted the smoke coming from burning trees hit by lightning and interpreted the forces and intents of the Jove lead to their creating "poetic wisdom" (perhaps an 'epistemic image' with a "social and cognitive life", Malafouris and Renfrew, 2010)? One of the strange and highly interesting aspects of the answers to these questions provided by Vico's New Science is the emphasis they place on the jointly internal and external causes of proto-human experiences of amazement, wonder, horror and shock. They interpreted (projected, objectified) their own sensorial experiences as those of Jove.

> Because in that state their nature was that of men all robust in bodily strength, who expressed their very violent passions by shouting and grumbling, they pictured the sky to themselves as a great animated body, which in that aspect they called Jove, the first god of the so-called greater gentes who meant to tell them something by the hiss of his bolts and the clap of his thunder (NS/317, 377).

According to Vico's (NS/120-122) axioms, all human knowing is an interpretation of that which is unknown on the basis of what was known. It involves interpreting (to use Geertz's 1973 terms) the "experience far" on the basis of the "experience near."

> When men are ignorant of the natural causes producing things and cannot even explain them by analogy with similar things, they attribute their natures to these. [In consequence,] the human mind, because of its indefinite nature, whenever it is lost in ignorance makes itself the rule of the universe in respect of everything it does not know (NS/180-181).

"Books" are not the only things missing from the circumstances under which Jove was created. There are no words or human speech.

The proto humans listened intensely to the sky's storm as an agency intent on telling themselves something and developing capacities for human cognition, intention and inter-subjective communication in the process.

> It is noteworthy that in all languages the greater part of the expressions relating to inanimate things are formed by metaphor from the human body and its parts and from human senses and passions. Thus, head for top or beginning; the brow and shoulders of a hill; the eyes of needles and of potatoes; mouth for any opening; the lip of a cup or pitcher; the teeth of a rake, a saw, a comb; the beard of wheat; the tongue of a shoe; the gorge of a river; a neck of land; an arm of the sea....Innumerable other examples could be collected from other languages, all of which is a consequence of our axiom [cf. NS/120] that man in his ignorance makes himself the rule of the universe, for in the examples cited he has made himself an entire world (NS/405; italics mine).

For Vico, it was extremely difficult to reconstruct the immensely powerful experiences of the wonder of the *primi oumini* is of wonder cannot be overstated. We need to try to imagine circumstances under which the *primi uomini* feared the sky's intents and then sought its protection and guidance by doing what Vico called the most ancient human "deeds" (NS / 14-17), namely, clearing forests, caring for plants, trying to understand the life ways of animals, building "settlements and cities... and offer[ing] asylum to those seeing safety" (NS / 14-17).

It bears stressing—as the term "nations" in the title makes clear—that the *New Science* is also a form of political philosophy and history. In Vico, the authority that ancient humans originally attributed to the "sky god Jove" during the "age of the gods" became metaphorically reinterpreted through the practice of myth and legends that portrayed the emergent rulers of the "age of the heroes" as supernatural. Vico provides vivid accounts of the dynamics of the violence and poetics, which authorised the "hero's supernatural deeds." These accounts illustrate his famous insight that "heroes" were not faking (they had no such thing as 'false consciousness'. The rulers of the "age of the heroes" devoutly believed in and violently manipulated their legends.

> The whole...heroic age in human history...is only too unhappily described for us in the fable of Cadmus [cf. NS/541]. First, he slays the great serpent (clears the earth of the ancient forest). Then he sows the teeth (a fine metaphor for his plowing the first fields of the world with curved pieces of hard wood, which, before the use of iron was discovered, must have served as the teeth of the first plows, and teeth they continue to be called). He throws a heavy stone (the hard earth which the clients or fam-

uli wished to plow for themselves) [cf. NS/583]. From the furrows, armed men spring forth (in the heroic contest over the first agrarian law [cf. NS/264, 597] the heroes come forth from their estates to assert their lordship overt them, and unite in arms against the plebs, and they fight not among themselves but with the clients that have revolted against them; the furrows signifying the orders in which they unite and thereby give form and stability to the first cities on the basis of arms, as is all set forth above). And Cadmus is changed into a serpent (signifying the origin of the authority of the aristocratic senates, for which the ancient Latins would have used the phrase Cadmus fundus factus est, and the Greeks said Cadmus was changed into Draco, the dragon who wrote the laws in blood [cf. NS/446]. All of which is what we promised to make clear [cf. NS/446]: that the fable of Cadmus contained several hundred years of poetic history... [cf. NS/814] (NS/679).

Vico used key tropes in Rhetoric (a field that Vico lectured in as a professor, together with Jurisprudence) to structure his account of transitions from the "age of gods" to the "age of the heroes" and then the "age of humans" (Mooney, 1994; White 1976). Vico's account is structured around a grammar or logic of poetic tropes (*verba translata,* words—images and things that transfer meanings). Elementary principles of 'poetic logic' form a typology of tropes:

- from one thing to something similar (*metaphor*);
- from cause to effect or vice versa (*metonymy*);
- from the whole to the parts (*synecdoche*);
- from one thing to its opposite (*irony*).

The expression 'transfers (or exchanges) of meanings bear stressing. In Vico's vivid account of the jointly violent and mytho-poetic roots of the deep inequalities of the "age of the heroes," those of "violence and consent" (Godelier, 1986, p. 156) stand out prominently. The "age of the heroes" shares many features with what numerous archaeologists and anthropologists refer to as "chiefdoms" (for instance, Sahlins, 1963; Drennan and Uribe, 1987; Helms, 1976, 1993; Renfrew, 1973b; Renfrew and Bahn 1994). In *Archaeology. Theories, Methods and Practice* (1994, pp. 142-148), Renfrew and Bahn provide a "world archaeological chronology" in which the "story begins" with the origins of "morphologically modern human" and proceeds through accounts of the populating of the world by "hunter-gatherer societies"... of "the transition... to farming... by 10,000"... of the "intensification... of food production"... of the emergence of ranked societies [or] chiefdoms," and then of "the urban revolution" and the emergence of "state societies." Especially in those last examples, the emphasis falls

upon "profound social changes" (*Ibid*). A recurrent focus of criticisms of "processual paradigms" has been that of "normative" presuppositions they share with functionalist and structural traditions in anthropology with Emile Durkheims's (1964/ 1893) sociology and early modern Natural Law theories of the origins and foundations of Society (by which they meant 'state societies". A key presupposition is that without social norms and divisions, societies would collapse back into the "state of nature"—of "war of all against all" (e.g., Hobbes, 1588-1679, 1978/ 1651). What is missing from approaches grounded in such presuppositions is a serious engagement with roots of "the power to dominate" in the dynamics of "violence and consent" (Godelier, 1986) or "violence and the sacred" (Girard, 1976).

Interestingly, these themes figure prominently in Vico's "discoveries" concerning the cross-cultural ubiquity of origins myths centring on the sky god, "Jove." A detailed examination of this theme lies beyond this essay's scope. However, readers might consider the roles played by "transfers" in the meanings of "public grounds of truth" in Vico's accounts of the "ages... of gods,... heroes,... and humans" in light of one of Maurice Godelier's key hypothesis in *The Mental and the Material* (1986). In Godelier's (1986, pp. 160-161) hypothesis, "the power to dominate is composed of two indissolubly linked elements: violence and consent." He stresses that these elements are not independent of one another and that violence is always a crucial aspect of domination—even if threatened at a distance. According to Godelier's (Ibid) hypothesis, the most effective ideologies are those that represent dominance and subordination as an exchange of services. In these ideologies, while the services rendered by the dominated are represented as less valuable because they concern the "material conditions needed for the society's reproduction," the services of the dominant are portrayed as "concerning the invisible forces" reproducing the universe"[d]ebt is the formula for the bonds of dependence and exploitation which link the dominated to the dominant."

There is an interesting analogue in Vico's philosophy and science of patterns in the *corsi* and *ricorsi* of the histories of the "public grounds of truth" of "nations." In Vico (NS/1011), ironic forms of poetic wisdom facilitated the crystallization of human capacities for doubt, for systematic critical questioning, and for seeing the "myths of the age of the heroes" anew. Ironic poetic wisdom revealed the historical contingency of myths that portrayed the "heroes" as supposedly supernatural protectors of the very people that they exploited, enslaved and threatened. Irony elicited those peoples' doubts, critical

questioning, and resistance to the "myths of the heroes." It became the "poetic wisdom" of the "human rights" of the "age of humans."

> [W]ith the passage of the years and the far greater development of human minds, the plebs of the peoples finally became suspicious of the pretensions of such heroism and understood themselves to be of equal human nature with the nobles, and therefore insisted that they too should enter into the civil institutions of the cities.... In this way...the popular commonwealths were born... In such commonwealths the entire peoples, who have in common the desire for justice, command laws because they are good for all (NS/1101).

According to Vico, "poetic wisdom" grounded in ironic recognition of the difference between the true versus false (and between the ideal and the actual) had been a necessary (but not sufficient) condition for the emergence of "laws" for adjudicating injustice and justice. As a professor in the historical (philological) study of and contemporary practice in Rhetoric and Law, Vico was deeply learned in and highly critically aware of the contingency and fragility of law. In his *New Science*, Vico sees the formulations and applications of law as historically contingent human creations. Behind this highly critically reflexive view, there was Vico's broader conviction that irony is both necessary for consciousness of the distinction between the truth and the falsehood, and the root of human capacities for deception and self-deception possible. For Vico (NS/1101), under circumstances where virtuous actions are no longer prompted by religious sentiments, the burden (or task) of avoiding the catastrophic consequences of forms of barbarism grounded in deception and self-deception was the responsibility of philosophy and philology.

Some Concluding Suggestions

In 1623, when Francis Bacon published the first part of what was intended to be an expanded Latin translation of his renowned *Advancement of Learning* (1605) he added the phrase "we Europeans"(*De Augmentis Scientiarum*, 1889). For the historian, John Hale (1993, p. 1) and many others "[t]his was a phrase, and assumption, that could not have been used with such confidence a century and a half before." Put another way, this was not an assumption about a "common world" (Latour, 2004) that could even be imagined at the beginning of the sixteenth century. No wonder that, on the reception of the news that Columbus had indeed landed somewhere between Rome and a

hitherto unmapped part of the world, Pope Alexander VI responded not only with a special "Doctrine of Discovery" (1493) (Batllori, 1976; Weckman-Muñoz, 1976) but also with an order that his best makers of 'mappi-mundi' (maps of sacred and profane world history) were to sort the situation pictorially using whatever size parchment they thought they needed.

Paradoxically it was precisely during the decades, that saw the violence of Europe's Thirty Years (1618-16-48) threaten 'reason' itself, that the word 'Europe' (as a continent, with a cultural identity) became (regardless of how highly contested) intelligible (regardless of how highly contested) concept. Images played decisive roles (Cooke, 2022; Hale, 1993). Those decades saw the emergence and proliferation of fantastic (in the ancient sense of the term) that portrayed Europe's supposed unique identity in ways that rendered huge contradictions (internal and throughout parts of the world being "colonialised") invisible (recent art history based studies include, Bass, 2019; Jardine, 1993; Megank, 2017; Porras, 2016, 2023; Stafford and Terpak, 2002; Swan, 2021). These decades also saw the emergence of the extraordinary paradox of the history of portraits of a wealthy world that (actually only some) live in, which renders the world that all live in invisible (Latour and Weibel, 2021). The work of the historian and philosopher of techno-science, Shiela Jasanoff (2013) suggests that these have been the sorts of portraits of modernity's supposed unique identity that have fostered "technologies of hubris." They eclipse the importance of wisdom in recognising human limitations of "technologies of humility" (*Ibid*).

These portraits are Janus faced. On one side there is the face of the "myth of a clean slate" that arose under circumstances where it became possible for some to claim that the "state of emergency" of contemporary culture made it necessary to demolish all that went before in Quest of Certainty altogether from scratch (*tabula rasa* in Plato). On the other side, there has been (precisely to the contrary) the explosion of preoccupations (professional and everyday) with collecting evidence to support new narratives (mythologies) about the 'all that went before'. Every "myth of a clean slate" in "Quest of [altogether timeless] Certainty" (Dewey, 1929) needs a myth of the 'all that went before' (Latour, 1993).

In the contexts of the Enlightenment and Romantic movements, these narratives (and, especially, their pictorial and material visual culture manifestations) came to figure paradoxically as presuppositions shared by the most influentially opposed positions in debates over whether the supposed unique identity (pictorially explained)

should be interpreted as a triumph or as a tragedy. These narratives became key precedents of images of how human beings were supposed to step out of nature, and of how the Scientific Revolution supposedly separated "moderns from "all the Rest." (e.g., Latour, 1993). They constitute the histories of images of *Europe and the People without History* (Wolf 1975) that denied the coevalness (Fabian 1983) of subjugated indigenous humanity. It may not be a coincidence that it has taken considerable global experiences of wonder horror, terror, amazement and shock for mainstream intellectual culture to question whether "we were ever modern " (Latour, 1993) in the ways in which these images claim.

In his path breaking encyclopaedic study of *The Idea of History* ([1949] 1956: 69), R.G. Collingwood stressed the novelty of Vico's insight of the roles played by "fallacy of sources" in the dynamics of "conceit of nations...and of scholars" (NS/123). For Vico, this *boria* (conceit or anachronism) was widely evidenced by ubiquitous examples of situations where two institutions (or scholars, on could add) respond to seeing that they have a similar idea or institution by each making claims that they have been the only original and that all others have merely learned or copied. Collingwood stressed that Vico's *New Science* not only illuminates these claims *boria*, but also that human capacities for creativity are needed for learning and mean that every 'copy' reinterprets its precedent anew. It bears adding that these are insights with close parallels in many current efforts to decentre the humanities.

Walter Mignolo (1995) introduced the expression "decentre" to characterise the aims and achievements of such works as George Balandier's path-breaking proposal of "The Colonial Situation" (1951) as a focus for "deconstructing" (historicising) the so-called Age of Discovery by studying its "darker sides." Balandier's intended readerships were specialists in fields, which are now seeking to decentring the humanities. In the section of this essay relating to Question 1, we noted that emphasis in these fields falls on historicising claims about the supposed unique identity of modernity, as well as studying the uncanny magnitude of material these claims have eclipsed from the perspective offered by the 'object oriented' subject matter. Mignolo has made extraordinary contributions to historicising of supposed "people without histories," and to highly object (material and visual culture) focused study of the hitherto eclipsed complexity of the "intersecting legacies" of "the Renaissance / early modern and the early colonial / Amerindian." Some of his most influential work focuses on locally

situated but globally distributed contexts where notions of "people without histories" were literally produced in the tangible forms of standardising the alphabet for print, grammars for supposedly translating indigenous languages, genres for historical writing the supposedly missing histories of the people who spoke those languages.

The decentring importance of Mignolo's shift in focus away from notions that have seen history's (and the humanities') tasks as determined by the availability of "representative" texts is difficult to overstate. In a book entitled, *The Content of Form: Narrative Discourse and Historical Representation* (1987), the historian and philosopher of literature, Hayden White, drew attention to problems with mainstream presuppositions about what cultures can be seen as candidates for "historical representation." For White, a critical problem in mainstream humanities has been the notion that the diversity of human life ways has two parts, one of which is supposed to be 'historical' since it is documented by writing and the other which is supposedly 'without history'.

> *This distinction is not of the same order as that between 'human events' and 'natural events,' on the basis of which historical studies constitute and order of facts different from those studied in the natural science.... [O]nce an order of general human events is conceptualized, and this order is further divided human events past and human events present, it is surely legitimate to inquire to what extent different methods of study may be called in for the investigation of those designated as past as against those called for in the investigation of events designated as present (in whatever sense presence is construed).... But it is quite another matter...to suggest that there are two order of humanity, one which is more human – because it is more historical – than the other* (White 1987, p. 55).

Put another way, it is one thing to be worried about the nature of the evidence that is available. It is quite another, to interpret the absence of written documents in some cultures as evidence for these being "without history" (Wolf 1982), and to "deny the coevalness" of societies with and without writing as though such cultural differences represent temporal distances (or supposedly lower rungs or 'stages' of cultural evolution) (Fabian 1983; Latour 1993). It is one thing to be concerned about appropriate methods. It is quite another thing to equate 'the written' with historical and anthropological significance in ways that compare with Hegel's (1961: 97-98 [1837]) claim that the reason why the word 'history' refers to both the *res gestae* and the *historia rerum gestarum* is that everything important in the history of humanity has been documented in writing. It is one thing to debate

the results of different scientific instruments for dating finds (for instance, radiocarbon dates alone, or calibrating radiocarbon dates in light of dendrochronology (tree-ring dates). It is quite another thing to interpret historical writing as evidence bearing upon the question: "What does it mean to be human?" (Gamble 2007; see also, Certeau, 1980, 1986; Stephens, 2023).

There is now a huge critical literature on problems with both the said "scientism" and "anti-scientism" of the debates that are documented by such publications as *Processual and Post-processual Archaeologies, Alternative Ways of Knowing the Past* (Preucel, 1991). But considerably less attention has focused on exploring contributions that have been made to fresh perspectives on what is meant by taking archaeological findings philosophically seriously by such path breaking work as "The Olmec and the Valley of Oaxaca: A Model for Interregional Interaction in Formative Times" (Flannery, 1968) and *The Early Mesoamerican Village* (Flannery 1976), and in Renfrew's *The Cyclades and the Aegean in the Third Millennium B.C.* (1972) and "Monuments, Megaliths and Social Organization in Neolithic Wessex" (1973b). The approaches developed in these works, and their wonderful findings marked turning points in terms of the pursuit of lines of archaeological research that are highly relevant for addressing such wider problems as those identified, for example, by Mignolo, Fabian, and Wolf. The works cited above have also been pathbreakers for fresh perspectives on archaeology's philosophical significance. It is difficult to overstate the contributions those works have made, for instance, to the study of "enactive images" and "the social and cognitive life of things" (Malafouris and Renfrew, 2010), to *"rethinking materiality: the engagement of mind with the material world"* (DeMarrais, 2004), and, largely indirectly, to "object oriented" (e.g., Daston 2000) approaches to decentring the humanities.

The relative lack of attention to these contributions is rather remarkable for numerous reasons. Most immediately, it is a mistake to see the findings of, for instance, Renfrew and Flannery as of 'mere' historical interest. Their discoveries of the extraordinary plurality of the prehistories of Europe and Mesoamerica (and processes of globalisation) contributed materially and philosophically to the decentring of the humanities. Moreover, the methods that were developed, and rigorously examined for their usefulness in addressing complex historical questions in contexts in, for instance, The *Mesoamerican Village* (1976) have close parallels in, for instance, *The Social Life of Things* (Appadurai 1986), research on "nature–culture hybrids" (Latour 1993)

and the project, *Critical Zones. The Politics and Science of Landing on Earth* Critical Zones (2021).

But that is not all (as with Vico's *New Science*) the findings of Renfrew and Flannery's studies refuted the ancient idea that there cannot be a science of things that are contingent. The very contingency (rather than their static context independent state) of the emergence of "Jove," "Megaliths and Monuments" and the cultures of the Olmec and Valley of Oaxaca, together with archaeology's special awareness of the significance of "makers knowledge" made their systematic study possible. The problem is that it may take recognising the importance of wonder (the "miracle of the human imagination" in Geertz, 1983) to adopt the forms of what Vico (NS/1011) characterised as "ironic wisdom" and critical questioning needed in order to bring archaeology and philosophy together around a conception of human agency grounded in the insight that:

> *A common world is not something we can come to recognize, as though it had always been here. A common world, if there is going to be one, is something we have to build, tooth and nail together* (Latour, 2004, 455).

Few questions are likely to be more central to relationships between philosophy and archaeology than "if agency is important for understanding particular human activities, must it be included in explanations of long-term socio-cultural change?" (Dobres and Robb, 2000, pp. 11-12). There is no doubt about the value of the contributions to decentring the humanities that have been made by extensive critiques of the images of an atomic individual at the heart of the narratives about the supposed unique identity of modernity that we have been historicising. However, the situation summarised in the passage above from Latour (2004) indicates that we need new ways to response to crises in the contemporary world, which go against the grain of the forms of Stoic reticence and indifference that have motivated intellectual cultures grounded in "ethics of solitaires" (NS/1106). Interestingly the conception of human agency that is most active in Renfrew's and Flannery's early work, in Malafouris (2007), and in Vico's *New Science*, is jointly inter-subjective, embodied, materially embedded, and has capacities for imagination and reason that may be needed to create forms of "poetic wisdom," "public grounds" and grounds of "common worlds" anew. It is a conception of human agency that rejects the idea that the more we understand, the less we wonder. Instead, it prioritizes the ancient notion that *thauma* is a necessary and sufficient prerequisite for continuously reinventing "the idea of the unity of human being" (Desola and Palsson, 1996, p. 12) anew.

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Igor Eftimovski

University of Ss. Cyril and Methodius—Skopje
Faculty of Philosophy
eftimovskii@gmail.com

Nikos Chausidis

University of Ss. Cyril and Methodius-Skopje
Institute of Art History and Archaeology at the Faculty of Philosophy
chausidis@gmail.com

ARCHETYPES AND ARCHAEOLOGY: HAVE ARCHAEOLOGISTS UNJUSTLY OVERLOOKED JUNG?

Abstract: The paper reviews the compatibility of C. G. Jung's theory of archetypes with the principles of contemporary archeological theory. After the introduction to the topic, the first section of the paper tries to outline Jung's ideas and define the key terms in his theory of archetypes. The second section reviews the current archeological views on Jung's theories and addresses the criticism that Jung has drawn from archeologists, at the same time offering responses on why said criticism is to a larger extent ungrounded. The third section tries to show to what extent are Jung's ideas in fact compatible with the archeological study of symbols. In the last section, the authors present their thoughts on how Jung's ideas can be useful to contemporary archeological theory.

Keywords: Carl Gustav Jung, archetypes, symbols, human cognition, theoretical model, archaeological theory.

Introduction

In 1959, Swiss psychoanalyst Carl Gustav Jung gave an interview for the BBC program "Face to Face" with John Freeman. In it, Jung stated that his original professional goal was to become an archaeologist. However, due to financial reasons, he was compelled to turn to his "second love"—the natural sciences, subsequently focusing on

medicine and, eventually, on psychiatry (McGuire & Hull 1977, 424-439). However, Jung never lost his fascination with the archaeological realm of the past, which provided him throughout his entire career with the necessary comparative material to develop his theory of archetypes and the collective unconscious. He even stated in the aforementioned interview that he became convinced in his own theories when comparing the vision described to him by a psychiatric patient from Washington DC with the text of the "Mithras Liturgy" in the Great Magical Papyrus of Paris (2nd–4th century CE), published for the first time four years after his contact with said patient. Anyone familiar with the works of Jung knows that he regularly referenced ancient myths, ethnographic accounts, pottery scenes, engraved gems, sculptures, mosaics, manuscripts, and various other products of culture that are primarily the focus of the archaeological, anthropological, and historical sciences. But Jung did not just take it—he also gave back. In fact, we believe that, intentionally or not, he managed to return the favor to archaeologists by giving them a valuable theoretical model that could further advance their understanding of human cognition and meaning-making in relation to both spiritual and material culture.

Nevertheless, in the theoretical transition from processual to post-processual archaeology, the works of Jung were never taken into serious account by archaeologists. In their hermeneutical quest for the multifacetedness of meanings, archaeologists aspired, rightly so, to move past structuralism and the cross-cultural reproduction of "universal laws" of meaning. In such a theoretical context, it seems to us that Jung was unjustly lumped in and sidelined with representative structuralist scholars like Claude Lévi-Strauss and Mircea Eliade, among others. Basically, Jung's archetypes were thought of as being "essentialist" and were treated as "reductionist" paradigms that in some way just reinforce cultural stereotypes. We strongly oppose this interpretation of Jung's theories, and in turn think that such an understanding is, in fact, reductionist in itself. We believe that the misunderstanding of Jung's ideas derives from the indirect consumption of his ideas through intermediary authors, and the inability to make a terminological distinction between "archetypes" and "archetypal images", as well as between the "collective" and the "personal" unconscious. In this paper, we will try to clear up some of the misconceptions regarding Jung's theories, present his ideas in a transparent manner, and then show how they could fit within the theoretical framework of archaeology.

1 Archetypes, Archetypal Images, the Collective and Personal Unconsious

According to Jung, archetypes are the unconscious psychological manifestations of instincts, which together with them form the collective unconscious:

> [...] *we also find in the unconscious qualities that are not individually acquired but are inherited, e.g., instincts as impulses to carry out actions from necessity, without conscious motivation. In this 'deeper' stratum we also find the a priori, inborn forms of 'intuition', namely the archetypes of perception and apprehension, which are the necessary a priori determinants of all psychic processes. Just as his instincts compel a man to a specifically human mode of existence, so the archetypes force his ways of perception and apprehension into specifically human patterns. The instincts and the archetypes together form the 'collective unconscious'* (Jung 1969, 129-138; Jung 1980, 3-53; Jung et al. 1988, 69).

Namely, we as humans as a biological species inherit certain physiological instincts, which in turn have their psychological counterparts in archetypes—both influencing human behavior.

However, these archetypes cannot be perceived directly, but only implicitly through the symbolic ideas and representations that they produce, called archetypal images, by which the subconscious communicates with the conscious. These images take a specific shape under the conditions of various inner and outer world factors. Therefore, when interpreting these symbolic manifestations, we have to be cautious and always bear in mind that they do not have a fixed meaning—i.e., that they are not the archetypes-as-such by themselves, but their products influenced by context. Jung will go on to say:

> *No archetype can be reduced to a simple formula. It is a vessel which we can never empty, and never fill. It has a potential existence only, and when it takes shape in matter it is no longer what it was. It persists throughout the ages and requires interpreting ever anew. Archetypes are the imperishable elements of the unconscious, but they change their shape continually* (Jung & Kerényi 2002, 116-117).

In addition to the collective unconscious, inherent to all humans, the unconscious of every individual is complemented by the personal unconscious, formed by personal psychological contents, experiences, thoughts, and feelings, i.e. "made up of individual and more or less unique contents" (Jung 1969, 129-138). Obviously, cultural context plays a crucial role in the formation of our personhood, ideas and symbols, which is why Jung explained in his "Face to Face" interview that:

We are shaped through education, through the influence of parents, which is by no means always personal. They were prejudiced, or they were influenced by historical ideas or what are called dominants, and that is a most decisive factor in psychology. We are not of today or of yesterday; we are of an immense age (McGuire & Hull 1977, 433).

Ultimately, according to Jung, the psychology of humans has three levels: consciousness, the personal unconscious, and the collective unconscious (Jung 1969, 139-158). All of these levels influence the creation of meaning and symbols, so:

*[W]hen we attempt to understand symbols, we are not only confronted with the symbol itself but we are brought up against the **wholeness** of the symbol-producing individual. This includes a study of his cultural background, and in the process, one fills in many gaps in one's own education. I have made it a rule myself to consider every case as an entirely new proposition about which I do not even know the ABC. Routine responses may be practical and useful while one is dealing with the surface, but as soon as one gets in touch with the vital problems, life itself takes over and even the most brilliant theoretical premises become ineffectual words* (Jung et al. 1988, 92).

2 Archetypes and Archeologists

Despite Jung's extensive treatment of archaeological material and topics which one would guess to be of interest to archeologists, we find it strange that his works have not been taken into account, reviewed, analyzed, or even criticized more thoroughly by a greater number of archaeological theorists. One of us has referenced some of Jung's ideas, among those of other authors, in presenting the theoretical and methodological framework of an archaeological monograph published in 1994, which dealt with the mythical-religious visual manifestations of the South Slavs in the Middle Ages (Чаусидис 1994, 7-67). Jung's theory on the "transformation of the libido" as a possible source of early human discoveries and its usefulness to archeology was also the topic of an interdisciplinary paper published by the former in 2006 (Чаусидис 2006; on Jung's theory on the "transformation of the libido": Jung 1949, 157-190). The other coauthor of this paper, in turn, placed Jung's ideas in the focus of his Master's thesis from 2020, demonstrating a method of symbolic analysis in regard to archaeological material, in the specific case – artifacts that depict an anthropomorphized circle (Ефтимовски 2020). Another thesis was written by R. Needham in 2015, which gave a Jungian perspective on the Neolith-

ic archaeology of the British Isles (Needham 2015). However, the most discussed archeological paper that utilized Jung's ideas was published by R. J. Nash in 1997. In it, the author argues that Jung's theory of archetypes can offer "a new method for cognitive archaeology", helping archeologists "reconstruct something of what people perceived of various ancient landscapes via myth and the contemporary vernacular arts" (Nash 1997).

In contrast to the aforementioned works that view Jung's ideas favorably, other authors, such as I. Hodder, S. Hutson, and T. Insoll, have expressed doubt and criticism towards his theory of archetypes. However, we find it very symptomatic that these esteemed authors criticize Jung's ideas indirectly, through the paper of R. J. Nash, without addressing the original works written by the Swiss psychoanalyst himself. In the next paragraphs, we will present their criticisms in their entirety, followed by our response.

I. Hodder and S. Hutson write:

> In archaeology, Nash (1997) locates the source of deep structures of meaning in Jung's concept of the collective unconscious. Here, meaning occurs when archetypes – a priori forms that are hereditary and grounded in the nervous system – imprint themselves as images on the world, such as the hero, the trickster, and the mother goddess. This account of structure is unsatisfactory because it essentially denies the existence of difference: meaning is universal in the strongest sense – a part of human biology unmediated by time or place. Our actual experience in the social and physical world counts for nothing" (Hodder & Hutson 2003, 63).

Our first remark in response to Hodder and Hutson's comments refers to the question of archetypal images, such as "the hero, the trickster, and the mother goddess". Here, the authors fail to mention that these symbolic forms are neither the only nor the definitive images that are produced as a result of archetypal impulses. They also fail to mention Jung's clarification that "no archetype can be reduced to a simple formula", and that "they change their shape continually", which is why every archetype "requires interpreting ever anew" (Jung & Kerényi 2002, 116-117). In terms of the second part of Hodder and Hutson's comments, where they suggest that Jung's theory "denies the existence of difference" and that "Our actual experience in the social and physical world counts for nothing", they seem to completely disregard consciousness and the personal unconscious as other parts of the human psyche, in addition to the collective unconscious. Namely, as we saw previously, Jung clearly states the importance of both individual and cultural context in the formation of symbols, emphasizing that:

> *[W]hen we attempt to understand symbols, we are not only confronted with the symbol itself but we are brought up against the wholeness of the symbol-producing individual* (Jung 1969, 129-158; Jung et al. 1988, 92; McGuire & Hull 1977, 433).

In fact, a recurring topic in Jung's writings is precisely the concept of individuation i.e. "the coming-to-be of the self". According to Jung, the term denotes "the process by which a person becomes a psychological 'in-dividual', that is, a separate, indivisible unity or 'whole'". Individuation is quite probably one of the most important psychological processes of archetypal nature (Jung 1969, 293; Jung 1980, 275ff; cf. von Franz 1988).

Similarly to Hodder and Hutson, T. Insoll also criticizes Jung's ideas indirectly, through R. J. Nash's aforementioned paper. T. Insoll writes:

> *Nash (1997:57) might also attempt to overcome some of these hurdles in invoking a Jungian psychoanalytic approach as a way of getting at landscape meaning, including the 'surreal or fantastic quality'; in the end, though, the same assumption of similarity to that just described weakens his study. The 'archetypes' or 'prime imprinters' described as 'inherent in human nature' (ibid.: 58) can be suggested as merely psychological equivalents supposedly generated by the unconscious mind of the material 'Hierophanies' or 'axis mundi', the notion of recurring spiritual centers developed by Eliade (1959). Nash is assuming, and indeed states, that perceptions of landscape, including features frequently defined as 'ritual' or 'religious' in nature, remain the same across time, owing to the assumption that 'the psyche (conscious or unconscious mind) of the fully modern humans of 40,000 years ago was not significantly different to that of people today' (1997:58). This search for the 'collective meanings' is essentialist in outlook and reductionist in scope. Continuity might be there but the existence of unconscious archetypal similarities on an enduring scale raises the inevitable question of whose collective archetypes are being invoked. As already stated, the assumption of similarity is not proven* (Insoll 2004, 98).

In this case, T. Insoll makes the mistake of equating the archetypes of Jung with the theories of M. Eliade. The latter author for a certain time also adopted the term "archetype" but interpreted it in a very different way than Jung, which is why he later abandoned its use. As I. Jakimovska points out in the afterword of the Macedonian translation of Eliade's *Le mythe de l'éternel retour: archétypes et répétition* (1949), for Eliade, archetypes "take on the meaning of transhistorical paradigms, a definition that is closer to Neoplatonism than to Jung" (Јакимовска 2007, 164-165). We believe that this would be clear to anyone familiar with the works of both authors. Further on, T. Insoll's categorization of Nash's and Jung's ideas as being "essentialist" and "reductionist" is in itself a reductionist view of Jung's complex theo-

ries on the human psyche, not taking into account the multitude of factors that the Swiss psychoanalyst thinks play a role in the formation of symbols and meaning. By posing the "inevitable question of whose collective archetypes are being invoked", T. Insoll seems to misunderstand Jung's definition of the "collective unconscious" and "archetypes" as biological traits of all humans akin to their basic instincts like, for example, nourishment and reproduction. However, we think that T. Insoll nevertheless raises one important question worth broader discussion, regarding the difference between the human psyche of "people today" and "fully modern humans of 40,000 years ago". Although the definition of archetypes as a biological trait of Homo sapiens would suggest that they should apply to both humans of today and 40.000 years ago, we nevertheless think that such an answer or rejection of thereof is still open for discussion. We think that the main adjacent question would be how much the structure of the human nervous system has evolved over the past 40.000 years. Obviously, this is a question whose answer also requires the input of evolutionary biologists and neuroscientists, in addition to the thoughts of archeologists, anthropologists, and psychologists.

3 Archetypes in Archeology

Regardless of our disagreement with I. Hodder's criticism of Jung discussed above, we still consider his theoretical works as one of the "gold standards" in the archeological study of meaning and symbols, especially in terms of his "contextual archaeology". This is precisely why we will use Hodder's *Theory and Practice in Archaeology* to establish our baseline principles for such archeological studies and compare them to Jung's own thoughts regarding the study of symbols and meaning. The four main principles that we excerpt from Hodder's abovementioned book are (Hodder 2005, 10-14):

- "It is possible to go beyond the immediate physical uses and constraints of objects to the more abstract symbolic meanings."
- "Although material culture is always meaningfully constituted, it can be given conceptual meanings in different ways."
- "But the intentions do not exhaust the meanings of the objects. This is because there may be conceptual meanings which are not recognized by the makers and users of objects."
- "The symbolic meanings of artifacts are thus not entirely arbitrary because they are bounded within contexts."

Now, how do these four basic principles correspond to Jung's own ideas? We will try to answer them in the same order, accordingly:

- Given that Jung has always strived to include physical archaeological objects in his studies of symbols, we think that he would fully agree that it is in fact possible to reach the more abstract symbolic meanings of artifacts.

- The second above-excerpted principle can be related to Jung's thoughts that archetypes cannot be reduced to a simple formula, that they have a potential existence only, and that they change their material shape continually, which is why they also require continual reinterpretation. In addition to archetypal factors, the personal unconscious and cultural context of the meaning-maker and interpreter also affect the meaning, resulting in the pluralism of meaning. This is why Jung insists on the wholeness of the individual when trying to understand symbols.

- We think that the third excerpted principle from Hodder's writings about "unrecognized meanings" corresponds to Jung's voluminous studies on the importance of the unconscious, both collective and personal, in addition to the conscious part of the psyche, in the understanding of meaning and the interpretation of symbols.

- As previously noted, when trying to understand symbols, Jung insists on the wholeness of the individual, including "a study of his cultural background", taking into account education, parenting, social prejudices, historical ideas, etc., or simply put—cultural context. He also emphasized the importance of one's own self i.e. individual psychic content, in addition to the biologically collective i.e. archetypal psychic content, as well as the culturally influenced ones. All this builds a complex contextual structure of many layers and variable factors that influence the creation of meaning, which should be taken into account when interpreting symbols i.e. artifacts.

4 The Importance of Archetypes in Archaeology

By now it should be clear to the reader that we advocate for the usefulness of Jung's ideas in archeology. But, how exactly? We think that one of the problems in archeology and anthropology, which is still insufficiently explained by scholars in these fields, is the occurrence of similar cultural phenomena in human communities that apparently

have/had no direct communication. That this problem is not sufficiently cleared up is evident from its abuse in pseudo archeological claims of "ancient aliens", "lost civilizations" of the Atlantis type, or diffusionist national-chauvinistic theories of "supreme" cultures that influence other, "inferior" ones. What Jung's theory of archetype offers is a model for understanding how biological factors and patterns of cognition inherent to all humans can eventually lead to similar cultural phenomena all over the globe, without the need for an overarching cultural intellect. This is perhaps more evident in cases of basic cultural manifestations such as the use of genital imagery to signify "fertility" or "sexuality" (among other meanings), the use of animals as symbolic codifiers of their respective "cosmic zones", the understanding of the sun's daily cycle as a case of birth, death, and rebirth, etc. However, it could also relate to seemingly more complex symbolic phenomena such as mandala-like images, iconographic arrangements of the "Master/Mistress of Animals" type, or even gold funerary masks.

Jung offers an explanation of how humans are at their biological core cognitively equal to each other in any region of the planet or time in history i.e. driven by common cognitive processes in the creation of meaning—a philosophically humanist idea, rather than a culturally centric, stereotype-enforcing one. The main ethical takeaway from Jung's theory is that not a single group of people on the planet is cognitively superior to any other. Furthermore, the discussion about the precise way in which the archetypal mental processes work is for the most part still in the realms of the unknown, and therefore offers a multitude of scientific professions the possibility to try and delve deeper and further advance their studies of the human mind.

Regarding the professions that study human culture, as the case with archaeology and anthropology, we must be careful to not reduce Jung's ideas to notions of structural essentialism or universalism, as others have before. Instead, we have to understand the collective unconscious as just one factor in the complex meaning-making process of humans, which also includes the possibility of difference and pluralism of meaning through the influence of consciousness, the personal unconscious, cultural context, and individual psychic traits—the "wholeness of the individual". If anything, Jung is in many ways more a "hermeneutical post-processualist", than a "structuralist", as he himself has stated:

> Routine responses may be practical and useful while one is dealing with the surface, but as soon as one gets in touch with the vital problems, life itself takes over and even the most brilliant theoretical premises become ineffectual words. (Jung et al. 1988, 92).

Ultimately, as R. W. Preucel and A. A. Bauer concluded in their masterful attempt to harmonize the semiotics of C. S. Peirce with contemporary archaeological theory (Preucel & Bauer 2001), we believe that C. G. Jung, too, offers a kind of unity at the level of logical reasoning (metapragmatic level) and disunity at the level of interpretative theory.

5 Concluding Remarks: The Synthesis of Jungian Psychology and Archaeological Theory

Even if we all accept that Jung's ideas do indeed have their place in archaeology, the main question still remains open on how we in fact incorporate them into mainstream archaeological theory i.e. what would be the methodological mechanism for their application in concrete archaeological problems? This issue is complex and requires more discussion and publications in order to result in a satisfactory solution. On this occasion, we will present some key principles that we think should represent the basis of the theoretical-methodological framework for incorporating Jungian psychology into archaeological theory.

We begin with the theoretical postulates:

- Material and immaterial culture always has a certain symbolic value added to it. However, the production and construction of signs, symbols, and meaning are influenced by mental factors on both the level of consciousness and the unconscious.
- Subsequently, meaning can be both cultural/social and personal.
- At the same time, there are certain biological mental factors that influence the inner workings of the human mind. Those biological and mental factors, although still a mystery to the fullest, are in principle scientifically observable, ascertainable, and predictable.
- They produce archetypes and lead to archetypal images, which influence the production and construction of signs, symbols, and the meaning of material and immaterial culture.
- Therefore, we must take them into consideration when interpreting the meaning of material and immaterial culture.

- The methodological mechanism we endorse is the following:

- Our starting point is the archeological situation or object of interest, whose meaning we don't know. Our goal is to propose

an educated interpretation of its possible meaning(s). We take a deductive and inductive approach.

- The deductive approach would consist in trying to establish a wide baseline of its possible meanings, founded on our current understanding of archetypes and archetypal images (defined by Jung).
- The inductive approach would consist of comparing the situation or object of interest to similar situations and objects with known meanings.
- We proceed to compare the baseline of possible meanings with the analogies that have known meanings, the goal being to ascertain if there is a certain overlap i.e. to narrow down the possibilities.
- Finally, we try to establish how the remaining possibilities of meaning fit into the wider context of the archeological situation or object (current data on the cultural, historical, political, religious, geographical, ecological or some other level of context). We exclude the ones that show discrepancy and put forward the ones that remain as "the most plausible potential meanings" of the archeological situation or object.

To satisfy the scientific criterion of falsifiability, the potential meanings that are put forward retain the possibility to be revised, edited, or rejected in accordance with new information on three levels: new knowledge of biological mental patterns (archetypes), new comparable finds, and new data regarding the wider context of the archeological situation or object of interest.

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Vanja Subotić

University of Belgrade
Institute of Philosophy at the Faculty of Philosophy
vanja.subotic@f.bg.ac.rs

SEMANTIC INTERNALISM AND EXTERNALISM IN PALEOLINGUISTICS: MIND YOUR LANGUAGE ABOUT PROTO-INDO-EUROPEAN MIND AND LANGUAGE!

Abstract: Paleolinguistics (or linguistic paleontology) is a scientific discipline that combines the methodology of historical linguistics with archaeological insights. Specifically, paleolinguists aim to reconstruct the linguistic expression of a particular archeological culture. In this paper I deal with the methodology of paleolinguistics since this has recently come under the scrutiny of philosophers—for instance, Mallory (2020) has argued that tools of the philosophy of language can be employed for charting the space of legitimate use of paleolinguistics, most notably the position of semantic internalism. Specifically, in his view, linguistic reconstructions of the Proto-Indo-European lexicon express Sinn or sense, whereas the proto-lexicon is best understood as a model of conceptual capabilities of a particular historical community. I want to show that one can consider semantic externalism as a more fruitful alternative. In other words, I propose to see the proto lexicon as a model that shows a feedback loop between speakers' conceptual capabilities and scaffolding of these capabilities through speakers' interaction with the environment. I show that the process of scaffolding can be mediated by cognitive fossils which, in turn, forges a tighter methodological link between paleolinguistics, archaeology, and the study of human cognition.

Keywords: archeological artifacts, cognitive fossils, paleolinguistics, Proto-Indo-European, semantic internalism, semantic externalism.

1 Introduction

Somewhere between 6000–2500 BC[1] on Eurasian soil, our ancestors roamed and reshaped their environment as well as their lives. They conversed, prayed, and had a sense of belonging to their families, clans, and tribes. They named objects surrounding them, thereby leaving traces—both linguistic and material ones. Thanks to these traces, we know a thing or two about them, such as that they were Proto-Indo-Europeans, living in the Proto-Indo-European homeland and speaking the Proto-Indo-European language from which many living language families originate.[2] This is pretty much it—every other detail about them is blurry and open for debate. Luckily, a vast array of experts are disclosing and discussing these details: *archeologists*, *historical linguists*, *paleolinguists*, and *archeolinguists*. This is, in fact, where our story begins.

Paleolinguistics (or linguistic paleontology) is a scientific discipline that combines the methodology of historical linguistics with archaeological insights. Specifically, paleolinguists aim to reconstruct the linguistic expression of a particular archeological culture, i.e., the material and social culture of speakers inhabiting a particular location in a particular historical period (Pereltsvaig & Lewis 2015: 182). Unlike historical linguistics, paleolinguistics is not focused either on the genetic relatedness of different languages and language families or etymology, although it does indeed draw heavily on the comparative method and results of historical linguistics. Rather, paleolinguists, or "long rangers" as Don Ringe labeled them (see Sidwell 1995: 23), try to extend the comparative method to the Neolithic period so that they could trace objects of reference for linguistic reconstructions of PIE. In other words, ideally, the proto-lexicon of PIE, i.e., reconstructed lexical items, should name artifacts that archeologists uncover. Archeolinguistics, on the other hand, mostly deals with the archeological decipherment of ancient scripts and strives to complement archeological records with insights stemming from linguistic anthropology instead of historical linguistics (Chrisomalis 2009). Paleolinguists are not so lucky—we have no written record of PIE.

If you ask archaeologists, paleolinguistics is notorious for farfetched conclusions regarding the social and cultural organization of PIE speakers or their cognitive and linguistic capabilities (see, e.g. Renfrew 1987). It seems odd to infer from the proto lexicon that specific rituals,

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1   Remember the numbers since they will figure prominently in the rest of the text.
2   Henceforth the term "Proto-Indo-European" will be abbreviated as PIE.

beliefs, and political institutions were instantiated in the Neolithic period without any additional, independent evidence, such as material records. If you ask paleolinguists, however, they will probably tell you not only that archeologists are often guilty of *ignoratio elenchi* when they discard paleolinguistics but also that archeology *per se* cannot uncover relevant details about PIE society without taking into account (later) linguistic records (see, e.g. Pereltsvaig & Lewis 2015: Ch. 9).

In this paper, I will be dealing with the methodology of paleolinguistics since this has recently come under the scrutiny of philosophers—for instance, Mallory (2020) has opened exciting new vistas for the philosophy of language and linguistics with his take on paleolinguistics. In a nutshell, Mallory argues that tools of the philosophy of language can be employed for charting the space of legitimate use of paleolinguistics, most notably the position of *semantic internalism*. Roughly, semantic internalists hold that to know the meaning of a word (its sense or *Sinn*—in Frege's (1892/1952) terminology), one must associate some descriptions with it in order to fix the reference of such word, i.e., to ensure that the word applies to a particular object it names. Once this has been settled, there is nothing *in principle* unscientific about paleolinguistics, and archaeologists have no methodological reason to consider paleolinguistic claims illegitimate. Simply enough, linguistic reconstructions of the PIE lexicon express *Sinn* or sense, whereas the PIE lexicon is best understood as a model of conceptual capabilities of a particular historical community (Mallory 2020). I aim to build on and further expand Mallory's work. The structure of the rest of the paper thus goes as follows. In Sect. **2**, I rehearse the debate between proponents of the two most prominent hypotheses regarding the PIE homeland to give a crude sketch of what paleolinguists do as well as to depict general features of PIE society, and *ipso facto*, PIE *qua* proto lexicon. In Sect. **3**, I present and discuss Mallory's position, whereas, in Sect. **4** & **5**, I present and defend mine.

I want to show that one can consider *semantic externalism* as a more fruitful alternative to semantic internalism when it comes to the methodology of paleolinguistics. Semantic externalists (most notably Putnam (1975) and Kripke (1972)), as opposed to semantic internalists, hold that lexical meaning extends beyond our heads, i.e., we use words to refer to particular objects thanks to causal chains that link us to our environment. I will, thus, argue that we should understand linguistic reconstructions of the PIE lexicon in a broader interdisciplinary context, namely that of cognitive archeology besides archeology *sensu lato*. In other words, instead of picturing the PIE lexicon as a

model of conceptual capabilities of a particular historical community, I will propose to see it rather as a model that shows a feedback loop between speakers' conceptual capabilities and scaffolding of these capabilities through speakers' interaction with the environment. For proper names and natural kind terms, we do reasonably expect that reconstructions refer to artifacts that archeologists uncover and will continue to uncover, whereas, for fictional names and social kind terms, these expectations are scarcely met. Nonetheless, instead of overly relying on paleolinguistics on the one hand or considering it altogether unscientific in comparison to archeology, by using the idea of *cognitive fossils* (Baumard et al. 2024) as a testbed for tenants of paleolinguists, one could have an additional tool for charting the space of legitimate use of paleolinguistics, which would be in line with semantic externalism, i.e., the contribution of the philosophy of language that Mallory has already emphasized, albeit in favor of the different position.

2 Sweet Home Anatolia? Evaluating Competing Hypotheses about the PIE Homeland

Locating the PIE homeland and formulating a proto lexicon does not necessitate an assertion of a homogeneous PIE culture or PIE nation. Paleolinguists start with the implicit premise of historical linguistics that the very existence of PIE reconstructions implies that there were some speakers of that proto language. This is reflected in the words of one of the leading authorities in that field, Martin West (2007: 2):

> If our language is a descendant of theirs, that does not make them 'our ancestors', any more than the ancient Romans are the ancestors of the French, the Romanians, and the Brazilians. The Indo-Europeans were a people in the sense of a linguistic community. We should probably think of them as a loose network of clans and tribes, inhabiting a coherent territory of limited size.

Nonetheless, the quest for a "coherent territory of limited size" spurred much controversy over the years and produced competing hypotheses that were to be tested against archaeological and genetic evidence. It was believed that once we find the PIE homeland, all reconstructions will get their objects of reference, and we will end up with a clear, substantiated image of the PIE community. The scientific reality is, alas, much messier, and more inconclusive than paleolin-

guists and historical linguists would want mostly because legitimate scholars and odd racist fellows alike took an interest in this puzzle (see Pereltsvaig & Lewis 2015: Ch. 1). At the beginning, the only evidence for narrowing down the quest for the PIE homeland was linguistic, based on the comparative method, and scarce. Over the years, a couple of clues for localization have been gathered (Day 2005: 9):

- the territory included plant species like *beech* and animal species like *salmon* given that these terms have been reconstructed;
- agricultural and cereal cultivation as well as trading across water must take place on the territory due to the reconstructions related to *plow*, *wheel*, and *horse*;
- pottery was widely used and made;
- some sort of gods were worshipped;
- there was a patrilineal kinship system.

With additional and interdisciplinary methods from the 1970s, the quest for a PIE homeland became boosted with the analysis of genetic material and archaeological records. This gave rise to several rivalrous hypotheses about the exact location of the homeland like the most famous Anatolian and Pontic-Caspian Steppe.[3] The Anatolian hypothesis was advanced by the archaeologist Collin Renfrew (1987), who claimed that PIE speakers inhabited Neolithic Anatolia (or Asia Minor) around 7000 BC and were farmers, given the archaeological evidence of the gradual spread of agriculture into Neolithic Europe. This spread was an unexceptional event: each time agricultural cultivation was introduced in some part of the world, the process replicated. Farmers dominated non-agricultural societies, who could either adapt to new technologies and interbreed, or isolate. This hypothesis offered an elegant explanation of the expansion of PIE across the European continent. We ended up with multiple descendant languages of PIE because farmers tend to have higher birth rates due to the stable food supply, so they occupied particular territories with higher population density. However, Renfrew was opposed to the idea of large-scale migration from the PIE homeland to the rest of Europe, the spread was a peaceful instance of demic diffusion, i.e., a diffusion over unpopulated or scarcely populated areas (Renfrew 1987: 129). Renfrew was

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3   The Armenian highlands or Near Eastern hypothesis is also among the top three most popular hypotheses of PIE homeland. However, I will not be discussing it at all given that I use the search for PIE homeland only for introducing the friction between archaeologists and paleolinguists.

also one of the archaeologists with a severe disdain for paleolinguistics (1987: 98):

> The main reason for the failure to locate such a homeland arises, I think, first from an unwise reliance on linguistic paleontology in a rather uncritical way. Secondly, it is a migrationist view. And thirdly it springs from a tendency not to consider with sufficient care the processes at work.

Nonetheless, other scholars opposed the Anatolian hypothesis on several accounts, most notably because it places the resurgence of PIE too early, whereas the later Neolithic period looks like a more likely candidate (Anthony & Ringe 1995). Additionally, some of the recent studies in ancient DNA analysis pertaining to the massive migrations in Neolithic Europe are disproving the Anatolian hypothesis and cleaving closer to the other rivalrous hypothesis, namely the Pontic-Caspian Steppe hypothesis (Kloekhorst et al. 2023). I will not delve into the details pertaining to the falsification of the Anatolian hypothesis but use the rest of the Sect. to introduce the Pontic-Caspian Steppe hypothesis with respect to the role of paleolinguistics in advancing it.

Marija Gimbutas (1956) and David Anthony (2007) claimed that PIE speakers inhabited the steppe north of the Black Sea. Gimbutas analyzed specific burial mounds or kurgans and hypothesized that PIE originated from such a Kurgan archaeological culture. Gimbutas then proposed four stages of development of Kurgan culture from the Copper Age to the Early Bronze Age (5000 BC–3000 BC). The spread of PIE corresponds to what Gimbutas calls the "kurganization" of neighbors, which was essentially a military imposition of the patriarchal system onto the matrilineal and egalitarian system of the inhabitants of Old Europe. Anthony, on the other hand, maintained that there was a cultural and ecological frontier between sedentary farmers and early PIE speakers that was reflected in divergent artifacts and fossils found in different ecotones. PIE *qua* proto lexicon breached this frontier due to the specific social organization of PIE speakers. Unlike Gimbutas, Anthony did not portray the sedentary farmers of Old Europe as passive and peaceful people who were easily overrun by war-frenzied chieftains. Instead, Anthony canvassed the following picture (2007: 118):

> Out-migrating Indo-European chiefs probably carried with them an ideology of political clientage [...], becoming patrons of their new clients among the local population; and they introduced a new ritual system in which they [...] provided the animals for public sacrifices and feasts, and were in turn rewarded with the recitation of praise poetry all solidly reconstructed for proto-Indo-European culture.

Anthony also fervently defended paleolinguistics as a legitimate method despite Renfrew's dismissal and despite sharing the area of expertise with Renfrew, namely archaeology. Paleolinguistics bridges the communication gap between elitist linguists and cynical archaeologists who usually find each other naïve and offer too simplistic claims. Anthony proposed that the implicit bias provoking this communication gap amounts to the conviction that it is virtually impossible to link language and material culture (2007: 103-104):

> *Almost any object could have been used to signal linguistic identity, or not. Archaeologists have therefore rejected the possibility that language and material culture are correlated in any predictable or recognizable way. But it seems that language and material culture are related in at least two ways. One is that tribal languages are generally more numerous in any long-settled region than tribal material cultures. [...] The second regularity is more important: language is correlated with material culture at very long-lasting, distinct material-culture borders.*

This implicit bias is juxtaposed to the very methodology of paleolinguistics, namely establishing inferences about the implications of linguistic reconstructions. It seems that the Steppe hypothesis, being more open-minded to the prospects of marrying the comparative method of historical linguistics and material evidence, clears the name of paleolinguistics to a certain extent. This, in turn, means that each piece of material evidence could bring us one step closer to how PIE speakers lived and how our mother tongues came to be (provided that they belong to one of numerous PIE families) once we located their homeland in the Pontic-Caspian Steppe.

3 Mallory's Semantic Internalism

Fintan Mallory, in his 2020 paper, makes a useful distinction between the two types of inferences paleolinguists make. They are committed to one of the following views:

(I_1) linguistic reconstructions imply objects of reference,
(I_2) linguistic reconstructions imply concepts.

When it comes to inference *(I_1)*, it is based on the *ontological assumption* that objects of reference must exist as long as linguistic reconstructions are developed per the comparative method. This type of inference would be in line with both *realism* and *Platonism* in the philosophy of linguistics. Realists would consider PIE a natural language,

whereas the individual reconstructions would be deemed as historical interpretations of customs and objects that PIE speakers used. Platonists would go even further and claim that PIE is a set of linguistic types that exist independently of PIE speakers, and linguistic reconstructions are instances of these types. If a paleolinguist opted for realism or Platonism, she would be committed to something like (I_1) since she would have to bite the bullet and admit that linguistic reconstructions do imply the existence of objects they were designed to name.

Even though this may seem like a viable type of inference for proper names or natural kind terms, i.e., reconstructions having to do with everyday objects, animals, and plants, fictional names used for labeling deities, rituals, and customs seem to function a bit differently than ontological assumption suggests since it would be odd to suppose that these entities *really* exist. Moreover, stumbling upon artifacts does not tell us anything about the real existence of such entities but rather about the system of beliefs of PIE speakers. Moreover, this type of inference has another implicit assumption—that the comparative method is reliable on the semantic level inasmuch as it is on the morphophonological. This is, unfortunately, far from the truth. We do not have anything similar to sound laws at the semantic level since we do not have semantic laws at all. We learn how word meaning changes over time through different means, i.e., by studying semantic shifts such as metaphor, metonymy, generalization, specialization, etc. Besides, more than one meaning can be reconstructed from the same morphophonological form, which means that the object of reference cannot be fixed via sound laws alone—i.e., without the ontological assumption. Thus, a paleolinguist who would commit to (I_1) would be in trouble: without the ontological assumption that the existence of a particular reconstruction implies the existence of the object of reference, there seems to be no way to fix the reference, but this assumption seems odd when reconstructions have to do with names of deities, rituals, and customs.

Maybe a paleolinguist who would commit to (I_2) would fare better. This type of inference is based on the epistemological assumption that if we are able to reconstruct morphemes of the PIE, then we can concur that speakers of PIE had some sort of knowledge about concepts designated by linguistic reconstructions. In a nutshell, they were competent speakers in the sense that they were *semantically competent*—the comparative method is, once again, deemed equally applicable to the level of semantics as it is to the level of sounds and morphemes. As we have seen above, more than one meaning can

be reconstructed from a single linguistic structure which means that paleolinguists must choose between multiple hypotheses. Indeed, we cannot decide between hypothetical meanings objectively (that is, we cannot attribute objective probabilities to hypotheses) since we have discarded the ontological assumption, but luckily, the epistemological assumption saves the day. Paleolinguists *qua* experts are familiar with the PIE inasmuch speakers of PIE were familiar with their mother tongue, so the experts' subjective judgments (that is, statements of credence) are to be believed as legitimate. Each paleolinguist has a particular level of confidence when hypothesizing about the concept designated via linguistic reconstruction, and in due time, we will opt for the one with the highest level of confidence which amounts to choosing the currently best explanation. Naturally, this means that paleolinguists committed to *(I₂)* reason *abductively* (Mallory 2020: 281).

Mallory refines *(I₂)* to advance his arguments in favor of semantic internalism as a useful theoretical framework for understanding and honing the methodology of paleolinguistics. Thus, paleolinguists have at their disposal something besides *(I₁)* and *(I₂)*; that is, they can commit to the view that

(I₃) linguistic reconstructions imply Fregean sense.

Frege (1892/1952) introduced the distinction between *sense* (ger. *Sinn*) and *reference* (ger. *Bedeutung*) to explain how words get their meanings, i.e., how names refer to objects. Sense gives cognitive significance to particular linguistic expressions thereby making out of them meaningful and informative expressions instead of a mere sequence of sounds through the mode of presentation. The mode of presentation is how a particular object of reference is thought of or conceptualized. It encapsulates the cognitive aspect of how a reference is given to the mind through sets of descriptions. Most importantly, sense is intersubjective, i.e., shared among speakers. This means that speakers will share at least some of the most salient descriptions. Now, a plethora of papers have been written since the introduction of the *Sinn/Bedeutung* distinction to analyze what sense really amounts to. For the time being, these details can only muddy the waters, so I will focus solely on what Frege had to say about *Sinn* instead of discussing Neo-Fregeans.

Recall that, sometimes, words may not have objects of reference, as in the case of fictional names used for designating gods in PIE society. This, however, does not mean that fictional names do not have sense since they are intelligible—PIE speakers had a mythological or

metaphysical framework[4] in which different gods had their specific roles. Thus, PIE speakers could have different modes of presentation related to fictional names, or sets of descriptions linked to a particular deity.[5] Thus, in Iranian/Avestan, the adjective *spənta–* (from the root *spən–* designating "sacred") along with *amərəta–* (designating "immortal") forms aməša-spənta which is a label for the group of seven guardian deities. The deities—although labeled with abstract fictional names—were embodied in natural "elements" like water, fire, metal, air, etc., and grouped around the supreme deity Ahura Mazda (Benveniste 2016: 455). Sets of descriptions inside the minds of PIE speakers, in this case, grounded in natural "elements", were used to fix the reference of the particular deity within the "Immortal Saints" cohort. Now, it is easy to see why Mallory thinks that semantic internalism can be used to make paleolinguistics more methodologically legitimate. The subjective expert judgments are enhanced by the assumption that *Sinn* and related modes of presentation fix the reference by conveying the idea that there is some kind of conceptual apparatus of PIE speakers that mirrors the world they were inhabiting. This is also what makes them similar enough to us and, therefore, allows for further judgments about the minds of members of this historical community. Both modern and Neolithic minds are Fregean in terms of their semantic competence and the main task of paleolinguists is to reconstruct *sense* through the comparative method rather than simply objects of reference as in (I_1) or concepts as in (I_2). Case closed?

4 Vivat Semantic Externalism! Meanings are Not in the Head but in the Artifacts?

I will rehearse my last point from the previous Sect. here so that I could start by elaborating on why I think that semantic externalism is a better fit than semantic internalism. The claim that paleolinguists

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4   Arguably, it would be wrong to call these spiritual inclinations of PIE speakers "religion" because this term implies the existence of the institutional instead of merely metaphysical framework (Benveniste 2016: 526). For PIE speakers there was no clear demarcation line between the natural and supernatural, but rather everything was imbued with spiritual meaning.

5   According to Meillet (1921: 313), the comparative method can provide us with general terms (such as "deity") but focusing on a particular community sheds light on the mythological/metaphysical framework of PIE speakers. Thus, it makes sense to claim that if semantic internalism were considered an adequate methodology, then the modes of presentation could be used to discern particular forms of deity.

reconstruct sense, which then fixes the reference, presupposes that their formal work is sufficient to secure the inference from reconstruction to material evidence. This is, however, sufficient only if an *idealized* PIE speaker is posited, whose knowledge of language is the same as the knowledge of paleolinguists *qua* experts. In Joseph's words (1992: 140):

> [I]f one adheres to the view that grammars ought to mirror speakers' actual capabilities and not a somewhat idealized construction of them, then (…) the typical types of evaluation metrics that linguists use to argue for the proper formulation of a fragment of grammar cannot (always) be maintained.

Thus, in line with Joseph (1992), I will argue in the rest of this Sect. that PIE was used by actual speakers who interacted with the environment which scaffolded their conceptual capabilities. This is where semantic externalism enters the scene with its core idea that reference is fixed by an initial "baptism" and maintained through a causal chain of communication, whereas the meaning of a word is partly determined by external factors, including the speaker's environment and the term's usage history (Kripke 1972). In other words, word meanings are not in the head but are constituted by a particular social community, environment, and similar factors "outside" the skull (Putnam 1975). This constitution is mediated by causal chains between the speaker and its surroundings. In other words, there is a feedback loop between the surroundings and the speaker's semantic knowledge. Semantic knowledge encompasses semantic or mental content prompted and shaped by the causal chains of communication.[6]

Applying semantic externalism to paleolinguistics brings about the view that the proto lexicon was once shaped within the PIE community, so the meaning of a particular reconstruction cannot be separated from the causal relationship with the object of reference. Artifacts provide a bridge between reconstructions and the PIE community: they either support or falsify the presumed causal relationship. In this way, it is also possible to derive the legitimacy of the paleolinguistic method by making it inextricably linked to the archaeological method (probably to the horror of some archaeologists). In other words, as

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6   I have already investigated the viability of semantic externalism in the context of linguistic usage and linguistic intuitions of expert and ordinary speakers in Subotić (*forthcoming*) and (2021) and argued that—in synchronic perspective—this framework is much more attuned to our linguistic usage than (Neo-)Fregean. What follows in this, as well as next Sect., can also be read as a diachronic argument in favor of semantic externalism.

opposed to semantic internalism that somehow vindicates the pale-olinguistic method from within, by arguably making PIE speakers' minds transparent to the keen eye of contemporary scientists, seman-tic externalism grounds this method in material evidence (which is in accordance with the desideratum for historical linguistics in **Sect. 2**). Semantic externalism, provided it is accepted as a useful framework for paleolinguistics, implies that PIE represents a model of linguistic causal chains between historical PIE community and its environment for which we gather material evidence. Thus, I can now introduce a competing view to *(I₁)*, *(I₂)*, and *(I₃)* above, namely

> *(I₄) linguistic reconstructions imply semantic or mental content scaf-folded by the environment.*

Now, let's see how *(I₄)* plays out in paleolinguistic practice. To con-verge on reconstruction, paleolinguists would be better off relying on external factors that helped shape semantic content and fix the ref-erence. Take, for instance, Ligorio's (2016) reconstruction of the Old Phrygian noun *totin* from PIE **dh₃tim,* which is the accusative form of **dh₃tis* ("gift"). The noun was observed within the inscription M-01f[7] on the central wall of the Midas Monument (700 BC) in Anatolia. This was a hard nut to crack for historical linguistics. Ligorio offers a survey of the past unsuccessful attempts at reconstructing the meaning of *totin* thereby introducing the method of elimination: some adhered to the wrong transcription, others to the wrong stipulation of genetic relationship to word roots found in Ancient Greek and Vedic Sanskrit. Ligorio then argues in favor of his reconstruction as being a more el-egant and simpler hypothesis and encompassing a larger number of PIE sound laws. Given the context of the whole niche where *totin* was observed, Ligorio infers that his reconstruction is the best guess due to the following: "'X-as has put (sc. this niche) as a gift *tuav̦e|niy ae esuryoyoy*' where *totin* 'as a gift' is understood as an apposition to the implicit object of *̦d̦a̦[s]* 'has put'" (2016: 36). Semantic internal-ism would back up Ligorio's inference by the notion of intersubjective sense which amounts to the associated descriptions with *totin*. This semantic knowledge of speakers of Old Phrygian maps one-to-one to the semantic knowledge of the speakers of PIE, as well as to Ligorio's inasmuch he is capable of solving the puzzle of reconstruction. Fur-thermore, the speaker of PIE is cognitively so similar to Ligorio, that their minds share the same mode of presentation of **dh₃tim.*

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7   I rely on the standard numeration of Phrygian inscriptions as per Brixhe & Lejeune (1984).

However, semantic externalists would not be satisfied with the presumed reconstruction of *totin* unless external factors are specified to trace causal chains of communication that scaffolded the semantic content of *totin* or **dh₃tim*, respectively. In other words, we are looking for independent archaeological evidence or a wider social context. Thus, Grace (2019) shows that inscriptions M-01a and M-01d on the Midas Monument are votive dedications containing personal names like Midas and Baba and bring forth additional evidence that the monument contains religious insignia. Both Midas and Baba were probably members of the Phrygian royal family thereby suggesting that Midas monument was essentially a place of elite pilgrimage. In her words (2019: 62):

> By etching official inscriptions on [...] monuments, the Phrygian elite would have characterized their power as protected and sanctioned by the pre-eminent goddess. Midas' involvement in this possible tradition could thus reveal the Phrygian king's active role in cult and suggest that he used this cultic role to his political advantage.

The upshot is, therefore, to always probe the suggested reconstruction against the available data and see how word meaning and mental content of PIE speakers are scaffolded. Of course, one could say that here we have only the evidence of scaffolding of the mental content of Phrygian speakers, but for PIE we have no written records, and, *ipso facto*, no way of obtaining reliable archaeological evidence to appease wild guesses. Without reliable evidence really anything goes. Maybe we are better off with the idealized PIE speakers than with such wild guesses.

Relying on archaeology as some kind of a "control mechanism" for the inferences of paleolinguists has its downsides: unlike the comparative method of historical linguists, archaeologists face a notorious lack of evidence or have to handle evidence in poor condition. However, recall **Sect. 2** and the story about the PIE homeland. Despite the lack of written records, we have something akin to relevant evidence. For example, there are no horse remains from the presumed time of the PIE settlements in the Balkan and Italian peninsulas, but there are some in the Caspian-Ural steppe region. This supports the Steppe Hypothesis. Nonetheless, the evidence we gathered is about tamed horses, but we are not sure if the reconstruction **h₁éḱwos* refers to wild or tamed horses. For the time being, the additional archaeological evidence is nonexistent. In such cases, Wallach (2019: 8) suggests that:

When the question of interest is quite general and refers to a wide swath of time and/or geography, it may be reasonable, following an appropriate search, to consider the absence of evidence as (tentative) evidence of absence.

This point—which runs against the traditional philosophy of science—shows the growing need for unorthodox methodological insights in order to understand the deep past and humans from the deep past since it seems that our orthodox methodological tools and principles have little use.[8] For this reason, I believe that something less destructive than Wallach's suggestion can be put forward.

Reconstructions can be understood as mini counterfactual models used to explore alternatives in the form of different linguistic causal chains between the community and artifacts that are missing/that we might find/that we expect to find. Historical sources, archaeological insights into the development of cognitive capacities, and geological insights into environmental conditions of that period would serve as constraints on the domain of counterfactual reasoning through reconstructions as well as a preferred hypothesis about the PIE homeland. Let's return to *h₁éḱwos. If we think about a "what if" scenario in this case, we could explore the following alternatives: if the horses hadn't been tamed, would we find particular artifacts or later sources about horse rituals in specific locations? We could fix the reference of this reconstruction by looking at historical communities and their communication causal chains. In Latin, *Equus October,* and aśvamedha in Sanskrit both refer to a ritual where horses are bathed in blood (West 2007: 417-419). Hence, we could investigate what sort of consequences (cognitive, social, etc.) the ritual would have on the community members.

5 From Artifacts to Minds and Back Again

Note that virtually all examples so far included proper names ("Midas" and "Baba") or natural kind terms ("horse"), with a pinch of fictional names ("immortal saints"). I haven't yet touched upon social kind terms. Semantic externalism is a natural ally of proper names and natural kind terms since these have a more natural link to the surroundings, thereby making the process of scaffolding the mental con-

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8   The same point about the need for the unorthodox methodological means for understanding the past apply for the case of future-oriented scientific fields, see the development of this analogy in Subotić (2024).

tent much more intuitive. On the other hand, fictional names and social kind terms may still seem hard to picture within such a framework because they seem less dependent on the surroundings and more on some kind of PIE mentality.

One could, therefore, still maintain that paleolinguists have much more serious ambitions that semantic externalism doesn't fully address. In the words of Day (2005: 65):

> For one thing, because scholars can reconstruct a good deal of the Proto-Indo-Europeans' language—and, by similar comparative methods, their customs and mythology—we moderns can glimpse a prehistoric mentality. No longer restricted to such humdrum archaeological finds as stone tools and charred seeds, we can get inside the minds of the distant Proto-Indo-Europeans and understand their outlook on life.

In other words, the paleolinguists (may) believe that they are entitled to inferences about PIE speakers' minds regardless of the stone tools, charred seeds, monuments, or horse remains.[9] Archaeological records in the form of artifacts are too coarse for the refined inferences of paleolinguists. Nonetheless, artifacts can unravel the very aspects of the mind that paleolinguists aspire to understand.

Recently, Baumard et al. (2024) have put forward an idea that all cultural artifacts can be understood as *cognitive fossils* given that cultural products usually reflect particular cognitive signatures of individual preferences and personality traits. These cognitive signatures suggest that there is a shared underlying psychological mechanism in a given society that can be searched for and compared to another society. The idea can further be used to back up the project of reconstructing psychological changes throughout history, including the dis-

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9   Interestingly, cognitive archaeologists believe they are entitled to the same type of inferences albeit thanks to the stone tools, charred seeds, monuments, or horse remains. Renfrew (2005), Malafouris (2013), and Wynn (2016) are among the leading cognitive archaeologists who aspire to study the making of the mind of Paleolithic hominins. PIE speakers likely lived during the Late Neolithic period (although Middle and Early Neolith are also speculated on), which means that the models of minimal cognitive functions should apply to them as well. However, given that the most radical among paleolinguists are skeptical of material evidence generally, I turn to idea of cognitive fossils to forge a tighter link between material and cognitive artifacts. In other words, I want to establish that digging out specific artifacts and considering them as potential objects of reference of proto lexicon is not a random thing to do, but could be further justified by following cognitive signatures underlying the creation of such artifacts. In a way, it is less ambitions point than the whole endeavor of cognitive archaeology, although I leave the project of linking cognitive fossils with minimal cognitive functions for the future.

tant past. The researchers were inspired by behavioral ecology where the working hypothesis is that material conditions, i.e., the environment, predict the preferences of individuals (see e.g., Boon-Falleur et al. 2022). This working hypothesis also aligns with the core claim of semantic externalism—that there is a feedback loop between the environment and one's semantic content. Baumard et al. (2024) point out that the main contribution of behavioral ecology is the evidence-based view that better quality of living conditions go hand in hand with preferences becoming more sophisticated, i.e., beyond mere physiological needs, but including parental investment, social trust, rudimentary social institutions, establishing and bonding through customs and rituals, etc. In this sense, the formation and development of communication chains is dependent on the living conditions as well: word meanings begin to reflect the social needs of the particular linguistic community. From this perspective, it is not surprising that semantic externalism better captures proper names and natural kind terms of PIE than social kind terms and fictional names given the level of development of PIE society (recall **Sect. 2**).

Nonetheless, the idea of cognitive fossils can further sharpen the image of the conceptual capacities of PIE speakers. Baumard et al. (2024) use, *inter alia*, the example of baby schema to explain cognitive fossils. Several studies showed that baby schema, or the human preference for the combo of round face, high forehead, big eyes, small nose, and mouth, correlates with a positive attitude towards parenthood, and, as it turns out, this schema has been employed within baby portraits through art history. Ariès (1975) argued that the evolution of baby portraits corresponds to the evolution in parental attitude in the Early Modern period as opposed to the Middle Ages: people had invested more time and care into child rearing and developing emotional bonds, so the children's portraits became more prominent in art. Here cultural artifacts such as baby portraits reflect the cognitive signature of baby schema, i.e., our preference to gaze longer at such portraits if we are fond of children or already have children. Such cognitive signature functions as a cognitive fossil that could be traced in different episodes of the history of humankind.

Historical psychology, as Baumard et al. (2024) advance it, has a grave issue with the survivorship bias, i.e., the fact that many cultural artifacts end up destroyed or in a bad condition (much like the absence of material evidence and its deterioration worry archaeologists), so the ones that remain may overall skew the overall historical image of psychological change. Luckily, however, paleolinguists may

be in a better position than previously thought. Their linguistic reconstructions may be independent evidence that could be further corroborated by cultural artifacts, and *vice versa*, linguistic reconstructions may help mitigate the survivorship bias. The assumptions of conceptual capacities of PIE speakers could be at the other end of the spectrum of historical episodes, where linguistic reconstructions reveal cognitive signatures scaffolded by the environment.

For instance, the Pontic-Caspian Steppe hypothesis stated that the demographic bloom of PIE speakers is linked to the spread of PIE languages and domination over sedentary farmers. However, Renfrew also rightly remarked that the sedentary lifestyle is favorable for forming families due to the increase in fertility rates. The arguably first trace of baby schema and positive attitude to parenting could already be present at the level of old Europe and could be something that PIE speakers picked up from those sedentary farmers whom they overruled. Considering linguistic reconstructions as mini counterfactual models would be beneficial here for establishing both the relation of reference between artifacts and reconstructions and for grounding cognitive signatures even earlier in history than we previously thought it was possible. Albeit, with a healthy grain of salt.

6 Conclusion

Let me summarize the key points I have made throughout the paper and respective takeaway messages:

- Mallory convincingly demonstrates that extreme views on the scientific legitimacy of paleolinguistics have no basis in reality—neither is it a useless discipline nor can the proto lexicon of PIE have a superior epistemic status compared to material evidence.
- Mallory is right that the positions in the philosophy of language and philosophy of linguistics as well as their conceptual apparatus can be used to yield a better understanding of the methodological prospects of paleolinguistics.
- Mallory is wrong to endorse semantic internalism since this boils down to picturing speakers of PIE as idealized and having the knowledge of PIE as paleolinguists *qua* experts have.
- I propose that semantic externalism is, in fact, a better alternative since it allows us for an integrative interdisciplinary view

of the conceptual capacities of PIE speakers without the far-fetched claims about peeking into their minds.

- I propose a novel account of reconstructions that is compatible with the previous point. I see reconstructions as counterfactual models.
- I introduce cognitive fossils to forge a tighter link between paleolinguistics, archaeology, and the study of human cognition through time. Through this notion, I unify all theoretical advantages of semantic externalism over internalism.

Of course, paleolinguists could still find both Mallory's and mine account of their methodology too abstract to be relevant and they will just do what they do without philosophers telling them what they *should* do. This is the self-fulfilling curse of philosophers of science—striving to be of help to scientists but being met with either indifference or dirty looks. Paleolinguists may be long rangers, but philosophers are known to be lone rangers. The arrogance that comes from a more than 2000-year-old legacy of theoretical contributions is something we philosophers can neither deny nor resist. Nonetheless, there is something to be gained from the interdisciplinary discussion, especially in cases where we are dealing with research questions not easily tackled by our current methodological tools. Sometimes, wild guesses are all we have in historical sciences dealing with origins. However, as philosophers, we have plenty of experience in taming wild guesses—just go ask the physicists.

Acknowledgments

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Milica Nešić
University of Belgrade
Faculty of Medicine
Clinic for Psychiatry, University Clinical Center of Serbia
jovicic.milica85@gmail.com

Teodora Sladojević
University of Belgrade
Faculty of Medicine

Mina Koturović
University of Belgrade
Faculty of Medicine

Nevena Bursać
University of Belgrade
Faculty of Medicine

Katarina Simić
University of Belgrade
Faculty of Medicine

Filip Jezdić
University of Belgrade
Faculty of Medicine

SCHIZOPHRENIA: A WINDOW TO EXPLORE THE CO-EVOLUTION OF LANGUAGE AND COMPLEX MOTOR CONTROL

Abstract: Schizophrenia is a debilitating and chronic psychiatric disorder. The etiology of schizophrenia is still poorly understood. Moreover, schizophrenia presents an intriguing evolutionary paradox—even though it is heritable and decreases fecundity, it is still maintained in the population at a disproportionally high rate. Several different theories aim to explain this paradox. For instance, some authors suggest that schizophrenia is the "price" humankind pays for human-specific faculties. One of these faculties, language, is receiv-

ing increased attention as a cognitive domain that is specifically affected in schizophrenia. Besides language deficits, patients with schizophrenia demonstrate subtle deficits in integrative sensory function, motor coordination, and sequencing of complex motor acts. Moreover, another neurodevelopmental feature—decreased hand dominance—seems to be more common in schizophrenia; it has been independently observed both in persons with schizophrenia and children with language problems. Different lines of research show that tool use and language syntax share neural substrates in the basal ganglia, a brain area known to be involved in schizophrenia pathophysiology. Apart from suggesting that there is a shared supra-modal network that underlies most complex syntactic processes, this supports the notion that tool usage and language co-evolved in humans. Here we suggest how schizophrenia could be used as a window to study the complex association between motor function and language. The exploration of the evolutionary background of schizophrenia might prove to be important not only to better understand the etiology of the disorder but also to uncover the fundamental processes of becoming human.

1 Introduction

Schizophrenia is one of the most debilitating psychiatric disorders. The onset is in early adulthood and its course is most often chronic and progressive, leading to considerable invalidity and burden of disease (Solmi et al., 2023). Also, schizophrenia presents an evolutionary paradox—since it has a high heritability and leads to reduced fecundity, it is not clear how and why it is maintained in the population at a relatively high prevalence. In fact, some authors consider schizophrenia to be a uniquely human disorder, affecting higher-order functions attributed solely to our species (Nešić et al., 2019). Studies exploring schizophrenia from an evolutionary standpoint are becoming more common (more detail in Section **3**) and their goal is not only to better understand the mechanisms underlying dysfunctions in schizophrenia but to elucidate broader questions concerning human evolution.

Recently, language has been receiving increased attention as a cognitive domain that is specifically affected in schizophrenia. Dysfunctions in semantics, prosody, and syntax have all been observed in patients with the disorder (Chang et al., 2022; Schneider et al., 2023). Besides language deficits, patients with schizophrenia exhibit specific "soft" neurological signs i.e. subtle deficits in integrative sensory function, motor coordination, and sequencing of complex motor acts (Schröder et al., 1991). These have been traditionally seen as stigmata

of the disorder, with non-specific neural correlates (Kong et al., 2020). At the same time, another neurodevelopmental feature seems to be more common in persons with schizophrenia. Namely, decreased hand dominance has been repeatedly associated with the disorder (Dragovic & Hammond, 2005; Hirnstein & Hugdahl, 2014), and even genetic studies suggest a shared genetic background of handedness and neurodevelopmental disorders such as schizophrenia (Wiberg et al., 2019). Interestingly, in separate studies (those not dealing with schizophrenia), decreased hand dominance is correlated with reduced language competence.

Recent research has demonstrated that tool use and language syntax share neural substrates in the basal ganglia (Thibault et al., 2021), a brain area known to be involved in schizophrenia pathophysiology. Apart from suggesting that there is a shared supra-modal network that underlies most complex syntactic processes, this supports the notion that tool usage and language co-evolved in humans. Here we suggest how schizophrenia could be used as a background/medium to study the complex association between motor function and language. We briefly review the knowledge of language and motor disturbances in schizophrenia and explore how it can guide our further research into the complex evolutionary history of our species.

2 Schizophrenia: Symptomatology

Persons with schizophrenia manifest disturbances in several areas of psychical functioning. Traditionally symptoms are grouped into clusters: positive, negative, cognitive, and disorganized. Positive i.e. psychotic symptoms are hallucinations and delusions. The most common in schizophrenia are verbal auditory hallucinations (e.g. a voice commenting on a patient's behavior in a derogatory manner) although they can emerge in any sensory modality. Delusions in schizophrenia are most often persecutory delusions, delusions of reference (the belief that random everyday events have a special meaning) and delusions of control and passivity (the belief that one's impulses, thoughts, or actions are controlled or imposed by an external force) (Gil Sánchez et al., 2023). The latter, alongside other symptoms that involve disturbed self-boundaries (e.g. thought broadcasting, thought echo), seem to be more indicative of schizophrenia compared to other psychosis (Hunter & Woodruff, 2005), reflecting a deeply grounded disturbance of self. (Sass et al., 2018).

Negative symptoms include blunted affect (reduced emotional expression), avolition (reduced goal-directed activity due to decreased motivation), and anhedonia (reduced experience of pleasure). Disorganization can be manifested as disorganized speech (incoherence, loss of logical association between ideas, formation of new words without meaning or neologisms), bizarre behavior, and disorganized affectivity (mood incongruence—e.g. laughing at a funeral). Cognitive deficits include problems in abstract thinking, language, and executive functioning. While current pharmacotherapy is highly efficient in reducing hallucinations and delusions, it is almost ineffective in ameliorating cognitive and negative symptoms. This is why cognitive deficits are now considered as main contributors to reduced functionality in persons with schizophrenia. Moreover, they are now viewed as core symptoms since they can be identified even before manifested symptoms of the disorder (Mollon et al., 2018). However, up till now, no specific cognitive markers for schizophrenia have been identified. Current research efforts, fueled by progress in large language model development, are aimed at identifying language markers of prognostic and diagnostic value in schizophrenia (Tan et al., 2023).

3 The Evolutionary Background of Schizophrenia

Recent advances in molecular and comparative biology have enabled certain evolutionary hypotheses of schizophrenia to be tested. Specifically, sequencing of the human and chimpanzee genomes made it possible to explore if the genes that differed between the two species were selected for and if schizophrenia risk variants are among them. Here we will briefly review some of the key findings that mostly support the theory that schizophrenia emerged as a trade-off between the evolution of higher-order cognitive functions and vulnerability to psychiatric disorders (for more detail see Nešić et al., 2019).

Human accelerated regions (HAR) represent genome modifications that are specific to humans. In other words, HARs are parts of the human DNA that underwent significant changes compared to the genomes of other vertebrates (Pollard et al., 2006). Most HARs (nearly 92%) are located in non-coding parts of the DNA (parts without genes) and in proximity to telomeres (which are regions of the genome with high recombination rates and thus high instability). A significant percentage of HARs are gene "enhancers" involved in the development of the brain and limbs (Levchenko et al., 2018; Capra et al., 2013), supporting the notion of a specific co-evolution of cognition

and dexterity. Importantly, HARs do not affect the structure of genes, but the manner the genes are expressed.

Interestingly, specific HARs have been associated with an increased risk for schizophrenia (Xu et al., 2015). Also, HARs associated with schizophrenia seem to be more conserved compared to other schizophrenia risk genes, implying that these HARs could have been under positive selection at some point in human evolution (possibly due to increased cognitive abilities), but then reverted to negative selection (possibly because they contributed to increased vulnerability to dysfunction). (Xu et al., 2015). Also, specific schizophrenia-risk HARs that are expressed during fetal development are associated with lower cortical surface area (Guardiola-Ripoll et al., 2023).

Besides genetic comparative studies, studies that compare brain structure and function between species offer interesting insight into the evolution of schizophrenia. For instance, van den Heuvel et al. compared connectome (the network of all neuronal connections in the brain) between humans and chimpanzees, and then examined if the interspecies differences overlap with those found between patients with schizophrenia and healthy controls. They found that parts of the connectome that evolved in humans compared to chimpanzees indeed overlap with the connectome that is found to be dysfunctional in schizophrenia (van den Heuvel et al., 2019). Taken together these studies suggest that the emergence of schizophrenia is closely related to the evolution of our species. Specifically, the evolution of human-specific faculties possibly made our species more vulnerable to dysfunction, making schizophrenia a by-product of human evolution.

4 Schizophrenia and Language

Language is an extremely interesting and complex phenomenon that is both biological and relational in nature. It can be said that humans have a "built-in" language "software" that can be "activated" solely by other humans, through a process of constant "relationing" or forging relations.

The understanding of the neurobiological basis of language has expanded greatly since the identification of Broca's and Wernicke's areas in the cortex. Specifically, it has become evident that language requires a number of brain areas alongside the cortex. This includes basal ganglia and cerebellum (Booth et al., 2007), areas traditionally implicated in motor planning and control. For instance, manipulating syntax in a sentence activates the striatum, while cerebellar activity is

associated with verbal fluency tasks (Leggio et al., 2000; Teichmann et al., 2015).

In schizophrenia, different patterns of language dysfunction have long been observed (for more details see review by Chang et al., 2022) at different linguistic levels, including phonetics (i.e. speech sounds, their physiological production, and acoustic qualities), semantics (meaning of words), syntax (grammatical structure of sentences) and pragmatics (meaning of the wider context of what is being said/written). It seems that schizophrenia disrupts language at all of these levels (Langdon et al., 2002; Li et al., 2017; Schneider et al., 2023; Voppel et al., 2023). For instance, patients' syntax complexity and diversity are reduced compared to major depression (Schneider et al., 2023), implicating syntax alterations as a potential distinctive feature of schizophrenia spectrum disorders.

Schizophrenia patients demonstrate dysfunction in some of the brain areas related to syntax, such as the striatum. Increased striatal activation in schizophrenia has been repeatedly demonstrated (McCutcheon et al., 2019). As already mentioned, striatum has been indirectly implicated in language function, but its direct role has only recently begun to be explored. One of the main questions is if there is a language-specific role of the striatum or if its role in language is related to executive function. For instance, the anterior striatum is activated during linguistic sequencing in a domain-specific manner (Chan et al., 2013). Likewise, complex syntax task is associated with the activation of a deep Broca-stratal pathway (Teichmann et al., 2015). Interestingly, the striatum might have a role in language acquisition, since language statistical learning responds to reinforcement learning principles rooted in the striatum (Orpella et al., 2021). However, Fedorenko et al. argue that there is a "core" language network, encompassing frontal and temporal areas of the left hemisphere, which is sensitive only to language stimuli, specifically their meanings (Fedorenko et al., 2024). Therefore, it is possible that the neurobiology of language includes a language-specific area along with other brain areas that are reused in different language tasks.

5 Laterality and Schizophrenia

Although anatomically symmetrical, the human brain demonstrates pronounced functional lateralization. This means that specific functions are predominately located in one of the two brain hemispheres. Likewise, one side of the body (contralateral) demonstrates

more ability and/or strength than the other. As a rule, speech centers are located in the left hemisphere. At the same time, most people are right-handed, meaning that they mostly use their right hand for sophisticated motor tasks. Hand dominance has a genetic component, but the heritability is polygenic, with multiple genetic variants affecting a variety of biological and developmental pathways. Interestingly, left-handers and right-handers demonstrate small average differences in brain areas important for hand control, language, vision, and working memory (Sha et al., 2021). In line with this, hand dominance has shown an association with language competency. For instance, language and reading impairments are associated with an increased prevalence of non-righthandedness in children, suggesting a common evolutionary pathway of language and handedness (Abbondaza et al., 2023).

Decreased laterality i.e. hand dominance has been associated with schizophrenia. Early studies demonstrated that persons with confirmed schizophrenia spectrum disorder were three times more likely to be ambidextrous compared to controls (Cannon et al., 1995), and this association has been repeatedly confirmed (Dragovic & Hammond, 2005). Even in general population samples, the association between increased magical ideation (tendency to believe that random events are correlated) and handedness has been observed (Barnett & Corballis, 2002), although not consistently replicated (Badzakova et al., 2011; Grimshaw et al., 2008; Jaspers & Peters, 2005).

6 Schizophrenia and Complex Motor Function

Motor abnormalities are common in schizophrenia and are evident prior to the full-blown manifestations of the disorder (Koning et al., 2010). Motor abnormalities can even be seen in children with a familial high risk of schizophrenia or bipolar disorder (Burton et al., 2023), indicating that they might present an intrinsic neurodevelopmental vulnerability to psychosis. Motor deficits include parkinsonism, catatonia, abnormal involuntary movements, and soft neurological signs.

Soft neurological signs are subtle neurological signs that indicate non-specific cerebral dysfunction and include problems in movement sequencing and coordination. They are present both in the first episode and in chronic patients with schizophrenia. Three main domains that seem to be disturbed in schizophrenia are integrative sensory function, motor coordination and motor sequencing. Deficits in integrative sensory function present in impaired audio-visual integration, agraphaesthesia and astereognosis. Deficits in motor coordination are

manifested in general coordination and impairments in balance and gait. Disturbances in complex motor tasks are evident in tests that involve repetitive alternating hand positions, such as the fist-edge-palm, the fist-ring and the Ozeretski tests (for more detail see review by Dazzan & Murray, 2002).

Complex motor tasks have been associated with striatal and cerebellar activity, both of which seem to be affected in schizophrenia. As already mentioned, manipulating syntax in a sentence also activates the striatum (Thibault et al., 2021), suggesting a reuse of this region for language during evolution.

It is also worth noting that patients with decreased hand dominance express more pronounced soft neurological signs (Dazzan & Murray, 2002), indicating a possible role of brain lateralization in motor coordination and control.

7 Motor Function and Language in Schizophrenia – Evolutionary Account

The association between language dysfunction, altered hand dominance, and motor control in schizophrenia has led Timothy Crow to be the first to hypothesize on the evolutionary background of schizophrenia. "Is schizophrenia the price that Homo sapiens pays for language" is the title of his seminal paper. He proposes that for language to evolve, the brain had to become more "specialized" i.e. functionally asymmetrical (Crow, 1997). The cost for this adaptation, i.e. the by-product of the evolution of language is schizophrenia, a disorder of cerebral laterality (Crow, 1997).

Indeed, since schizophrenia encompasses dysfunctions in both language and complex motor functions it can be used as a window to explore the link between these two domains. Tonna et al. offer an interesting evolutionary explanation that includes both sensorimotor and language deficits, as well as the disrupted self-experience. They propose that the evolution of language required the reuse of basic sensorimotor loops, and this pushed the human brain close to the threshold of a severe disruption of the self-embodiment processes. In other words, language places a higher demand on the functions of the human brain, making it more vulnerable to dysfunction. Since language and sensorimotor function share some of the brain areas, the deficits in language often come with deficits in sensorimotor integration, leading to altered experiences of the self and environment. As mentioned in the introduction, some of the most common symptoms

of schizophrenia are related to the bodily self—patients often feel like they are no longer agents of their own thoughts or actions (e.g. they may feel like their thoughts are generated by someone else, or that others can hear their thoughts, or that their actions are being controlled by someone else) (Tonna at al., 2023). Some authors consider these symptoms to be the core of the disorder, reflected in other areas of functioning, including cognition and language.

8 Further Directions

The studies reviewed in this text demonstrate interesting correlations between different genes, molecular systems, structures, and neurodevelopmental trajectories in schizophrenia. However, there is limited research on causal relationships. Also, only a few studies explore how motor function and language are related to each other in schizophrenia. Ideally, studies that integrate both these systems, alongside genetic and structural measures may elucidate more specifically how (and why) are the systems interconnected in both function and dysfunction.

For instance, we (the authors) are currently exploring how hand dexterity is associated with language markers in schizophrenia. We are collecting data from patients with schizophrenia, bipolar disorder, and healthy controls, including natural speech and handedness. Our goal is to explore if some markers of speech (such as rhythmicity, syntax, semantics) correlate with symmetry of fine motor function, and if so, if is it specific for schizophrenia (hence the inclusion of bipolar disorder). In that way, we aim to identify the specific trajectories and phenotypes that can be explored in other studies in relation to the genetic and molecular underpinnings of schizophrenia and perhaps its evolutionary history.

9 Conclusion

Here we highlight how schizophrenia encompasses both dysfunctions in language and complex motor control and how it can be used as a window to explore the co-evolution of these faculties. There is a lack of studies that investigate associations between language and motor control in schizophrenia, and this is an area of research that might provide interesting clues about the neurodevelopmental underpinnings of schizophrenia and the evolutionary origins of higher-order faculties of our species.

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This volume collects a range of exciting papers at the intersection of philosophy, cognitive science, archaeology, and beyond. It is a truly interdisciplinary endeavour, digging deep into the epistemology of human evolution, contributing conceptually and theoretically to important debates concerning empirical science. While I do not always find myself in agreement with some of the authors' views/arguments, I appreciate that healthy debate will no doubt result from this publication. In my view, the volume as a whole represents a genuine scientific contribution and I am pleased to recommend publication.

Anthony Killin, Bielefeld University (from the review)

Finally, in the foreword, the editors say that "the University of Belgrade can't compare to the large commercial academic publishers like Routledge, but we are proud that we still manage to do both relevant and interesting science at the periphery". The word "periphery" is suspect. Peripherical in relation to whom? The British? The Americans? Science does not operate in terms of centers and peripheries – there are only two types of science, good and bad science, and both these types of science can be found all over the world. In the case of this volume, it is certainly standing on the good side.

Artur Ribeiro, Kiel University (from the review)

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