

Hypothesis

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[Marcelo R. S. Briones](#) *

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Hypothesis

The Evolutionary Origin of the Collective Unconscious and the Appeal of Research on Neanderthals and Other Ancient Humans

Marcelo R. S. Briones

Center for Medical Bioinformatics, Escola Paulista de Medicina, Federal University of São Paulo (UNIFESP), CEP 04039-032, São Paulo, Brazil; marcelo.briones@unifesp.br

Abstract

Why does research on Neanderthals attract public attention far beyond its immediate scientific relevance? Such fascination reflects not merely intellectual curiosity but the activation of deep symbolic structures, what Carl Gustav Jung termed the collective unconscious. Neanderthals occupy a psychologically distinctive position as an "incorporated other": an extinct human lineage that remains genetically present in the genomes of non-African modern humans, collapsing intuitive boundaries between self and other, past and present, familiarity and extinction. This symbolic ambiguity is intensified by ancient pathogen evidence and the largely genomic but morphologically invisible presence of Denisovans. Integrating perspectives from evolutionary biology, ancient genomics, paleoanthropology, and analytical psychology, I address a question Jung did not explicitly pose: when, along the human evolutionary lineage, did the collective unconscious originate? I argue that this structure did not emerge suddenly. *Homo erectus* established the cognitive floor, providing basic universal schemas of fear, group cohesion, and hierarchy, without strong evidence of symbolic elaboration. *Homo heidelbergensis*, the common ancestor of both Neanderthals and *Homo sapiens*, is the strongest candidate for the emergence of proto-archetypal structures, given its enlarged brain, complex social behavior, and early funerary practice. The symbolic system was operational in Neanderthals and archaic *Homo sapiens* and became fully and unambiguously visible only with the Upper Paleolithic explosion approximately 40,000 to 50,000 years ago. Neanderthals are therefore not merely objects of curiosity; they are co-inheritors of the same deep symbolic architecture still operating in every modern mind that encounters them.

Keywords: Neanderthals; collective unconscious; archetypes; human evolution; symbolic cognition; *Homo heidelbergensis*; Upper Paleolithic; science communication; evolutionary psychology; ancient genomics

Introduction

Research on Neanderthals consistently attracts public attention that exceeds its immediate scientific or biomedical relevance. Studies on ancient genomes, cognition, human origins, and extinct pathogens routinely generate global media coverage and intense non-specialist engagement (Green et al., 2010; Hoffmann et al., 2018). This response persists even when findings have little practical or clinical significance.

Why do Neanderthals matter so much to the public? Standard explanations point to curiosity about origins, technological novelty, or possible medical applications. These factors contribute, but they do not fully account for the scale and persistence of public fascination. Many highly publicized studies offer no clear translational benefit yet still provoke strong emotional and cultural reactions.

Recent work on ancient pathogens illustrates this pattern clearly. Reports that early humans carried oncogenic or persistent viruses have attracted extraordinary attention, despite limited immediate medical implications. An article by Bridget Alex in *Science* on ancient human

papillomavirus, based on our work, exemplifies this phenomenon, linking contemporary disease to deep evolutionary history and generating widespread public interest (Alex, 2025).

Here I argue that Neanderthals occupy a distinctive psychological and symbolic position as an "incorporated other": an extinct human lineage that is nevertheless genetically present in many contemporary populations (Green et al., 2010). This unusual status collapses intuitive boundaries between self and other, past and present, generating a level of cognitive and emotional salience that few other extinct organisms can achieve. We further propose that this fascination may be understood, in part, through the lens of Jungian analytical psychology, specifically, the concept of the collective unconscious, and examine the evolutionary origins of such deep symbolic structures.

Importantly, this position is shared, in part, by archaic anatomically modern humans (AMHs) who overlapped with Neanderthals in time and space. These early *Homo sapiens* populations function as historical witnesses to Neanderthal existence, interaction, and admixture, reinforcing continuity across deep evolutionary time.

An Unstable Evolutionary Category

For more than a century, Neanderthals have functioned as an unstable symbolic category. Early scientific and popular representations portrayed them as brutish, cognitively inferior, and evolutionarily "failed" (Stringer and Gamble, 1993; Trinkaus and Shipman, 1993). These depictions reflected social and cultural assumptions as much as empirical evidence.

Over time, archaeological and genetic research challenged this image. Evidence for complex tool use, social organization, symbolic practices, and interbreeding with modern humans undermined simple narratives of inferiority (Hoffmann et al., 2018). Neanderthals increasingly appeared less as evolutionary dead ends and more as close relatives with sophisticated behavior.

This gradual revision did not stabilize their symbolic status. Instead, it intensified ambiguity. Neanderthals came to be seen as both similar to and different from modern humans, both familiar and alien. Such ambiguity is psychologically powerful. Categories that resist clear classification tend to attract sustained attention and emotional investment.

Archaic AMHs further complicate this picture. Individuals such as those represented by early Eurasian *Homo sapiens* populations shared landscapes, resources, and social environments with Neanderthals. They were contemporaries, neighbors, and sometimes biological partners. Their presence transforms Neanderthals from distant ancestors into participants in a shared human world.

Genetic Incorporation and Symbolic Proximity

The discovery of widespread Neanderthal introgression in non-African populations transformed public understanding of human evolution (Green et al., 2010). Neanderthals were no longer merely distant ancestors or evolutionary side branches. They became biological contributors to living humans.

This shift has important psychological consequences. Clear distinctions between "us" and "them" support processes of projection and moral distancing. When boundaries blur, identification increases.

Genetic incorporation reduces categorical distance. Neanderthals are no longer entirely external. They are, in a literal sense, part of "us." This makes it more difficult to treat them as safely distant figures onto which undesirable traits can be projected.

Few extinct organisms occupy this position. Dinosaurs, mammoths, and early hominins remain clearly separated from modern identity. Neanderthals do not. Their genetic presence anchors evolutionary history in everyday biology, transforming abstract ancestry into embodied reality.

The Denisovans deepen this picture considerably. Identified initially from a finger bone and teeth recovered from Denisova Cave in the Altai Mountains of Siberia, this sister lineage to the Neanderthals contributed approximately 4–6% of its genetic material to the genomes of present-day Melanesians, with evidence of distinct introgression events reaching populations across Southeast Asia, Oceania, and as far as the Philippines (Reich et al., 2010; Ongaro and Huerta-Sanchez, 2024).

Recent genomic analyses have revealed at least three separate introgression events from distinct Denisovan populations, each showing different levels of relatedness to the sequenced Altai individual, indicating a complex and geographically extensive archaic presence across Asia during the Late Pleistocene.

Like Neanderthal introgression, some of these Denisovan-derived sequences appear to have conferred adaptive advantages, including immune function and high-altitude physiology. The Denisovans are in one important respect, even more symbolically striking than Neanderthals: their fossil record consists of only fragmentary remains, yet their biological imprint on living populations is unmistakable. They are, in a sense, the most purely genomic of incorporated others — present in living bodies with almost no face in the archaeological record. This asymmetry between biological persistence and morphological absence may itself be a novel dimension of the "incorporated other" phenomenon, raising the question of whether populations can carry deep evolutionary entanglement with an ancestor whose appearance and cognitive life remain almost entirely unknown.

The Collective Unconscious and Its Evolutionary Origins

Jung and the Neanderthals: When does the Collective Unconscious begin?

For Carl Gustav Jung, the collective unconscious does not "begin" at a historical moment. It is structural, it arises with the human species itself. The collective unconscious is a set of universal forms (archetypes) that do not depend on any specific culture. Therefore, by Jungian logic, they emerge together with the modern human mind (Jung, 1959).

However, the question of Neanderthals makes this picture considerably more complex — and considerably more interesting. Neanderthals possessed deliberate burial practices, possible symbolism, and use of pigments (Hoffmann et al., 2018). This suggests a rudimentary symbolic life. In Jungian terms, they likely already operated with proto-archetypes: representations of death, the mother, the group, danger. Whether they achieved the same level of symbolic elaboration as *Homo sapiens* remains an open question.

The clearest expression of what we recognize as archetypal imagery appears with the Upper Paleolithic, approximately 40,000 years ago: cave art, hybrid human-animal figures, and more complex ritual structures. Here one can identify explicit archetypes — the shadow (in the form of dangerous animals), the Self or totality (hybrid figures), and spirit or transcendence (ritual contexts). Yet this visible explosion should not be confused with the origin of the underlying structures. The symbolic explosion of the Upper Paleolithic makes the collective unconscious visible; it does not create it.

Placing the Origin in the Evolutionary Tree

If I cannot pinpoint a single moment of origin, I can at least define a plausible evolutionary range (Figure 1). Four key zones merit consideration.

- ***Homo erectus* (~1.8 million – 300,000 years ago):** The first evidence of more organized behavior, consistent tool use, controlled fire, and possible social care. There is sufficient cognitive complexity for basic universal schemas like fear, group cohesion, hierarchy, but no strong evidence yet for elaborate symbolism. This represents a cognitive floor, not an emergence zone.
- ***Homo heidelbergensis* (~700,000–300,000 years ago):** The common ancestor of both *Homo sapiens* and Neanderthals. Signs of complex cooperation, planning, and possible beginnings of funerary practice are attested. This is the strongest candidate for a "proto-collective unconscious": a larger brain, more complex social life, and the beginnings of symbolic representation. If one is compelled to nominate a single ancestral locus, this is it.

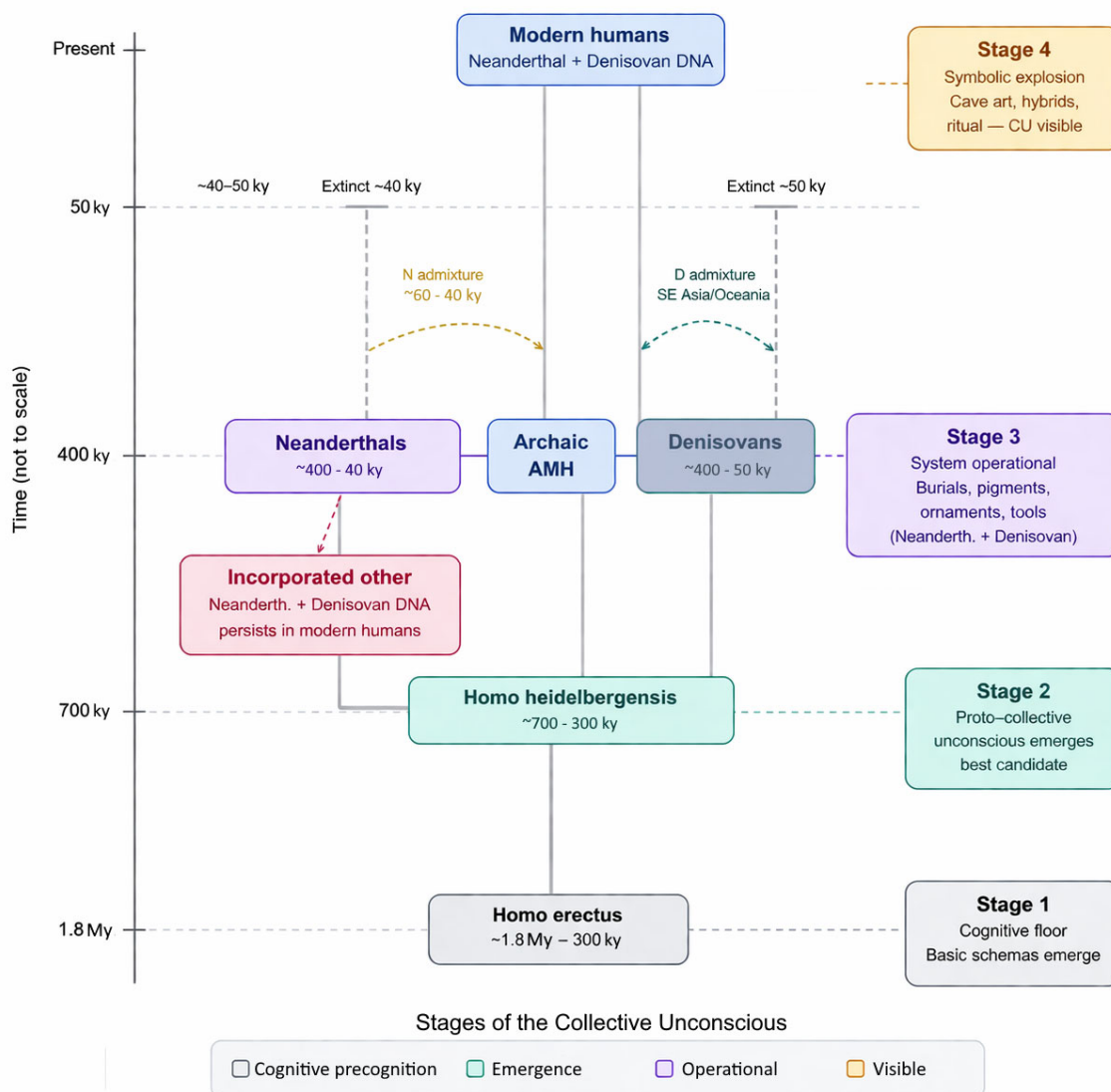


Figure 1. Four evolutionary stages along the human phylogenetic tree, color-coded by the proposed role each lineage plays in the emergence of the collective unconscious: Gray - Stage 1 (*H. erectus*): the cognitive floor. Tool use, fire, and social care provide the basic universal schemas (fear, group, hierarchy), but no evidence yet of symbolic elaboration. Green - Stage 2 (*H. heidelbergensis*): the best candidate for the proto-collective unconscious. Common ancestor of both Neanderthals and sapiens, with a larger brain, complex cooperation, and early funerary practice. Purple - Stage 3 (Neanderthals + Denisovans + archaic AMH): the system is operational. Burials, pigments, and ornaments attest to proto-archetypes in action; archaic AMHs function as evolutionary witnesses. Amber - Stage 4 (Upper Paleolithic): the symbolic explosion (~40–50 ky) – cave art, hybrid figures, ritual. This is when the collective unconscious becomes archaeologically *visible*, not when it began. The dashed admixture arc shows Neanderthal and Denisovan introgressions into modern humans (~60–40 ky), and the coral box at the bottom captures the "incorporated other" argument central to the paper. All nodes are clickable for follow-up questions. My = million years and ky = thousand years.

- Denisovans (400,000-50,000 years ago):** Denisovans came from a lineage derived from *Homo heidelbergensis*, which in turn descends from *Homo erectus*. but not in a simple, clean line. *Homo erectus* left Africa (~2 million years ago). A derived population gave rise to *Homo heidelbergensis* (~600–700 thousand years ago). From heidelbergensis in Europe evolved into Neanderthals and in Asia, Denisovans. However, Denisovans show genetic admixture with an even older erectus-like lineage, therefore not just "Asian heidelbergensis", they are a mosaic population. Neanderthal–Denisovan split: ~400–450 thousand years ago

- **Neanderthals + *Homo sapiens* (~400,000 years ago onward):** Burials, pigments, and ornaments are clearly attested; art is unambiguous in sapiens and debated in Neanderthals. The symbolic system is by this stage operational, producing recognizable archetypal symbols in action.
- **The Upper Paleolithic symbolic explosion (~50,000–40,000 years ago):** Cave art, implicit mythology, hybrid figures. This is not the beginning of the collective unconscious, but the moment when it becomes fully and unambiguously visible in the archaeological record.

In summary: the cognitive base appears in *Homo erectus*; the likely emergence of proto-archetypal structures occurs in *Homo heidelbergensis*; full functioning is evident in both Neanderthals and *Homo sapiens*; and the clear, datable expression arrives with the Upper Paleolithic. If forced to place a bet, the collective unconscious as a structure — not merely its preconditions — emerges in *Homo heidelbergensis*. What precedes it are necessary conditions; what follows is progressive manifestation.

This evolutionary framing is not merely speculative. It aligns with current neurobiological accounts of the social and emotional brain, the deep conservation of limbic and subcortical circuits across mammals, and the growing evidence that symbolic cognition required not one but a series of incremental biological and cultural thresholds. It also raises a question that may eventually be addressable through epigenetic and comparative genomic research: what neural or epigenetic architecture might sustain these universal patterns across generations and across closely related species?

Historical Intuitions About Phylogenetic Depth

Long before the advent of ancient genomics, some psychologists speculated that human subjectivity might reflect deep evolutionary conditions. Carl Jung proposed that symbolic structures could have phylogenetic depth, shaped by recurrent species-level experience (Jung, 1959). Similarly, Sándor Ferenczi suggested that aspects of human psychology might retain traces of earlier evolutionary environments (Ferenczi, 1924).

These ideas were necessarily conjectural and lacked empirical support. They did not imply the transmission of specific memories or symbols but reflected an intuition that biological history might shape psychological organization in enduring ways.

Although such theories are not supported as literal mechanisms, the discovery of Neanderthal admixture gives new empirical context to their underlying question: to what extent does evolutionary history remain biologically incorporated in living humans? What earlier theorists approached metaphorically is now observable at the molecular level. The evolutionary archaeology of the collective unconscious sketched above provides one framework within which this question can be explored with fresh rigor.

Biological Continuity and Cultural Interpretation

The salience of Neanderthals can be understood within multi-level perspectives on inheritance and culture that distinguish genetic, epigenetic, behavioral, and symbolic dimensions of evolution (Jablonka et al., 2014). Symbolic systems are transmitted socially rather than biologically yet are shaped by biological relationships and constraints.

Neanderthals occupy a rare position at the interface of these levels. Genetic continuity establishes material relatedness, while cultural reconstruction depends on modern scientific and media narratives. This does not imply that symbolic content is biologically inherited. Rather, biological relatedness modulates how symbolic information is perceived and valued. Information about close relatives is more emotionally salient than information about distant ones. Neanderthals are unusually close and unusually absent.

Ancient pathogens amplify this effect. Viruses such as HPV16, herpesviruses, and adenoviruses function as biological witnesses of contact, continuity, and vulnerability. They link hominin interaction to contemporary disease landscapes, further collapsing temporal distance.

Intergenerational Effects and Background Dispositions

Research on transgenerational epigenetic effects has shown that severe environmental stress can influence physiological and behavioral traits across generations (Meaney and Szyf, 2005; Franklin et al., 2010; Yehuda et al., 2016). Such mechanisms do not transmit representations but affect stress reactivity and emotional regulation.

These background dispositions shape how people process uncertainty, risk, and identity-related information (Dias and Ressler, 2014). Although speculative in this context, it is plausible that inherited affective tendencies contribute to the intensity with which evolutionary narratives are received.

In this restricted sense, biological inheritance may influence not what people think about Neanderthals, but how strongly they respond to such information. The Jungian notion of the collective unconscious, understood not as a mystical inheritance but as an evolved architecture of deep affective and symbolic dispositions, offers a conceptual vocabulary for this kind of effect that is worth revisiting in light of current epigenetic and neuroscientific evidence.

Extinction and Evolutionary Contingency

Neanderthals confront modern audiences with the fact that cognitive sophistication does not guarantee survival. Despite technological skill and social complexity, they disappeared (Stringer and Gamble, 1993). This challenges linear narratives of progress and human exceptionalism. It highlights the contingency of evolutionary success.

From a psychological perspective, Neanderthals function as a salient counterfactual: a closely related human form that failed to persist. Pathogen-based hypotheses of extinction, whether ultimately supported or not, reinforce this message by foregrounding shared biological vulnerability. They embody the possibility that "we" might not have survived.

In Jungian terms, this activation of contingency and vulnerability may itself touch on archetypal territory, the shadow of mortality and the fragility of what we take to be "the human." The emotional charge that attaches to Neanderthal extinction may not be merely intellectual empathy but something structurally deeper: an encounter, mediated through science, with one of the oldest affective patterns in our evolved mental architecture.

Implications for Science Communication

Public engagement with ancient human research reflects concerns about ancestry, hybridity, identity, vulnerability, and loss, not merely informational deficits. Communication strategies that ignore these dimensions risk misinterpreting audience responses.

Recognizing the symbolic status of Neanderthals encourages communicators to address the existential implications of evolutionary research rather than treating them as peripheral. This is particularly important in contexts involving ancient pathogens, where fear, fascination, and identity concerns intersect.

The framework proposed here, integrating evolutionary biology, Jungian analytical psychology, and paleoanthropology, may offer a more complete account of why findings about Neanderthals and archaic humans routinely escape the boundaries of specialist discourse and enter broader cultural conversation.

Conclusions

Neanderthals continue to captivate public imagination because they occupy a unique position as an incorporated other: genetically continuous yet historically extinct (Green et al., 2010). Together with archaic AMHs and ancient pathogens, they collapse boundaries between self and other, past and present, stability and contingency. They are simultaneously ancestors, relatives, witnesses, and

losses. As empirical knowledge has increased, this configuration has become more pronounced rather than less. Precision has intensified relevance and data have deepened meaning.

The integration of Jungian theory into this account is not an appeal to mysticism but a recognition that evolutionary biology and depth psychology may be asking the same question from different directions: how deeply does our evolutionary past remain structurally present in who we are? The evidence from ancient genomics, epigenetics, and paleoarchaeology suggests that the answer is: more deeply, and more verifiably, than was previously imaginable.

If the collective unconscious as a structure emerges, as I have argued, in the lineage of *Homo heidelbergensis*, then Neanderthals are not merely objects of our curiosity. They are, in a meaningful sense, co-inheritors of the same deep symbolic architecture that still operates in every human mind that encounters them.

Neanderthals matter not only because of what they reveal about the past, but because of what they implicitly say about who we are, how fragile we are, and how deeply our present remains entangled with deep evolutionary time.

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