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Palaeolithic Art & Neanderthals:
Were they clever enough?
PART II -
Lithics, Burials, Symbolic Ornamentation

Abstract

Who were the Neanderthals and what forms of symbolic material culture did they engage in? Part II provides a further historical background and overview of research over the past two decades on Neanderthals symbolic material culture to support the discussion in Part I (*Adoranten* 2024) on whether they had cognitive ability. No one disagrees that Neanderthals are not us- they are not the same as *Homo sapiens*. The question of cognitive ability centers on how Neanderthals are fundamentally different. Within that lies a cognitive process involved in knowing the needs, sources, or planning for tool making, mortuary practices, fishing-hunting-gathering for food, personal adornment, or making images on cave walls. It is important not to define *humanity* as one homogenous group or to confine the definition of *mind* as something encased in the brain: Both limit our understanding of 'other' cultures. Research points to a Middle Palaeolithic transformation that led to an increase of symbolic material culture in the Upper Palaeolithic- not the beginning of it, suggesting Neanderthals were clever enough to create markings on cave walls.

Introduction

"The first rule of anthropology is that if everybody believes what you've said, you've probably got it wrong".[1]

Part 1 discussed the controversy of Iberian cave art dated to a period when Neanderthals were the only humans roaming the area. The dating conundrum ensues and not only questions the methodology used but how it is interpretated. The research presented in Part 2 has also been met with similar skepticism; thus, it is important to recall the words of Colin Renfrew and Paul Bahn (2012):

> Artefacts do not directly disclose their meaning to us—certainly not in the absence of written evidence. It is a fundamental of scientific method that it is the observer, the researcher, who has to offer the interpretation. And the scientist knows that there can be several alternative interpretations, and that these must be evaluated, if necessary, against one another by explicit procedures of assessment or testing against fresh data. This is one of the tenets of processual archaeology" (382).

Part 2 provides a further historical background and overview of research over the past two decades on Neanderthals symbolic material culture to support the discussion in Part 1. No one disagrees that Neanderthals are not us- they are not the same as *Homo sapiens*. The question of cognitive ability centers on how Neanderthals are fundamentally different. Within that lies a cognitive process involved in knowing the needs, sources, or planning for tool making, mortuary practices, fishing-hunting-gathering for food, personal adornment, or making images on cave walls. The act of *doing* is an extension of the mind embedded in a

specific action. Humans think by constructing signs, the process involves the movement of the body, specifically the hands: Intelligence is enacted through the action of *creating*. It is important not to limit the definition of *humanity* as one homogenous group or to confine the definition of *mind* as something encased in the brain: Both limit our understanding of 'other' cultures. Research points to a Middle Palaeolithic transformation that transgressed current national boundaries and led to an increase of symbolic material culture in the Upper Palaeolithic- not the beginning of it.

A brute, a quasi-human? It's difficult to be a Neanderthal.

At the beginning of the *Naked Neanderthal* (2024), Ludovic Slimak, writes:

> And there is the creature suspended from a thread, like a pendulum swinging between facts and representations, between likeness and otherness; it is us, it is the other, it is us, it is the other...Poor creature, a disjointed puppet imprisoned in our mental games (8).

Who is this creature, this Neanderthal? After more than 20 years of Neanderthal research, Ludovic Slimak (2024) reminds us not to place the Neanderthal within our own image. The fact that most of us with European heritage has a small percentage (1-2%) of Neanderthal DNA (Pääbo, 2015) is often met with a "What, not me!" response. The idea "revolts us, so we invent and reinvent" who the Neanderthals were (Slimak, 2024, 8). Meanwhile, the debate continues to rage in the scientific community: "On one side, those who think the Neanderthal is one of us. On the other, those who think it is an archaic form of humanity, with vastly inferior intellectual capabilities. A subhuman, a quasi-human, or any other adverb that we can place before or after 'human' that is unflattering, except in a Marvel comic" (Slimak, 2024, 9). Simply put, Neanderthals force us to question the belief *Homo sapiens* are the "apex of creation" and what it means to be human (Harai, 2020, 47.).

Neanderthals successfully navigated and adjusted to various different climate cycles for over 300,000 years (Harai, 2020) while being innovative before disappearing around 40-35ka. We know Neanderthals interbred with *Homo sapiens*, evidence shows it was isolated incidents, and they did not merge together (Pääbo, 2017; Sykes, 2020). When modern humans appeared in Europe Neanderthals "disappeared either immediately or soon after—the same happened elsewhere in the world wherever modern humans appeared, earlier forms of humans, sooner or later disappeared" (Pääbo, 2017:198).

To place Neanderthal research in context, let us recall the effect of Eurocentric bias during the Age of Enlightenment on early scientific research. We begin in 1856, in the Neander Valley, Germany with the discovery of a skull cap (Neanderthal1) and other bones at Kleine Feldhofer Grotte. A German newspaper reported the findings and made a direct comparison between the skull and that of a Native American; additionally, anthropologists Herman Schaffhausen[2], Fuhlrott, Huxley, and King compared to "a carnivorous animal", anthropoid apes", "Australians, Africans--Savage races", and stated the Neanderthal mind "never soared beyond those of the brute" (King 1864). The attitude of King, Huxley, and Schaffhausen were part of the scientific consensus that non-white populations, including Neanderthals, were a non-human branch of the genus *Homo* (Sykes, 2020).

The discrimination did not end there. At the beginning of the 1900s, the attitude of French intellectuals could be placed in one of two categories: human or non-human. The nation's leading palaeontologist, Marcellin Boule, was convinced Neanderthals, the "degenerate species", fell on the wrong side of the fence (Shreeve, 1997). Throughout Europe the consensus was the same. However, in France, it extended to the considerable influence the national

church and the monarchy had over scientific institutions. In 1908 Abbé Henri Breuil, a cleric who later had significant influence on French archaeology, asked Marcellin Boule to examine a Neanderthal skeleton discovered in a cave near La Chapelle-aux-Saints. After the analysis, Boule proclaimed Neanderthals were inferior in quality and lacked the frontal brain areas connected with high mental functions and walked with bent knees as they were unable to stand upright.[3] This provided a stark contrast to the elegant skeletal body of the modern human (Shreeve, 1997) and reminds us to remove any preconceived ideas about Neanderthals. The following research findings cover various locations from Iberia to Eurasia.

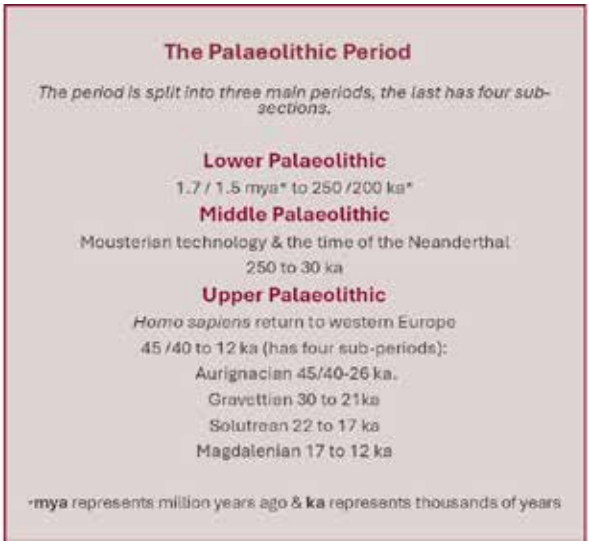
Moving forward in search of cognition: The new A-listers

Over the course of the past million years glaciers in Europe have expanded and retreated numerous times. The fluctuation between cold glacial periods and warm interglacials was not uniform (Papagianni and Morris, 2022). It was around 450,000 years ago when Neanderthals appeared in Europe, arriving in France c. 300,000 years ago (Sykes, 2020; Papagianni and Morris, 2022). In the beginning Neanderthals lived in an expansive area (Fig.1), from current day Wales to central and southern Europe, and that they crossed to the north of the Elbe River based on Middle Palaeolithic lithics found at the Schmallacker site near Drelsdolf, northern Germany near the Danish border (Harsh et al., 2012), before a sustained warm period allowed them to extend eastwards into the Levant and as far as the Altai Republic in Siberia (Sykes, 2020; Papagianni and Morris, 2022; Slimak 2024). They survived in "vanished worlds where kilometre-high glaciers met tundra along with warm forests, deserts, coasts, and mountains" (Sykes, 2020, 18). The climate fluctuated much more than anything *Homo sapiens* would experience when they arrived in Europe c. 45,000 years ago from the east, sharing the area with Neanderthals for c. 10-15,000 years before the Neanderthals faded out (Shreeve, 1997; Sykes, 2020; Papagianni and Morris, 2022; Slimak, 2024).

What differentiates *Homo sapiens* from *Homo neanderthalensis*? The claim that Neanderthals were brainless brutes suggests they were less than human and lacked the cognitive ability of *Homo sapiens*. One of the pillars that defines 'being human'

Fig. 1: The range of Neanderthals in Eurasia.
The North Sea and English Channel are represented in light blue, as it was a land mass at that time. Image credit: Emma Pomeroy et al, 2023. CC-BY-SA3.0

Fig.2: The three periods of the Palaeolithic



is symbolic material culture. In general, representative cave art, sculptured figures, bone tools, and jewelry made of shells or bones from 40-30,000 ka (Upper Palaeolithic) are considered artifacts of a 'cultural explosion' by anatomically modern humans (AMH). However, any symbolic material culture existing beforehand was considered primitive. Paul Pettitt maintains, "Neanderthals created meaningful symbols in meaningful places" (Pettitt, 2018), placing doubt *Homo sapiens* experienced the only 'cultural explosion'.

While archaeology and anthropology place significance on the physical artefact, mainstream cognitive science places value on what goes on *in the mind* to create an artefact, a manifestation of symbolic cultural representation. A different approach, albeit a more radical one, is to consider not just the physical artefact but what takes place in the mind in regard to producing the artefact. The cognitive approach encompasses our interaction with our surroundings in *combination* with "cognitive abilities and affective responses" that shape the entire interactive process of creating a stone tool, cave art, or symbolic ornamentation (Malafouris, 2016, 39 italics added); it moves beyond the physical artifact to assess cultural value through *how* and *why* something is created. The *process* of creating an artefact takes center stage.

Mousterian stone tool technology: The Levallois technique

Stone tools, *lithics*, are an essential artifact for how archaeologists attempt to recreate and understand earlier cultures. The Middle Palaeolithic was also known as the Mousterian due to its carefully fashioned stone tools. The Levallois technique was thought to have been invented around 300,000 years ago in Africa and then moved into Europe and perfected during the Mousterian. (Fig. 2). It was also used to some extent in the Early and Late Palaeolithic (Groeneveld, 2016; Hirst, 2019). The technology provides evidence Neanderthals were more artisans than brutes (Shreve, 1997; Sykes, 2020; Papagianni and Morris, 2022; Slimak 2024).

The Levallois technique is a multi-stage prepared core method that requires a high degree of preparation and forethought (David,2017; Hirst 2019) that ends with a highly portable flake with a large cutting edge. (Fig. 3). The flakes can be retouched to create side scrapers, points, denticulates (serrated or notched projections) and often blades were made (Groenveld, 2016). The raw material was an important factor, it is known Neanderthals traveled a great distance searching for the highest quality of stones (Turq et al., 2013). The technique involves several technical and geometric criteria with hierarchical surfaces with the goal of producing predetermined products (Boëda, 1995). Creating a Levallois core is a "slow science" (Sykes, 2020, 106) that very few archaeologists today have been able to replicate as well as the skilled Neanderthals. Additional evidence points to Neanderthals use of red ochre and later birch tar as an

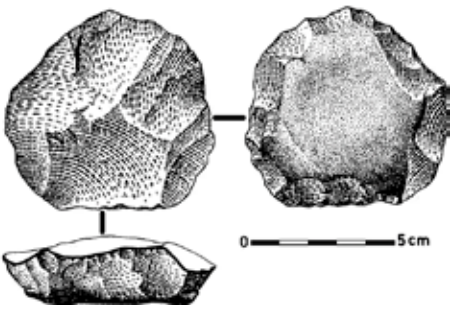


Fig. 3: Levallois stone tool technology provided greater amounts for cutting edge and were easy to retouch for certain tasks. The convex shape of the core from which the flakes were made resembled a turtle shell. Image: CC license.

adhesive to haft the points onto a spear (Hoffecker, 2018; Niekus et al., 2019; Papagianni and Morse, 2022).

The Levallois process used specific materials, methods, and planning—suggesting a highly cognitive brain was required. Lambros Malafouris states the importance of considering the *process*: "instead of seeing the shaping of a handaxe as the execution of a preconceived 'internal' mental plan, it should be seen as an 'act of embodying' in tool making, most of the thinking happens where the hand meets the stone" (Malafouris, 2016, 236), it becomes a *way* of thinking. For cognitive archaeologists, the 'process' examines a person's ability at a specific time within evolutionary development. It asks questions of *what* and *why* an artefact is significant. The process is cognitive but also socially and culturally relevant. The need/ application for the construction of a tool, for an etching, or an abstract image on a cave wall is socially and culturally appropriated by the social group.

Bone and Wooden Tools

Recent research uncovered the first specialized bone tools made by Neanderthals (Soressi et al. 2013), along with wooden spears found at Schöningen, Germany (Curry, 2024) and 170,000-year-old wooden artefacts (i.e., digging sticks) at Poggetti Vecchi, Italy (Aranguren et al., 2018; Hoffecker, 2018). Although the overall number of known wooden artefacts is modest, they add to the overall technological contributions made by Neanderthals. Research has shown that at both locations the application of stone tools and fire was used to complete the production process (Hoffecker, 2018). The process, as with the Levallois technique, was much more complicated than previously known (Hoffecker, 2018). The significance of wooden artifacts is magnified by the limited use of bone antler, and ivory during the Middle Palaeolithic (Hoffecker, 2018).

In 2013, Marie Soressi et al., excavated two Mousterian and Acheulian[4] Tradition (MTA) sites in the Dordogne region of France (Pech-de-l' Azé and Abri Pyrony) and examined four rib fragments, or *lissoir*, from red deer or reindeer. *Lissoir* refers to a specialized form of bone tool typically associated with modern humans throughout the Upper Palaeolithic and into more modern times. They were an effective tool for producing and smoothly shifting pressure over a small area, i.e., an animal skin, "resulting in tougher, more impermeable and lustrous hides" (Soressi et al., 2016, 14188). Their findings indicate it remains to be determined if the invention was independent by the Neanderthal or if they were influenced by anatomically modern humans (ATM), either way these bones add to the debate of Neanderthal behavior before or as a result of modern humans.

In Schöningen, Germany around 300,000 years ago, groups of early hominins camped by a dated lakeshore and dropped wooden tools and weapons into the lake at a site now known as Schöningen 13. (Fig. 4), Coal miners in 1994 discovered nine 2-metre-long wooden spears along with other wooden artefacts—believed to be of Neanderthal origin. Recent research aligns the spears more specifically to within the timeframe of European Neanderthals and the Middle Palaeolithic based on no acid geochronology (AAG) of fossils recovered directly for the Spear Horizons deposits (Hutson, et al., 2025, 3). The research provides

Fig. 4: Schöningen wooden spears (left) and digging sticks (right). In Leder (et al., 2024) Minkusimages; Matthias Vogel (2024). CC-BY4.0 USE full image with digging sticks

a glimpse into the "cognitive complexity" that was worked into the wood (Curry, 2024; Hutson et al., 2025). Recently, researchers led by Dirk Leder examined more than 700 pieces of wood, with 187 showing signs of carving or splitting. Further analysis revealed careful planning was involved and specific steps were taken to create them (Hoffecker, 2018; Leder, et al., 2024). It is extremely rare to find wooden artefacts; thus, there is a certain "preservation bias that distorts an archaeologist's view of the past: stone tools persist over the millennia, whereas wood typically decays" (Curry, 2024, 14). Similar finds of wooden 'digging sticks' have been found at Poggetti Vecchi, Italy. Digging sticks were used for grinding plant material, hunting small game and digging root tubers (Aranguren, et al., 2018; Hoffecker, 2018).

Hafting was essential for points to be placed on spears, although not necessarily used on the wooden spears above, and required an understanding of what materials would create the best adhesives. Hoffecker (2018) posits that with such a measure of complexity, "Neanderthals were making food-getting artifacts more complex than those of some recent hunter-gatherers" (1960). The analysis of a 50,000-year-old flint flake dredged from the Rhine Muses Valley in the North Sea off Holland revealed the flake was embedded in birch bark tar and was of Neanderthal origin (Niekus et al., 2019). Tar can be accidentally produced when burning bark over an open fire. From observation of this phenomenon to reproducing it, Neanderthals may have started a new technology (Niekus et al., 2019; Zilhão, 2019). This research adds to growing list of results showing Neanderthals capability to create and use artificial adhesives 200,000 years ago (Zilhão, 2019).

Fishing, Hunting and Gathering

Neanderthals were skilled hunters choosing specific sites, following migrations, and knowing breeding locations: all signs of forward planning (Sykes, 2020; Papagianni and Morris, 2022). Extraction of dietary protein in Neanderthal teeth and bones has revealed consumption of woolly mammoths, horses, bison, reindeer, rabbits, along with wild grains, nuts, roasted vegetables and herbs, the latter possibly for medicinal purposes (Sykes, 2020; Papagianni & Morris, 2022; Hardy et al., 2022). According to Clive Finlayson, director of the Gibraltar National Museum, Neanderthals living along the coast added fish and sea mammals to their diet, i.e., cockles, mussels, tortoises, dolphins, and monk seals (in Papagianni & Morris, 2022). Sykes (2020) mentions the more than fifteen sites in Iberia including Bajondillo in southern Spain where over one thousand broken mussel remains were dated to between 170 and 140 ka. Similar research suggest fish was part of the diet of early humans in the Vasco-Cantabria regions of Spain (Straus, et al., 2002), Cueva de los Aviones, El Cuco on the northern coast of Spain (Sykes, 2020), and Figueira Brava, on the south Atlantic coast of Portugal (Zilhão, et al., 2020).

Fig. 5: A reproduction of the landscape in front of the Gorham Cave complex, Gibraltar at the time of the Neanderthals when different types of food resources were available. Image credit: Gibraltar National Museum and S. Finlayson.

Nutritionally, a distinct part of Neanderthal culture was a labor-intensive focus on extracting within-bone nutrients for fat supplements 125,000 years ago (Kindler, et al., 2025). For hunter-gatherers, such as Neanderthals, with body weights between 50 and 80 kg and a dietary protein limit of around 300 g/day (1200 kcal), which falls short of the daily needs of a forager. Kindler, et al. (2025) state, the remaining calories need to come from a non-protein source of either fat or carbohydrate. High levels of protein intake (~300 g) can lead to "debilitating condition" well known to explorers as 'rabbit starvation' (Kindler, et al., 2025, 1). Obtaining fat is a life necessity during periods when carbohydrates are limited, (i.e., spring and winter). Exploitation of fat-rich marrow from hollow cavities of skeletons is relatively easy and well documented in the archaeological record of Neanderthals (Morin and Ready, 2013). Analysis of research confirms Neanderthals were "active during multiple seasons" in the area of Neumark-Nord, Germany for at least 2000 years, when their presence correlates to a period of "striking vegetation openness" possibly cocreated by their own activities (Kindler et al., 2015,13). Hundreds of herbivores were butchered in the location during the Last Interglacial- suggesting their impact on herbivore populations could have been substantial at that time.

The results of research on Neanderthal teeth show that roots were also part of their diet (Galway-Witham, et al., 2018). Sykes states that "the microwear from Neanderthals in Krapina closely matches much later prehistoric agricultural people who ate a lot of fibrous plants" (2020,165). Sykes commented in a footnote that most research has focused on Neanderthals hunting game, which may be due to research bias as big game (a man's endeavor) is more exciting than foraging for plants that tends to be associated with the female gender (Sykes, 2020,163). Many edible plants have been located near areas known to Neanderthals such as Kebara and Gibraltar (Fig. 5).

The entire community participated in hunting and gathering—it was not just the work of men (Estralrrich and Rosas, 2015; Sykes, 2020).

Young boys were taught how to make stone tools at an early age and helped in the hunting. Chris Stringer suggests Neanderthal children matured earlier than modern children; thus, they participated in adult tasks (in Papagianni and Morris, 2022). Current research points to Neanderthals having social equality between men and woman sharing responsibilities within the community. Any excess food was shared among neighboring groups: a group is not necessarily a collection of people living together but made up of people we recognize as friends or allies (Papagianni and Morris, 2022, 102). Communication between groups is likely to have been verbal and is supported by the find of a modern-looking hyoid bone (Kebara 2) necessary for speaking, found in a Neanderthal at Kebara Cave in Israel, dated to 60 ka (D'Anastasio et al., 2013; Sykes, 2020; Papagiannis and Morris, 2022).

Burials: Cupmarks and flowers?

Elaborate burial activity is unique to humans and the emergence of this behavior can be placed within the broader context of cognitive and symbolic capacities (Balzeau et al., 2020). Burials show a deliberate respect for the individual beyond death; they provide a place of permanent sleep for the dead. Research suggests Neanderthals attended to their sick/injured (Balzeau et al.,2020; Papagianni and Morris, 2022). Paul Pettitt (2011) points to various locations of Neanderthal burials (among them Krapina, Sima de los Huesos, La Chapelle, La Quina and L'Hortus, Cueva de los Aviones); however, at the center of the debate are burial sites at Shanidar, Iraqi, Kurdistan and La Ferrasse, Dordogne, France (Sykes, 2020).

Skeletons of at least eleven individuals were found at *Shanidar* in connection with hearths, indicating they lived and died near this location (Pomeroy et al., 2020; Papagianni and Morris, 2022). Two skeletons provide cultural clues of Neanderthal society: The bones of Shanidar I showed a difficult life based on the partially healed wounds believed to have come from a form of trauma, and Shanidar IV, who according to excavators, was intentionally buried with the grave adorned with a large cluster of pollen including yarrow, grape hyacinth, and hollyhock (also used for medicinal purposes) interpreted as evidence for flowers on the grave (Leroi-Gourhan,1975, 564), other research points to rodents bringing them into the cave for nesting material (Sommer, 1999). Although, the idea of cut flowers being "preserved for the archaeological record" has been questioned, the evidence of pollen has allowed for a better under-

Fig. 6: Neanderthals Stonehenge? Structure of fallen stalagmites deep inside the Bruniquel cave in France. Photo image credit: Luc-Henri Fage /SSAC. Schematic: Lorblanchet & Bahn, 2017: 268.

standing of how it has been preserved in ancient soil levels (Papagianni and Morse, 2022,137).

Researchers in the early and mid-1900s working at *La Ferrasse* rock shelter in France uncovered at least eight Neanderthal partial or complete skeletons (Balzeau et al., 2020), a location where it is believed they lived for an extended time (Sykes, 2020). Dating suggests the skeletons are from between 47.3-44.3 ka (Sykes, 2020). The grave of a 4–5-year-old child (LF6) was covered by a large sepulchral cupule block dated to the Mousterian (Bednarik, 2010) although some question the claim of cupules (Sykes, 2020; Slimak, 2024). A detailed analysis using photogrammetric recordings of cross-sections and cartography showed the cupules are "artificially made" and not done by nature (Lorblanchet and Bahn, 2017, 214). Two graves have complete adult skeletons, which is rare considering the limited number of Neanderthal skeletons found.

The careful positioning of several of the bodies at La Ferrasse and Shanidar show intent (Sykes, 2020; Papagianni and Morse, 2022). Sykes (2020) suggest any hesitation in believing Neanderthal burials took place is due to earlier excavations standards being less rigorous than they are today.

Bruniquel Cave: Community interaction

Research carried out in 2016 in southwestern France uncovered a remarkable construction of what some initially believed was a dam of fallen stalagmites, but it was actually a structure hidden deep in the cave (Fig. 6). The site has over 400 stalagmite sections weighing over two tonnes carefully arranged into two rings with the largest more than six metres across (20 ft.). Discoveries at the cave site go back to 1987. In the 1990s the stalagmites were radiocarbon dated to a date of 45 ka, just outside the range of the method at the time. Jaubert, et al., (2016) dated the calcite deposits using Uranium Thorium (U-Th) on stalagmite regrowth on the structures, burnt bone,

Fig. 7: View of the Cave complex at Gibraltar. Image credit: Gibraltar National Museum and J. C. Finlayson.

and the tips of stalagmites in the structure providing "reliable and replicated age of 176,500 thousand years old (±2.1 thousand)" (111). Conclusion: it was created by Neanderthals. Jaubert et al., (2016) suggest their findings point to two things: 1) the ability to navigate a deep dark space, as devising some form of lighting was needed to get to and work in the site 336m. into the cave, 2) with the elaborate construction of stalagmites being deliberately moved and placed shows "the group had a level of social organization that was more complex than previously thought for this hominid species" (114). There is evidence of burning, believed to help in the fracturing of the columns. However, to date no stone tools have been found, and the reason for its construction or its intent remains unknown.

Gibraltar 'hashtag' etching

Gorham's Cave lies in Gibraltar to the west of Cueva de Ardales (discussed in Part 1) at the southern extreme of Iberian Peninsula and is part of the United Kingdom (Fig. 7). It is one of a complex of four caves (along with Bennett's, Vanguard, & Hyaena) that became a UNESCO World Heritage site in 2016. Gibraltar has been occupied between c.127- 32ka and is the last known refuge for the Neanderthals (Gibraltar National Museum). In 1868, an adult male skull was found (Neanderthal 1), followed by a second skull of a young child (Neanderthal 2) in 1926. The area has long been known as home of the Neanderthals (Gorham's Cave Complex, 2024). Ten thousand years ago the sea level was much lower than today and the coastal plain in front of the caves extended out five kilometres (refer to Fig. 5), providing a hunting ground for Neanderthals (Gibraltar National Museum). This provides an important reminder of understanding how coastal areas and landscapes throughout Europe (and elsewhere) were

Fig. 8: The image on left shows schematics of Gorham's Cave and location of engraving, right image is the etching with red arrow showing location in the cave. The numbers refer to how the cuts were made into the panel. Credit: J. Rodriguez-Vidal et al. (2014).

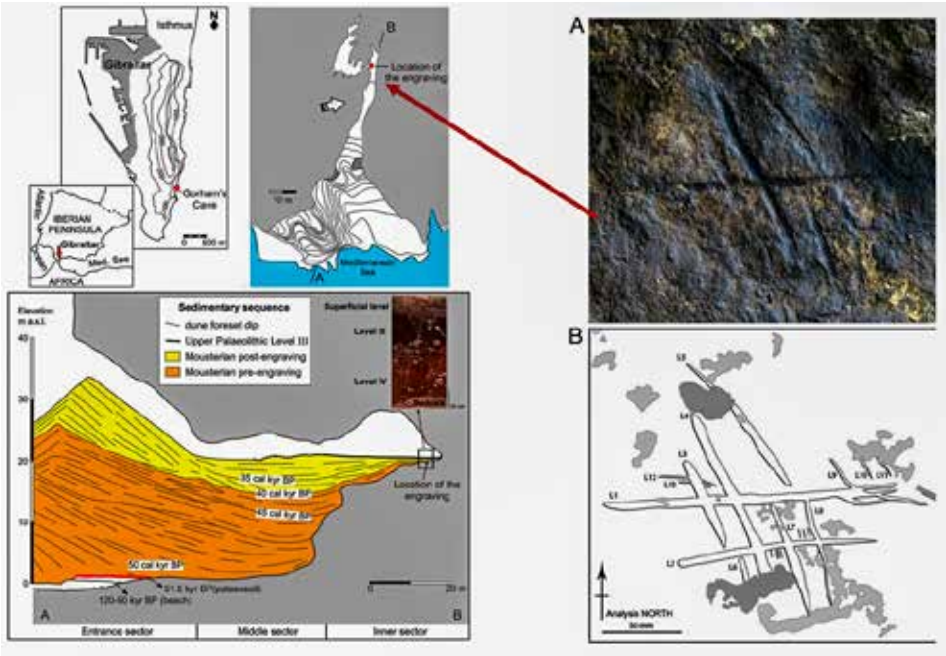


Fig. 9: Nanna and Flint provide an example of how Neanderthals might have used feathers and shells as personal adornment. Image credit: Gibraltar National Museum and S. Finlayson.

vastly different during the Middle and Upper Palaeolithic than today.

Long-time use of the cave by the Neanderthals was realized by researchers in the 1950s. Excavation began in 1989 under the supervision of the Gibraltar museum, and in 2014 a large, engraved panel was found on the floor at the back of the cave's cavity (Fig. 8, *note*: online version of Part II has a one-minute video). The engraving covers an area of ~300cm^2 and consists of "eight deeply engraved lines forming an incomplete crisscross pattern, obliquely intersected by two groups of three and two short thin lines" (Rodríguez-Vidal et al., 2014). They form a rough grid pattern, nicknamed the 'hashtag', with a total of 200 plus gougings produced in a specific sequence (Sykes, 2020). The 90cm. thick layer of sediment above the panel showed no indication of mixing between the Upper Palaeolithic and the Mousterian IV level, indicating the engraving was carved before the accumulations of Mousterian level VI and protected by 40cm. of sediment. The dating of the level is based on the find of lithics indicating discoidal and Levallois technology (Rodríguez-Vidal et al., 2014)—both known to be Neanderthal technologies.

Radiocarbon dating of the etching provided a time span ranging from 38.5-30.5 ka, "controversially interpreted as potential evidence of late Neanderthal survival in southern Iberia" (Rodríguez-Vidal et al., 2014, 13302). According to the authors no controversy exists, as the dating places the engraving to a time before *Homo sapiens* were in the area. Likewise, the production of the engraving indicates abstract thought was capable by Neanderthals and not exclusive to *Homo sapiens* (Rodríguez-Vidal et al., 2014)

Pigment and Symbolic Adornment: shells, talons, and feathers

Research over the past two decades has shaken the foundation of the sudden appearance in Europe of symbolic artifacts attributed to Neanderthals (Hoffmann, et al.,2018). The research in this section suggests the use of shells, talons, and feathers were used as personal adornment (Fig. 8). Many of the objects were found with pig ment on them, primarily from red ochre, but also with yellow and black. Pigment on an object suggests it was given a special treatment (Sykes, 2020, 251). The use of pigment by Neanderthals has been identified in more than 70 sites in Europe. It is known they were manufacturing a liquid red ochre between 250 and 200 ka based on evidence of it on sediment in Maastricht Belvedere, Netherlands where the nearest source was 40 or 80 km. (25 or 50 mi.) away (Sykes, 2020). Ludvic Slimak (2024) states, "ochres were used in many different techniques, ranging from treatment on animal skins to protection from the sun or making resins to improve grips on tools" (137).

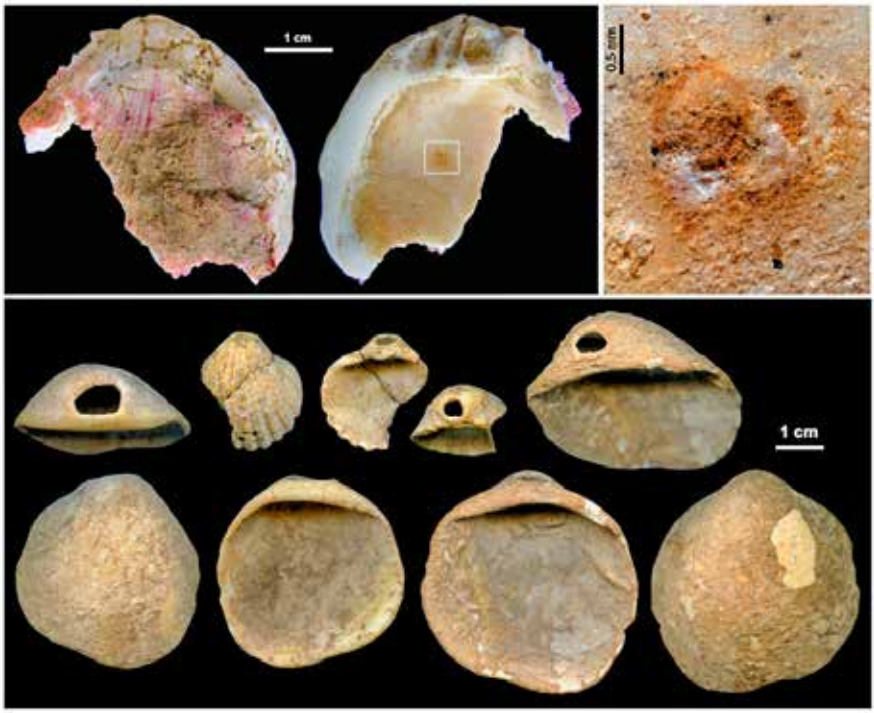
Marine shells

There is evidence from the Iberian Peninsula that Neanderthals used marine shells with mineral pigments (Zilhão et al., 2010) and a tiny mollusk fossil found at Grotto di Fumane, Italy in northern Italy (Sykes, 2020) for personal ornamentation.

In southeastern Spain at the Neanderthal site of *Cueva de los Aviones* ochred and perforated marine shells were dated to 50 ka (Fig. 10). At the time of Neanderthal occupation, the Mediterranean Sea was 50-90m lower (Zilhão, et al., 2010). The marine shells contained red and yellow colorants and shell 'paint' containers had residues of complex mixtures of pigment. The pigments on the shells were dated as 115,000 years old (Hoffmann et al., 2018; Zilhão, 2020) providing older dates than similar finds in South and North Africa associated with *Homo sapiens*; however, only Neanderthals were living in Europe at that time (Zilhão, 2020). Sykes (2020), suggests the shells were first used as a food source, but the ones found with pigment also had small 'natural' holes near the tip; do the holes suggest a form of jewelry or a container of some sort? (254).

At a nearby site, *Cueva Antón*, a mix of yellow and red pigments were found on the exterior of a shell, suggesting it was done deliberately. Aspects of the site location remove the possibility of it as an on-site tool production area strengthening the case for interpretation of the shell as a form of body ornamentation (Zilhão, et al., 2010). Similar finds in South Africa, dated to the Middle Stone Age, have been accepted as artifacts

Fig. 10: Cueva de los Aviones: Upper left, Spondylus gaederopus shell with remnant of a pigmentatious compound; Upper right, pigment residue in shell (small square in left image). Lower image: Perforated Acantocardia and Glycymeris shells, red hematite residue was found on the inner side of the large Glycymeris. All images by and used with permission of J. Zilhão.



of symbolic behavior (Henshilwood, et al., 2011), yet similar finds dated to Neanderthals are questioned.

Microscopic analysis of *Aspa marginata* on a mollusk fossil found at the *Grotto di Fumane*, northern Italy, identified pure finely ground hematite (red ochre) from an area more than 100 km. (62 mi.) from the site (13mi.) and dated to 47.6 -45,0 ky predating the arrival of anatomically modern humans (AMH) in Europe (Peresani, et al. 2013). Sykes (2020) suggests the combination of the source distance and the painted fossil provide a "distinctive meaning, a specialness" (254). It has also been proposed the shell's tip were suggests it was strung together as a necklace or used as a pendant (Zilhão & Trinkaus 2012; Sykes, 2020). The dating indicates the Neanderthals made the object without influence of AMH and it adds to "increasing evidence that Neanderthal had symbolic items as part of their culture" (Peresani, et al. 2013:11). Sykes (2020) adds that if the shells were dated to a later period related to *Homo sapiens* there would be no question if they had symbolic significance. Additionally, the Neanderthals had the ability to manufacture a thread like material (cordage) to link the shells together (Hardy et al., 2020). The site echoes the finds of a shell necklace and paint kit at Blombos Cave, South Africa dated to 97-105 ka (Henshilwood, et al., 2011; Sykes, 2020).

White-tailed eagle talons

A site in *Krapina, Croatia* suggests white-tailed eagle talons (Fig. 11) were worn as a form of jewelry some 130ka (Radovčić et al., 2015, Radovčić et al., 2020) based on electron spin resonance (ESR) and uranium series dating. Neanderthals used the site based on evidence of Mousterian tools and the first mention of eagle claws was in 1901 by Gorjanović-Kramberger and later identified by Lambrecht as white-tailed eagles (Radovčić et al., 2015). The eagles are large and aggressive making them difficult to capture with a wingspan of two meters and a weight between 3.0 and 6.5 kg. (Radovčić et al., 2015). Discovered more than 100 years ago, all the eagle bones derived from one level. The large number of talons indicate the Neanderthals at Krapina acquired and used them for some form of symbolic purpose (Radovčić et al., 2015, Radovčić et al., 2020). Catching an eagle would involve careful planning and ceremony, adding to our knowledge of the Neanderthals ability and cultural sophistication (Radovčić et al., 2015).

One talon (386.1) provided evidence of a natural fiber and small dots of pigment of manganese and iron oxides—a known

Fig. 11: Krapina, Croatia. White-tailed eagle talons. Left, arranged as possible jewelry at National History Museum. Vienn, Austria (photo by author); right image, talon (386.1) showing intentional notches (after Radovčićet al., 2015).

substance used by Neanderthals for staining (Hoffmann et al., 2018; Radovčić et al., 2020). The red and yellow ochres used were not local to the cave, suggesting forethought and intentional modification of the talons. Talons are easy to tie and secure by binding them around the proximal articulation, and smooth cut marks with polished and nicked edges suggested they were tied together (Radovčić et al., 2020). It is difficult to support the talons were strung together (Sykes, 2020); however, it could be the smooth polished areas on the talons could have provided a visual and sonic aesthetic form (Sykes, 2023). The authors of the study state, it is not definitive that the natural fiber would have been something to string the talons together; however, they believe the use of ochres indicates human agency (Radovčić et al., 2020).

Femur of a hyena and a raven bone

Research by Francesco d'Errico et al., (2017) re-examined under a microscope the femur of a hyena discovered in the 1970s at *Les Pradelles* a Mousterian site near Angoulême, Western France. In the bone, dated to 72-60 ka, nine deep engraved parallel notches were found in an irregular and uneven pattern. It is believed the marks were not intended as a decorative pattern but a possible recording of numerical information (d'Errico et al., 2017; Barras, 2021; Sykes, 2023). Furthermore, it is thought that the same tool was used for all the marks, and they were made at the same time with the intent of being retrieved visually or tactilely (d' Errico et al., 2017). Possibly, it is the earliest example *individual* marks as compared to the marks in the raven bone found in Crimea. If it was meant to be a counting system it could be part of an "emergence of number symbols out of a 'number sense' humans share with other species" (d'Errico et al., 2017, 8).

The Middle Palaeolithic site *Zaskalnaya VI rock shelter* in Crimea uncovered an etched raven bone dated to between 38-43 ka (Majkić et al., 2017). The location was discovered in 1969 and excavated various times since then. The etching is comprised of seven raised notches produced by a lithic cutting edge and may have been created for utilitarian purpose. Researchers Tsvelykh and Stepanchuk in 2014, suggested it was used as an eyeless needle with the notches used to fix thread as a possible decoration (in Majkić et al. 2017, 8).

Large bird feathers

The *Grotto di Fumane* in northern Italy (east of Lake Garda) excavations have been conducted since 1988 in the cave entrance where separate Mousterian, Ulluzzian,[5] and Aurignacian layers have been identified (Peresani et al., 2011). The research revealed human modifications on bird bones using extensive taphonomic analysis were being removed intentionally around 44 ka (Peresani, et al, 2011). The species of the birds killed would not have been used as a food source (i.e., Eurasian black vulture, golden eagle, Alpine chough) and the scrape marks show intentional removal of the large feathers by Neanderthals (Fig. 12). Peresani et al. (2011) found the Neanderthals interest in wings wasn't linked to size of the bird nor to specific type or color of plumage: "The species involved, the anatomical elements affected, and the uniqueness of human modifications indicates a specific Neanderthal interest in the wings, and especially the feathers, of some particular birds" (3892). Their evidence of ornamental exploitation of feathers of large birds strengthens similar findings at Grotte du Renne in France and enhances data demonstrating symbolic use of ornamentation was in Europe long before the arrival of Homo sapiens (Zilhão, et al. 2010; Peresani et al., 2011).

Feathers have been used for social purposes worldwide over a prolonged period, and the use of specific colors (black, dark brown, reds and greys) from certain birds suggests the possibility Neanderthals designated special cultural associations per color or type of feather (Sykes, 2020).

Words of caution...

In *The Naked Neanderthal*, Ludovic Slimak (2024) suggests that the interpretations of feathers, shells, and talons used as or-

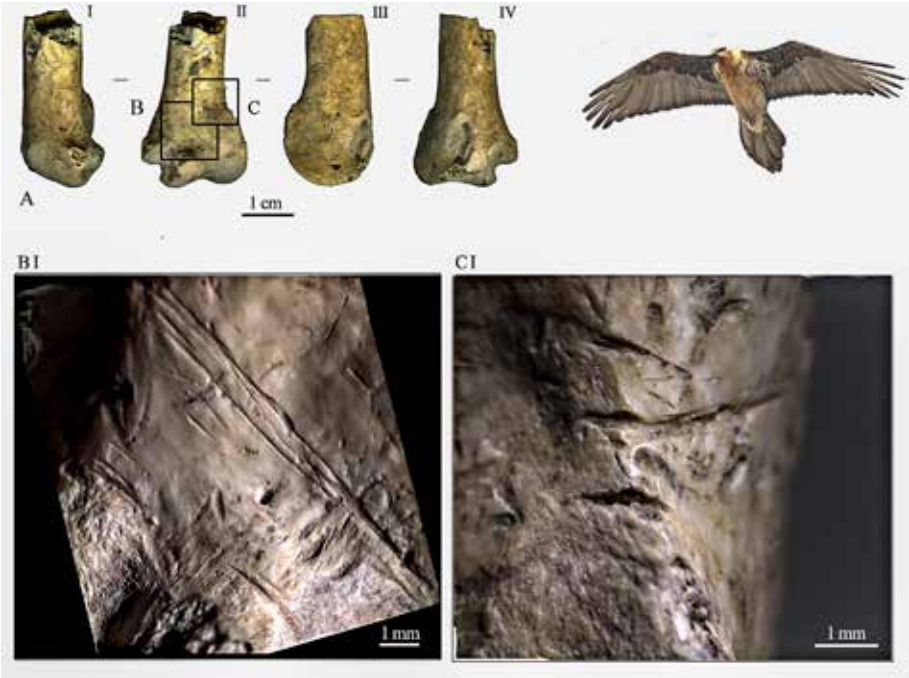


Fig. 12: Fumane Cave, Italy. The image shows cut marks on a lammergeir (Gypaetus barbatus). The primary interest was the wings showing evidence of ornamental use of feathers. Image and photos by and used with permission of M. Peresani.

namentation is a projection by us, *Homo sapiens*, creating a "dandyish" version of Neanderthals (131) and projecting them in a version of ourselves because we are unable to "conceive a humanity that is not us" (136). However, the amount of new research implies something different. Slimak is also skeptical of the results of the U-Th dating of cave art in Spain (see Part I). There is no doubt the debate regarding Neanderthals' symbolic material culture will linger even as more archaeological/anthropological data is gathered and dating techniques are improved.

Were they clever enough?

This article has presented an overview of current research on dating of cave art in several Spanish locations (Part I) and other aspects of Neanderthal symbolic culture (Part II). The simplicity of the abstract markings in the cave art dated to the Middle Stone Age (MSA) can be considered in parallel to children's development of symbolic abilities—scribblings make way for more advanced action: a process of evolutionary development. Today, unlike Georges-Henri Luquet and Abbé Henri Breuil in the early 1920s, it is not believed children's art in its earliest stages (scribbles, abstract images) is meant to be representative but a means "to express moods and ideas" (Lorblanchet & Bahn, 2017:30). Each example of research on Neanderthals symbolic culture presented involves the use of hands in its production. Slimak suggests our definition of humanity is limited to a narrow reference when we view all humanity as one homogenous group—this is the same as limiting our context of 'mind' as something encased only in the brain (Malafouris 2016)—both limit our *understanding* of other cultures. Rebecca Wragg Sykes, in Kindred (2020) reminds us "we cannot assume that our own standards of meaning were shared by Neanderthals"

(250). Her comment echoes Slimak's (2024) referral to Marshall Salins, *Stone Age Economics* (1972) who was one of the first researchers to suggest we should not "project our western assumptions on societies that are essentially unknown to us" (182).

The findings of the research presented in both Parts 1 and 2 divide the scientific community into two camps: one that views Neanderthals as lacking the cognitive skills as *Homo sapiens* during the Palaeolithic, and those who view them as excellent artisans, understanding their stone tool technology and cultural traditions as unique, and defining them as on their own culture- not as a comparison of us. Despite his skepticism of some recent research, Ludovic Slimak writes, "Sapiens were probably no match for Neanderthal populations and in all likelihood intellectually inferior" (Slimak, 2024, 184). He further states:

> Neanderthal creativity and sensibility transcend the egocentric products of our societies to achieve a form of universal beauty, in which the ego is no longer central but given a more peripheral position.... Art for art's sake tells us about the artists. Neanderthal art, art fused with technology, does not speak about the person, the individual, the ego, but exclusively about the ways being in the world of the group as a whole (183).

It is not a question of knowing whether Neanderthal artefacts resemble our own, but of defining *how* they are fundamentally structured (Slimak, 2024). Within that structuring lies a cognitive process involved in knowing the needs, sources, and planning for tool making, mortuary practices, and fishing-hunting-gathering for food, or making images on cave walls. The process of *doing* is an extension of the mind embedded in a specific action. Humans think through the construction of signs (be it a tool, personal ornament, or aesthetic markings on a cave wall), a process that involves the movement of the body, specifically the hands: Intelligence is enacted through them (Malafouris, 2019).

The recent developments in Neanderthal research suggest a "qualitative leap in the complexification of social relationships. . .a sort of Middle Palaeolithic revolution" and a process that lead to an explosion of symbolic material culture in the Upper Palaeolithic, rather than it being the *beginning* of such a period (Zilhão, 2020, 87).

This article provides a neutral discussion of recent findings on Neanderthals. It is not for me to lean on one side or the other of the debate. I merely suggest people keep an open mind in an effort to move Palaeolithic and Neanderthal research forward. For those who are anxious to know more I suggest perusing the reference list as there are many fascinating rabbit holes to explore.[6] As dating improves and more areas are (re) excavated, documented or discovered, I venture we will learn much more about our nearest relative in the years to come.

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Endnotes

[1] Quote is by Owen Lovejoy and cited in Shreve, 1997, 132.

[2] Schaffhausen was a fan of Darwin. In 1859 Darwin's *On the Origin of Species* was published; however, it took until 1870 for it to gain acceptance by the greater scientific community. He did not use the term 'evolution' until *The Descent of Man* was published in 1871 and a year later in the 6th edition of the first publication. Darwin promoted the idea that non-white populations were inferior ancestors: Indigenous populations were seen as animalistic with violent natures. It is attitudes such as this that has influenced the scientific community's thinking about Neanderthals. It is an attitude that continues with the dating conundrum today.

[3] In 1957 two Americans anatomists, William Strauss and A.J.E. Cave re-examined Boule's La Chappelle skeleton and found the earlier description was completely flawed. The Neanderthal had advanced arthritis and there was no evidence he walked with bent knees: morphologically, he wasn't much different from a modern human (Shreeve, 1997, 49).

[4] The Archeulean techno period is characterised by distinct oval and pear shaped 'hand axes' from the Lower Palaeolithic 1.95-0.13 million years ago (Mya). It was used by Neanderthals before they transitioned to Mousterian technology c. 160 thousand years ago.

[5] The Ulluzzian is a transitional archaeological culture specific to Italy and Greece between the Middle and Upper Palaeolithic.

[6] Through this research process, I found a parallel to my Ph.D., *A Curator's Representation of Indigenous Peoples: National Museums, Cultural Artifacts and Meaning Making* (2017): the eurocentrism involved in considering cultures unfamiliar to curators, who are often anthropologists or archaeologists, who place the various cultures as one homogenous group-in turn marginalizing these communities and misrepresenting their cultural artifacts. Who is representing whom? This is no different than the Eurocentric bias placed on Neanderthals.

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