

The Emergence of “Art”: Explosion or Illusion

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Abstract

For some 3 million years, the archaeological record is characterized by stone tools undergoing incremental changes. Then around 40,000 years ago, the monotony of lithics is terminated by a profusion of visual representations, generally considered to be the world's first *objets d'art*. This collection include a series of portable objects, especially figurines and, later on, the famous cave paintings from western Europe, as well as lesser-known shell-beads in the Levant and painted slabs in Australia. Despite myriad forms and geographic diversity, the figures of this period consistently exhibit a level of sophistication surprising for humanity's first alleged dabbling in art.

Scholars argue over the rate at which art truly emerged. Natural objects engraved with simple geometric designs have been purported to be artistic precursors — the beginning of a gradual trajectory from primitive to developed art. Scientific analysis has confirmed that the appearance of some of these artifacts is consistent with an anthropogenic origin. However, even if they are man-made, the meaning of these objects is unclear. Rather than representing artistic antecedents, they may belong to a separate class of human activity, more akin to modern doodling. This suggestion seems rather plausible due to the fact that the archaeological record has crude geometric etchings and masterful realistic creations, but very little in between. If these categories are part of the same trajectory, where is the middle of the curve?

Keywords: Middle-Upper Paleolithic Transition, Visual Representation, Art Objects.

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Introduction

For around 3 million years, the archaeological record is characterized by stone tools undergoing incremental changes. Then around 40,000 years ago, the monotony of lithics is terminated by a profusion of visual representations, generally considered the world’s first *objets d’art*. This include a series of portable objects, especially figurines and, later on, the famous cave paintings from western Europe, as well as lesser-known shell-beads in the Levant and painted slabs in Australia. Despite myriad forms and geographic diversity, the figures of this period consistently exhibit a level of sophistication surprising for humanity’s first alleged dabbling in art. The fact that material representation appears to emerge so suddenly, with such proficiency, in such abundance, and in such a wide geographical region has triggered multifaceted debate in archaeology (for a summary of debates see Mithen 1996a).

Problems abound, but foremost among them are such questions as follows: Did artistic expression actually made its debut without precedent 60 to 30 thousand years ago or is this interpretation due to biases and overlooked precursors? Regardless of the timeframe, what was it that prompted humans to produce art in the first place? Was it a biological (i.e., neurological) change or a cultural one?

In this paper, I attempt to explore some of

the issues regarding the origins of material representation. Specifically, I will present a few heuristic views on how and why visual symbolism arose and became part of human culture.

What is “Art”?

Before delving into the body of discussion, it is necessary to clarify what is meant by “art” here. Art object as a non-utilitarian item created for display and aesthetics is not a universal concept. It has often assumed such connotation however, evident when Western museums showcase functional items from past or distant cultures as “works of art.”

It is impossible to know how early humans created a distinct category for the objects that we now refer to as the earliest art. This too is outside the scope of this paper. For the present, culturally variant concepts of art (or lack thereof) will be put aside in exchange for a broad definition. “Art” will refer to *any intentionally created decorative or symbolic material including body adornment, embellished functional items, and non-utilitarian depictions*. “Ambiguous artifact” will refer to cases for which it is dubious if a human purposefully designed the item.

That said, *unambiguous* art fluoresced between 50 and 30 thousand years ago, a period historically called the Upper Paleolithic Revolution (also known as the Upper Paleolithic

Transition or Explosion for the more conservative and dramatic, respectively).² In addition to the emergence of art, this period witnessed a multitude of other novelties including innovative hunting strategies, rapid and diverse technological innovation, and colonization of new parts of the world, and perhaps even a more coherent system of verbal communication that qualifies to be called “language” (Bar-Yousef, 1992; Chazan, 1995; White et al., 1982; White, 1992). In one authority’s word, there was “a frenzy of activity, with more innovation than in the previous 6 million years of human evolution” (Mithen, 1996b: 152).

The timing of this florescence is surprising because anatomically modern humans (AMH) had been around since 160,000 BP (Mellars, 1989). Thus, the question arises as why was AMH producing relatively little “works of art” in the 100,000-years between?

This interlude has been described by Pfeiffer as “a static world in which people are living exactly by the same traditions and customs that prevailed 10,000 generations ago.... Their language was rather less complicated than ours; they had so little to talk about” (Pfeiffer, 1982: 11). Although his view is a little bit outdated

2. Although the term Upper Paleolithic generally refers to Europe, in this paper it will be used to designate time and not space. Thus Upper Paleolithic Revolution/Transition/Explosion will refer to the world-wide florescence of creativity between 50 to 30 thousand years ago.

and quite a bit exaggerated, it still serves well to illustrate the degree of paucity in the archaeological record.

In this seemingly stagnant period, the Mousterian industry endured from 250,000 to 33,000 BP with negligible variation in tools. Associated with the species *Homo neanderthalensis*, the Mousterian was a culture “conspicuously bereft of evidence for artistic or aesthetic expression” (Mithen, 1998: 143).

Upper Paleolithic Abundance

Then in the Upper Paleolithic period appears “art,” fully developed and recognizable. Figurines and statuettes exhibit a high degree of naturalism, technical skill, and emotive power. There are statuettes carved from stone, ivory, and bone into various shapes and form, including animals, pregnant women, and imaginary creatures like the man with a lion’s head from Hohlenstein-Stadel in southern Germany — “a remarkable combination of technical expertise and powerful imagery” (Mithen, 1996b: 155). The recent discovery of perhaps the earliest “venus figurine” and what has been described as a “flute” in Aurignacian layers at Hohle Fels Cave in southern Germany, dating to around 38 kya (Conard, 2009) have all added further fuel to this debate. Henceforward, many sites have produced abundant items of personal adornment like beads and pendants. Remarking on the frequency of such artifacts at the site of Abri

Castanet in France, Randall White commented, “I have more [objects of art] in a few square meters than in all the rest of the world up until then” (cited in Appenzeller 1998: 1452).

The most-famous art of this period undoubtedly is the cave paintings of southwest Europe. These grottos are adorned with signs, anatomically realistic animals, and imaginary anthropomorphs. The lions, rhinoceroses, and bears that romp across the oldest known paintings in Chauvet Cave are dated to around 32,000 years ago (Chauvet et al., 1996).

Earlier Ambiguity

The above finds are unequivocally accepted as deliberate material representation or “works of art.” Controversy arises over a second set of artifacts — the purported antecedents of intentional art. This category consists of natural objects with modifications that appear to be man-made. Many of these artifacts take the form of a bone with parallel notches or a stone with geometric incisions. The two primary issues with these artifacts are as follows: were they intentionally created by humans and what does it mean if they were? Before addressing these points, some of the more famous finds will be described along with the implications that have been bestowed upon them.

Artifacts from the German site of Bilzingsleben have received considerable attention in literature. These objects exhibit sets

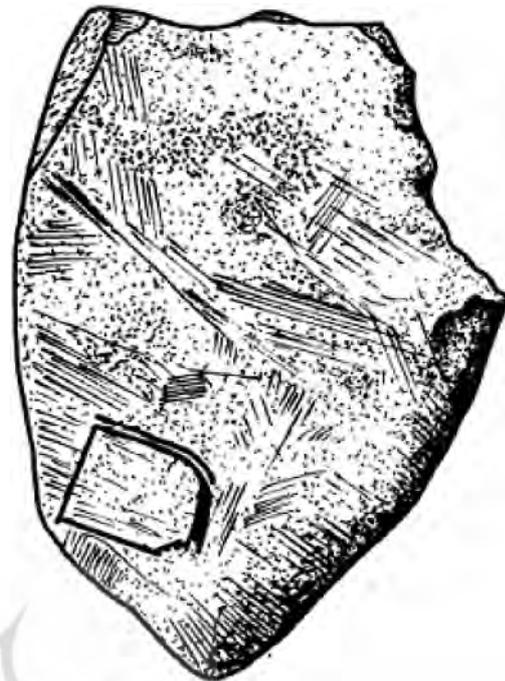


Figure 1. Quartzite slab from Bilzingsleben with an incised D-shape (image from Bednarik 1995: 609)

of cuts with organization and placement that suggest intentionality. For instance, one of the specimens is a 45 cm quartzite slab with a D-shape incision made by multiple applications of an engraving tool (Figure 1).

Bednarik argues that the object’s creator repeatedly corrected the line in pursuit of symmetry (Bednarik, 1995: 607). Bilzingsleben also produced an elephant metatarsal bone with a “complex arrangement” of incisions on the concave surface. Such marks are often explained by designating the object as a cutting board, but Bednarik finds this unlikely given that the cuts are on the bone’s concave side (Bednarik, 1995: 607). Moreover he sees spatial

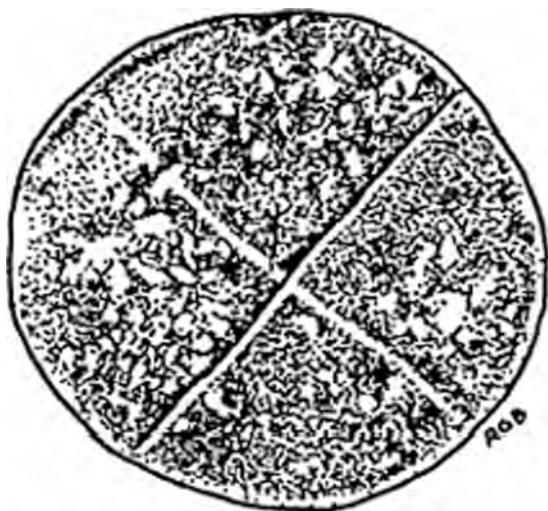


Figure 2. Silicified nummulite from Tata with a natural crack bisected by an engraved line (image from Bednarik 1995: 613)

distribution between the incisions and the object's borders.

Another contemptuous item is the Tata nummulite - a silicified oval fossil with a crack bisecting the center (Figure 2).

It appears that a perpendicular line was added, which created a cross shape and divided the object into four quarters. The same pattern was engraved on the opposite side. Bednarik insists that the creator selected the object because of its natural symmetry and was compelled to improve its aesthetic with deliberate modifications (Bednarik, 1995: 612). Such behavior is purported to be evidence for a "tradition of marking strategies... graphic solutions to issues of space" (Bednarik, 1995: 612).

Similarly ambiguous finds appears around

the world. There are pieces of ochre that may have been used as crayons in South Africa 100 kya (Watts, 1999, cited in Henshilwood *et al.*, 2002: 1278). In Slovenia, archaeologists unearthed what was either one of the first musical instruments or merely a heavily gnawed bone (Turk *et al.* 1995 and Turk 1997 cited in D'Errico and Nowell, 2000: 124).

The first obstacle impeding interpretation of these artifacts is uncertainty over if they were in fact man-made. Experimental archaeology and scientific analysis has successfully distinguished between natural and anthropogenic pieces. The following examples offer a case of validated and invalidated claims that an object was the product of human modification.

A study by Nowell and D'Errico assessed purportedly engraved objects from the Middle Paleolithic site of Molodova I in Ukraine (Nowell and d'Errico, 2007). Using a reflecting light microscope to inspect the grooves, researchers concluded that none of the objects were incised by early humans. Object 1 (Figure 3) exhibited a macroscopically striking image of a human stick figure. Microscopically, however, the grooves resembled blood vessel impressions because they lacked internal striations and edges that a tool would inflict. The other objects analyzed *did* appear to be man-made, but by a recent incision and not one occurring in the Middle Paleolithic. Engraved surfaces were a considerably lighter patina than

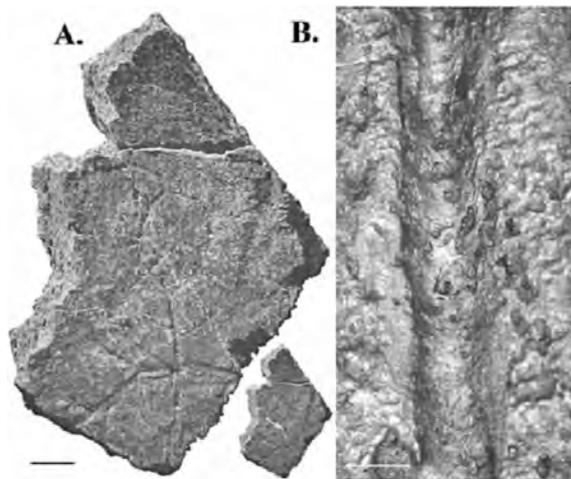


Figure 3. Purported anthropomorphic figure determined to be the result of blood vessels. The macroscopic view (left) gives the impression of a stick figure human. The grooves, however, look like blood vessel grooves under the microscope (right). (image from Nowell and d’Errico 2007: 10)

the rest of the objects, which suggests that the incisions postdated most of the taphonomic processes experienced by objects. Nowell and D’Errico believe that the grooves were made by untrained farmers, who were employed to excavate this site.

Unlike the Ukrainian pieces, the Bekharat Ram (Figure 4) figure has received credibility from scientific scrutiny. Excavated from the Golan Heights in the early 1980s, this “plum-size” piece of volcanic tuff gained notoriety when archaeologist Goren-Inbar observed that its incisions resemble a woman. According to Goren-Inbar, an early human saw the suggestion of a female form within the pebble’s natural cracks and then embellished them into a



Figure 4. Bekharat Ram figure, purported to be a deliberate female form. The incisions are consistent with an anthropogenic origin, but the meaning of the final product has been subject to debate.

full depiction. After years of speculation by scholars, the anthropogenic features bestowed upon the figure were tested experimentally (d’Errico and Nowell, 2000). D’Errico and Nowell collected tuffs from the site. After engraving and analyzing the tuffs microscopically, they compared their experimental grooves to the allegedly man-made incisions on the Bekharat Ram figure. The pair found significant similarity and concluded that their research supported an anthropogenic origin.

However, this conclusion leads to another

criticism applicable to all purported artistic precursors: so what if grooves were deliberately etched into a stone or bone? As Appenzeller points out, “the debate is more about the significance of this early evidence than about its reality” (1998: 1452). Regarding this point the scientific analysis is speechless, but scholarly debate is verbose.

Gradual or Sudden Appearance

If the Bekharat Ram figure and its counterparts do indeed represent “proto-art,” then the “Upper Paleolithic Explosion” is an illusion. Alternatively, the apparent speed of art’s emergence may be reality and purported artistic antecedents misinterpreted. Scholars that sway to the former or latter view have been polarized as “Gradualists” or “Discontinuists.” Although these titles downplay the gray area — the spectrum of opinions — they conveniently label the extremes.

Approaching the extreme end of pure Gradualism is Robert Bednarik. He believes that ambiguous artifacts have meaning to deliver, but their messages cannot be penetrated by biases encapsulating mainstream archaeological thought (Bednarik, 1995).

He explains that, “the assumption of less symbolizing the farther back one goes in time is pure speculation, based not on logic or evidence but on a theoretical evolutionary premise reinforced by a century of confirmationist

investigation” (1995: 612). In an attempt to preserve the notion of a cultural explosion, archaeologists have inflicted harsher skepticism upon early artifacts and judged them by Upper Paleolithic measures of what constitutes artistic creation.

Bednarik feels that these biases are exacerbated and supported by biases naturally incurred by taphonomic processes. The archaeological record does not accurately represent the material cultural of a society in question. Rather, it over-represents durable materials and under-represents perishables. Just because a material does not appear in abundance does not definitively mean that it was not used. Such taphonomic considerations are allotted to many items in lieu of direct evidence. Bednarik points out that there is no evidence for knots in the Pleistocene, but recovered strings, ropes, and hafting tools imply that knots must have existed (Bednarik, 1995: 612). Moreover, without any remains of watercraft, archaeologists agree that Pleistocene people sailed up to 180 km; they see no other way to explain travel indicated by displaced human remains. Whereas knots and boats are unhindered by negative evidence, early art is precluded by it.

Bednarik also points out that what is accepted as the earliest art is generally made of the durable material and found in locations most conducive to preservation. For instance,

the oldest known petroglyphs are in Auditorium Cave in India, which is unusually well-preserved by carbonate precipitate (Bednarik, 1995: 610). Bednarik feels that deeming these petroglyphs the oldest rock art betrays a principle maxim of taphonomy: "if the earliest available evidence of a phenomenon is the most deterioration resistant manifestation of it (e.g., deeply carved cupules, in the case of rock art), it most likely reflects taphonomic truncation of the record rather than historical reality" (Bednarik, 1995: 611).

Moreover, the early artifacts that have survived exhibit the kind of elementary designs that one would expect if artistic ability were a gradual evolution. Bednarik asserts that, "If we take the non-figurative final Pleistocene art that we know of and develop a trajectory of "decreasing cognitive complexity" through the range of known Middle Paleolithic markings (bunched or convergent lines, parallel lines, crosses, zigzags, accurate marks), we could speculate that we should expect less structured sets of such linear marks with still greater age—precisely what one finds on the objects from Bilzingsleben" (1995: 615). In the realm of sculpture, Bednarik would anticipate a history of collecting, or "curating," unique forms from nature — a behavior documented for multiple species of early *Homo* (1995: 615).

In a final general defense of early art, Gradualists argue that it is improbable that the

artistic mastery of the Upper Paleolithic was humanity's first attempt at art (Appenzeller, 1998:1453). Instead, they believe that the Upper Paleolithic artifacts required tens or hundreds of thousands of years of training and improvement. The first time Alexander Marshak held 30 kya ivory bones from Vogelherd, Germany, his immediate reaction was that they were too sophisticated to be the first art (Marshack, 1972) and would require "thousands of years of technology, of symboling, of making stories with animals" (Appenzeller, 1998: 1453).

It is intuition-based claims like this that weaken the case of Gradualists and set-off the list of criticisms issued by Discontinuists. Those against early evidence enjoy the advantage that much of it has been rejected on taphonomic and stratigraphic grounds. Early artifacts left standing after a blow of scientific scrutiny are seen as rare, crude, and unimpressive. Indeed the amount of debate devoted to early objects is in no way proportional to their remarkable quality and high frequency. The Berekhat Ram figure, after all, is a 35 by 25 mm pebble "that has been the object of rapt attention — far more, perhaps, than it got when it was new" (Appenzeller, 1998: 1451). Mithen expressed incredulity that "our understanding of such an immense topic as the eve of human symbolic behavior appears to hinge on the study of such diminutive and

visually unimpressive pieces” as the Berekhat Ram object (cited in D’Errico and Nowell, 2000: 149).

However more so than the simplicity, it is perhaps the rarity of these objects that draws the most significant criticism. The artifacts appear to lack the spatial and temporal continuity necessary for a representation system (Appenzeller, 1998; Mithen in D’errico and Nowell, 2000). In Mellars’ words, the uniqueness of finds like the Berekhat Ram figure “undermines their role in a symbolic communication system” (cited in Appenzeller, 1998: 1454). Just because one early human scratched an image into a bone does not mean that this object had any inter or intra personal meaning. If Goren-Inbar had unearthed twenty pebbles with enigmatic female forms, the Berekhat Ram object would appear to be a component in a meaningful system. One such artifact every 20,000 years over a geographic range spanning the inhabited world is unlikely to constitute a system, let alone a system evolving toward symbolic representation.

Even if the artifacts were intentionally modified with an aesthetic eye and then appreciated by similar eyes and mind, there is still a dramatic difference between these objects and art produced in the Upper Paleolithic. Are serial incisions on the Bilzingsleben bones part of a gradual trajectory toward the lion/man from Hohlenstein-Stadel, or do these examples

belong to separate categories? Mithen has proposed the latter possibility, explaining that, “major stumbling block for those writing about the evolution of visual symbols...is to assume that these two different types of symbols necessarily derive from the same set of evolving cognitive processes” (Mithen, 1996b: 667). In other words, early artifacts may have nothing to do with later art — other than the fact that both are visual modifications of natural objects.

Many have noted the similarity between early etchings and doodles made today. Thomas Wynn rationally suggested that the Berekhat Ram figure could be the result of idle “biomechanical fiddling” – that is, someone playing with a stone tool and pebble. He added that, “much of modern human action is not purposive — why should the past have been different?” (D’Errico and Nowell, 2000: 151). Furthermore, contemporary doodling is largely seen as subconscious and surely not a means of intentional symbolic communication.

Discontinuists generally agree on the above critiques of Gradualism, but differ on how to explain the sudden emergence of art during the Upper Paleolithic. Some have noted that the development coincides with the arrival in Europe of Anatomically Modern Humans (AMH) from Africa. There appears to be a trail of decorative artifacts following this group’s migration, which suggests that AMH had the

capacity for symbolic thought, but perhaps did not use it immediately. Some scholars have no qualms with a sudden origin for symbolic thought: Clive Gamble suggests that "like throwing on a light switch, 'once something is symbolic everything is potentially symbolic'" (D'Errico and Nowell, 2000: 149). These differences lead to a second polarization: those who attribute the emergence of art to a biological change and those that prefer a cultural impetus.

Impetus and Advantage of Symbolic Representations

Debates over ambiguous precursors aside, one is faced with the question that why did realistic, symbolic representation arise in the Upper Paleolithic, thousands of years after AMH emerged? Moreover, why did this activity proceed to become a fixed hallmark of humanity? The prevailing theories are a biological explanation and a social one; each will be discussed below.

The biological explanation attributes the emergence of symbolic representation to a neurological change, perhaps the last stage in evolution of the modern brain. Proponents of this view hail from many fields including neuroscientists like Richard Klein of Stanford University (Klein, 1999). Klein argues that the modern brain did not evolve until 50 thousand years ago, whereas morphological modernity is

approximately twice as old. At 50 kya some rewiring of the brain empowered humans with the capacity for innovation and symbolic thought (Bar Yosef, 2002: 377).

Mithen offers a compelling model for this brain reorganization (1996b). He begins by establishing three cognitive abilities as prerequisites for artistic creation: individuals must be able to impose form on an object, execute intentional communication, and infer meaning from a visual image displaced from its context and/or referent. These capacities seem to fall into what Mithen calls technical, social, and natural history intelligence — all of which humans appear to possess prior to the emergence of material representation.

When early humans formed tools — as they had been doing for over 2 million years — they exhibited technical intelligence. Intentional communication can be witnessed in modern chimpanzees and thus social intelligence is assumed of early man. Lastly, it appears that natural history intelligence was also in place based on hunting strategies. Early humans and Neanderthals seem to have been able to follow animal tracks and thus could extract meaning from natural symbols that were removed from implications. These forms of intelligence have obvious evolutionary benefits. Individuals who could effectively make tools, communicate with others, and track game were more likely to survive than less-proficient contemporaries.

Even with these capacities, however, humans at this time did not produce art. Mithen's intriguing proposition is that technical, social, and natural history intelligences were confined to separate domains of the brain. Humans could not apply what they knew about nature to what they knew about people; nor would they think to fashion a tool of personal adornment. Artistic creation and other modern behaviors required the integration of separate domains of intelligence.

This statement is the foundation of Mithen's theory of a neurological origin for material representation (Mithen 1996a). He has elaborated it by proposing a sequence and timing for integration, based on the appearance of novel behaviors. Specifically, Mithen believes that social and natural history intelligence were the first to mesh and sees evidence for this development in improved hunting efficiency. Humans began to designate sites for specific prey, employ ambushes, and target elusive animals like the ibex — strategies suggesting that these humans could predict the movements and behavior of animals. It is likely, then, that they possessed the capacity for anthropomorphic thought, which Mithen asserts signifies an integration of natural history and social intelligence. Anthropomorphic thought, after all, requires one to bestow human characteristics of volition and penchant upon simpler creatures.

According to Mithen's account, early humans migrated from Africa after the synthesis of natural history and social intelligence. Thus the mind that spread around the world was only partially developed. Mithen believes that the final component of technological intelligence joined the fluid mind independently in all parts of the world, rather than from the same evolutionary lineage. At this point his elegant model appears to lose steam. Mithen supports every prior stage of neurological development with an evolutionary stimulus and archaeological reflection. In other words, every proposed change in the brain is given a reason for occurring and a way to detect its development in the material record. The final step, however, Mithen treats as if it were the only route for evolution, as he asserts that geographically disparate populations experienced the same selection pressures and outcome of a fully integrated mind.

This final criticism ignored, Mithen's proposal is sound and logical. It does invite one to wonder what thought was like in an un-integrated, non-symbolic mind. Mithen describes this state as Swiss-army knife mind, one that can switch between modes of intelligence but lacks cognitive fluidity. An analogy has been made between the consciousness of a Neanderthal making tools and a modern human driving a car while talking to a passenger: "We finish the journey with no

memory of the roundabouts, traffic lights and other hazards we negotiated and appear to have passed safely through these without thinking about driving at all” (Mithen, 1996b: 148). One can be productive without introspection.

More importantly to the topic at hand, one must consider what “art” created by a human with un-integrated intelligences would resemble. Mithen (1996b) suggests such objects would look like the ambiguous incised bones and stones purported to be artistic precursors. Contemptuous objects including those from Bilzingsleben, Tata, and Bekharat may represent the maximum symbolic communication for a Swiss-army knife mind. In this case, the ambiguous artifacts are indeed in a separate class from Upper Paleolithic art and not in the same trajectory.

In short, Mithen explains the cultural “Big Bang” of the Upper Paleolithic as the final stage in the organization of the brain, during which separate domains of intelligence were integrated into cognitive fluidity (Mithen, 1996b). He offers a compelling case for those in favor of a biological impetus to the emergence of material representation.

Countering these claims are those who insist that humans were mentally capable of artistic expression long before circumstance induced its invention. In this way, material representation is viewed in the same manner as agriculture, which appeared globally around 10,000 BP

without anatomical change as a stimulant. However, just what *did* cause hunter-gatherers independently around the world to tend to domesticate is a matter of heated controversy. Likewise, proponents of an invention-origin for art struggle with multiple explanations.

One misconception can be discounted, though. Upper Paleolithic art did not arise because comfortable conditions finally allotted humans enough spare time to sit around and dabble in activities other than immediate survival. On the contrary, art fluoresced in Europe at the peak of an Ice Age, in very harsh conditions. Olga Soffer of University of Indiana, Urbana-Champaign believes the very difficulty of life at this time facilitated the emergence of material representation: while “chasing wide-ranging herds in the shadow of the ice sheets, modern humans thrived by developing an intricate social system, with a complex division of labor and long-distance ties” (Appenzeller, 1998: 1453). Thus the Ice Age forced humans to formalize social ties — a process that symbolic objects could assist. Items of personal adornment and prestige items could represent and create social distinctions.

Randall White agrees that art probably proliferated in response to a need for social formalization. However, rather than stressing the fact that it emerged in the midst of an Ice Age, he points out art’s temporal coincidence with anatomically modern humans arriving in

Europe. Upon encountering Neanderthal populations in place for nearly 400,000 years, AMH “naturally sought ways to distinguish themselves from their neighbors and strengthen their own cultural ties” (White cited in Appenzeller, 1998: 1453). Art could certainly serve this purpose.

White also argues that at this time humans adapted primarily by rapid cultural evolution, instead of “painfully slow” biological evolution (White 2003: 12). If art effectively increased group solidarity, it would provide an advantage over competing populations. Thus, via cultural evolution artistic expression could be fixed into humanity.

However, if art was truly an invention then it was most likely induced by an amalgam of factors that comprised the conditions in that day, rather than a single motivator like the climate or encounters with other *Homo sapiens*. An idea of this amalgam is provided by White, in his comprehensive overview of social conditions during the Middle-Upper Paleolithic Transition (White *et al.*, 1982).

After summarizing the available evidence, White offers seven tenuous trends between the Middle and Upper Paleolithic: increase in population density and social aggregation; lithics became more stylized and regionally variant; antler and bone were worked more often and perhaps with formal and/or individualized styles; people hunted a larger

number of species; personal ornaments became abundant; and for the first time people obtained materials from distant sources — probably cooperating with or conniving those inhabiting the area around distant sources.

According to White, “all of the above is consistent with the idea of a total restructuring of social relations across the Middle-Upper Paleolithic boundary in the course of which corporate and individual identity become important and are enhanced by stylistic input and regional differences in the working of stone, antler, and bone, the fabrication and wearing of ornaments, and the re-aggregation of a set of otherwise dispersed local groups” (White *et al.*, 1982: 176).

Less verbosely, human behavior 50 kya required increased social cooperation and distinction. Group and individual identity emerged as concepts, and individuals used materials to symbolize these burgeoning identities. In this model, the need for social differentiation stimulated the origins of art.

It is possible to synthesize the neurological and cultural explanations for the origins of art, and this third model is the most convincing (Mithen cited in d’Errico and Nowell, 2000). Human brains are constantly rewired in response to the environment. Thus there is a rapid feedback exchange between culture and the brain. Cultural changes can alter the density and networking of neurons so that specific parts

of the brain become more developed as need be. If the social changes during the Middle-Upper Paleolithic Transition necessitated brains more wired for artistic expression, neurons could adjust accordingly. Thus, it may be more accurate to synthesize biological and cultural origins, rather than polarizing them.

Adaptive Advantages of Material Representations

Regardless of whether artistic expression was biologically or culturally motivated, it has remained a fixed element of humanity since its inception. There must be adaptive benefits of art to account for this longevity. As White puts it “there is little room in an evolutionary view for art as a divinely inspired struggle to create beautiful or novel forms” (2003: 13). The following proposed benefits are compatible with art derived from biological or cultural evolution.

When explaining the social drive for material representation, it was established that art objects establish and maintain identities. Even if art arose from biological changes, its social ramifications confer a selective advantage for continuing the behavior. The ethnographic record is replete with examples of material forms being used to designate political authority and social distinctions (White, 1992: 560). Social ranks usually lack a physical correlate, so personal adornment can signify status. Material goods can also be exchanged

thereby establishing a tangible remnant of social interaction. Moreover, a material cultural links its members by shared aesthetic and formal values (White, 2003: 15).

Apart from the social advantages, visual representation enabled humans to store and transfer information, “to communicate in the absence of the communicator” (White, 2003: 15). It has been suggested that cave paintings were used to pass on knowledge of the natural world. Animals are sometimes painted in ways that reveal information about their movement. For instance, herd animals are painted in profile with their hooves in plan as if to highlight the shape of their tracks. Also, animals like migratory birds, that are indicative of environmental change are abundantly depicted. Mithen has argued that “particular stylistic traits and subjects within the art function to cue the recall of knowledge about the natural world, and explicitly store some of that knowledge so that it can be transmitted to future generations” (Mithen, 1998: 182).

Lastly, it seems that visual thinking is essential for innovation — or at least innovation of the productive, prolific rate that has occurred since the Upper Paleolithic. It has been documented that all the great inventors of the Industrial Revolution thought in images (White 2003: 16) and it is likely that this tendency applies as much to inventors today as to inventors of the Upper Paleolithic. Visual

representation also catalyzes innovation by enabling multiple minds to contribute to the creation of the same yet-to-be-produced item.

Thus symbolic representation fuels a positive feedback loop that allows spatiotemporally distant minds to connect and create more material culture. In archaeological time this loop would appear to be instantaneous, and thus may be what sparked the creative explosion of the Upper Paleolithic.

Conclusion

The archaeological record suggests a florescence of artistic expression between 50 to 30 thousand years ago, during the Middle-Upper Paleolithic Transition. Material representation from this time-period is evocative and sophisticated; but in no way is humanity's first art analogous to the art of children. The apparent suddenness of artistic mastery has caused significant debate.

Scholars argue over the rate at which art truly emerged. Natural objects engraved with simple geometric designs have been purported to be artistic precursors — the beginning of a gradual trajectory from primitive to developed art. Scientific analysis has confirmed that the appearance of some of these artifacts is consistent with an anthropogenic origin. However, even if they are man-made, the meaning of these objects is unclear. Rather than representing artistic antecedents, they may

belong to a separate class of human activity, more akin to modern doodling. This suggestion seems very plausible due to the fact that the archaeological record has crude geometric etchings and masterful realistic creations, but very little in between. If these categories are part of the same trajectory, where is the middle of the curve?

A second arena hosts debates over the impetus for artistic creation. Mithen (cf. 1996a) offers a compelling case for biological change stimulating the origin of art. In his model, material representation arose when separate cognitive domains of social, technical, and natural history intelligence integrated into a fluid modern mind. Others see symbolic representation as an invention induced by social changes in the Middle-Upper Paleolithic Transition. The most reasonable explanation, however, is a synthesis of biological and cultural evolution.

Based on an assessment of the prevailing views about the alleged Upper Paleolithic Explosion, it appears likely that humanity did take a great leap forward in symbolic representation at this time. The florescence was stimulated by demands for social differentiation, but appears to have required some neurological rewiring to occur. Since then, artistic expression has remained fixed as a hallmark of humanity because of the adaptive benefits it confers.

One last point that is worth raising here, but certainly requires another paper to address is the geographical distribution of the "works of art" vis-à-vis human evolution. Given its evolutionary advantages, why is the works of art, e.g., statuettes, decorated artifacts, and wall-paintings are geographically confined to a fairly restricted part of Europe. Why is it that outside of France, Spain, and Germany, the only evidence for visual representation in the early Upper Paleolithic period is simply beads? Of course, later on, the distribution of some works of art (especially "Venus figurines") spreads in to central and eastern Europe, but one still finds very few, if any example of works of art in the Near East or Africa until the end of the Paleolithic period. In other words, the benefits of works of art in durable material were apparently not the same for all *Homo sapiens sapiens*. Explaining this variation in the Upper Paleolithic record may also help us account for the absence of artistic representations among earlier species of *Homo*.

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پیدایش "هنر": انفجار یا پندار

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حدود سه میلیون سال، آنچه در مدارک باستان‌شناختی به چشم می‌خورد مصنوعات سنگی هستند که آهسته‌آهسته در حال تغییرند، اما در حدود ۴۰ هزار سال قبل، در کنار مصنوعات سنگی آثار دیگری ظاهر می‌شود که جنبه بصری فوق‌العاده‌ای دارند و عموم پژوهشگران آنها را نخستین آثار "هنری" می‌خوانند. این مجموعه آثار عمدتاً شامل اشیاء قابل حمل، بخصوص پیکره‌هایی به اشکال گوناگون، زیورآلاتی از سنگهای رنگارنگ، و در نهایت نقاشیهای دیواری مجلل می‌شوند. با وجود تنوع فراوان در موضوع و پراکندگی گسترده جغرافیایی، آنچه در تمام این آثار بیننده را تحت‌تأثیر قرار می‌دهد مهارت چشمگیری است که انسان در نخستین کارهای تفننی خود در حوزه "هنر" به خرج داده است. توجه به نکاتی چون پیدایش نسبتاً ناگهانی، مهارت چشمگیر، کثرت، و وسعت جغرافیایی به بحثهای فراوان و گوناگون در باستان‌شناسی دامن زده است. یکی از مباحثی که ذهن پژوهشگران را به خود مشغول کرده سرعتی است که این آثار "هنری" ظاهر شده‌اند. بوم ساخته‌هایی هم که روی آنها نقوش هندسی نقر شده است معمولاً اشیاء "هنری" و نمونه‌های آغازین از روند تغییر "هنر" از حالت ساده به حالت پیچیده تلقی می‌شوند. پژوهشها حاکی از آن است که برخی از این تغییرات با تغییرات ریخت‌شناختی همخوانی دارند. اما مشخص نیست که مفهوم و کاربرد این اشیا چه بوده است. چه بسا به جای آثار "هنری" باید آنها را در گروه دیگری از فعالیتهای انسانی قرار دهیم، فعالیتهایی که امروزه به آن نقاشی یا خط‌خطی کردن بی‌هدف (doodling) می‌نامیم. احتمال این فرضیه بالاست، زیرا در مدارک باستان‌شناختی ما کلی از این خط‌خطیها و نقاشیهای بی‌هدف داریم و

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کلی اثر هنری ظریف و پیچیده، اما بین این دو چیزی به چشم نمی‌خورد. مبحث دیگری در این زمینه انگیزه یا نیروی محرک خلاقیت "هنری" است. گروهی از پژوهشگران این امر را به تغییرات طبیعی انسان نسبت می‌دهند. در مدلی که این پژوهشگران مطرح می‌کنند نمودهای مادی مانند آثار "هنری" زمانی ظاهر می‌شوند که حوزه‌های ادراکی سابقاً مجزا، مانند حوزه‌های فناوری، اجتماعی و طبیعی، به هم متصل می‌شوند و ذهن پویای انسان عاقل دانا (*Homo sapiens sapiens*) را تشکیل می‌دهند. گروهی دیگر از پژوهشگران نمودهای بصری را رهاورد تغییرات طبیعی و اجتماعی انسان در حفاصل پایان دوره پارینه‌سنگی میانه و آغاز پارینه‌سنگی جدید می‌دانند. در هر حال، چنین به نظر می‌رسد که تمام پژوهشگران قبول دارند که این تحول ناشی از تلفیق مؤلفه‌های زیست‌شناختی و اجتماعی است. دلیلش هر چه می‌خواهد باشد، در این امر تردیدی نیست که انسان در حفاصل دوره پارینه‌سنگی میانه و پارینه‌سنگی جدید در زمینه بیان تصویری جهش چشمگیری کرده است. به نظر می‌رسد که محرک این شکوفایی "هنری" نیاز به تمایز اجتماعی بوده، اما آنچه آن را ممکن ساخته تغییر در مداربندی ذهنی و عصب‌شناختی انسان بوده. از آن هنگام "هنر" به زیرسیستمی در سیستم فرهنگی انسان تبدیل شده است.

واژگان کلیدی: هنر ابتدایی، دوره انتقالی پارینه‌سنگی میانه به پارینه‌سنگی جدید، نمودهای تصویری.

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