

The birth of Art: Journey in an archeological controversy

Introduction

For more than a century, the greatest dream of pre-historians has been to unveil one of the most complex mysteries of human cultural evolution: the origins of what we summarize in a short and equivocal word: Art.

By definition, Art is a major cultural activity among human societies. It is even the most important element of *Culture* in its anthropological sense, i.e. a shared network of symbolic references and representations that give its identity to a social group.

The first difficulty is one of definition: Many researchers appear to give slightly different meanings to *art*, and others try to escape the difficulty by not using the word. But the first work to be done is to find a common basis for discussion...

In our own history, art has had both a utilitarian function, mainly religious and, at the same time, an aesthetic content. We should not forget that art is also simply an expression of the pleasure of perception of movements, rhythms, shapes and colors. According to Franz Boas¹, art appears “where mastering a technique leads to a perfect form”; art thus has two inter-connected aspects: representing objects as the eyes see them and representing them as they are conceived in the mind. Out of this founding relation between production techniques and the mind², emerges an aesthetic experience. As Erwin Panofsky wrote, art is a human intentional and conscious capacity to “produce objects the same way nature produces phenomena”³.

There is no opposition but an intricate association between the different functions of art: aesthetic, utilitarian, religious or magic: Ethnology shows that in non- western materialist societies, one cannot separate utilitarian and non-utilitarian behavior.⁴ So we should be cautious in that respect when discussing Paleolithic behavior...

We will consider as possible art forms the remains of the action of the human mind on nature, leaving traces of works that show more than a mere immediate drive for survival and that hint at a possible symbolism...

Here, we will ask, almost genuinely, when and where art was born... This apparently simple question is the key to the comprehension of the ‘role(s)’ of art in human societies. It runs across a polemic division among pre-historians and anthropologists...

Most archeological records give us the image of a cultural “Big Bang” which would have occurred around 40 000 BP. But this evidence seems to be short-sighted, as more and more clues bend toward the possibility of a gradual apparition of the arts.

First, we will present archeological material taken from both sides of the controversy. As most theories only present partial explanations, and as their authors very easily deny the validity or ignore pieces of facts that do not fit in their conceptual model, I think it is essential to start on an empirical basis⁵. It will be easier then to see the limits of the different theories.

¹ BOAS F., *Primitive Art*, Instituttet for sammelnende Kulturforschning, Oslo, 1927.

² SEVERI Carlo, « Pas de société sans art : pourquoi ? », *La Recherche*, no HS4, 2000.

³ PANOFSKY E., *La vie et l'art d'Albrecht Dürer*, Hazan, Paris, 1987.

⁴ LORBLANCHET Michel, *La naissance de l'art, genèse de l'art préhistorique*, Errance, Paris, 1999.

⁵ (...although I am aware of the methodological flaws of such an approach, and in no way would I pretend to follow an inductive approach, since induction hardly exists, as Paul Feyerabend demonstrated in *Against Method*, 1975, New Left Books, London. But let's put aside philosophical controversies for a while).

Our second task will be to give a critical perspective on the most coherent theories that try to explain and characterize the birth of art, from the Structuralism of Leroi-Gourhan to the evolutionary perspectives of sexual selection. But we must confess something before starting this journey: unfortunately, no-one yet has found the 'cradle' of the arts.

The evidence and the fool: How facts can or cannot be proofs ?

Two radically opposed theoretical positions are both reinforcing and fighting each other, through an increasingly active hunt for archeological evidence. Before presenting these pieces of ‘evidence’, it is necessary to have a clear view of the two sides:

Some researchers are in favor of a gradual artistic evolution through the hundreds of millennia of the Paleolithic and all across Africa, Europe and Asia. They claim that this evolution was a continuous movement with its own traditions⁶. They have a strong tendency to interpret any doubtful object as a proof for “symbolic behavior”. They also point out rightly that the farther we go into the past, the fewer traces we can find.

Other researchers focus on the “revolution” of Upper Paleolithic, and deny any symbolic value to objects older than 50 000 BP. Their vision of the evolution of art is much shorter, as it happens in the last 400 centuries, with primitive premises at the end of the Mousterian period (last Neanderthals and proto Cro-Magnon’s).⁷

I hope that the following lines will show that both positions are simplifications of a complex ‘bio-cultural’ phenomenon.

And now, let the time-travel begin: we will move chronologically backwards, starting in the Upper Paleolithic...

Europe is characterized between 40 000 and 30 000 BP by a cultural diversity marked by three distinct cultural units:

- The last moments of a Neanderthal *Mousterian* civilization, with a few technical innovations (until 30 000 BP in some places).
- The civilization of *Châtelperron*, an original Neanderthal culture integrating stylistic elements of Upper Paleolithic (from 36 000 to 33 000 BP).
- The apparition of a new civilization, the *Aurignacian*, involving *Homo sapiens sapiens* an showing a widely developed artistic creation (as soon as 43 000 BP in Bulgaria, 35 000 in France).

This murky period of prehistory was the context of a rapid growth of art around 35 000 BP. “We enter then in a stimulating period of great changes, of cultural and demographic dynamism [...] A huge demographic growth starts with *Aurignacian*”⁸. Specific regions of art productions then appear in Cantabric Spain, Aquitaine, Jura and northern Rhone, and the valleys of Don and Oka in Russia.

In the Asturias, the shelter of La Vina has *Aurignacian* non-figurative engravings dating 36 500 BP.

In Dordogne, a huge rock from the shelter of Roc de Combe Capelle has an engraving showing the head of a horse (dated 36 000 BP, *Châtelperron*)... but this rock disappeared a few years ago!

⁶ This is the position of MARSHACK A., BAHN P., BEDNARIK R.G., MANIA D. and others.

⁷ This is the position of LEROI-GOURHAN A., VIALOU D., ANATI E., DAVIDSON I., NOBBLE W., CHASE P.G. and DIBBLE H.L.

⁸ Lorblanchet 1999, p. 253

In the Jura, the caves of Geissenklösterle (36 000 BP) and Vogelherd (32 000 BP) contained 15 little figurines in Mammoth ivory. In Hohlenstein Stadel (32 000 BP) has been found a statuette, 29 cm high, of a man with a lion head: “This piece reveals the very sophisticated level of art and beliefs of the *Aurignacians* of that region”⁹.

In December 1994 was discovered in Ardèche the Chauvet cave: some of its most complex paintings, including a battle of rhinoceroses, are as old as 32 000 BP.

In Africa, the cave of Apollo 11 (South Africa) contains the first proved elements of mobile art, dated 28 400 BP. One researcher has dated cave paintings from Tanzania to be 40 000 years old¹⁰, but his methods are contested.

Recent excavations carried out in Australia have revealed the most ancient cave paintings in the world: in the Shelter of Carpenter’s Gap¹¹ a fragment of wall painted in red has been dated 40 000 BP. Other cave paintings have been dated between 24 000 and 30 000 BP, on the site of Panaramitee (which contains more than 20 000 paintings); some of them are maybe as old as 40 000 BP. Commenting on these discoveries, Lorblanchet notes that “from the start, [Australian] art was characterized by the simultaneous presence of pure abstraction and geometric figurative naturalism. The so-called evolution from non-figuration to figuration has no archeological ground.”¹²

According to Lorblanchet (who studied Australian caves), since the beginning of the colonization of Australia by *Homo sapiens sapiens*, “the first immigrants, 60 000 years ago, mastered the use of red ochre and made a form of painting”¹³; huge depots of red ochre and un-datable engravings are the basis for his position.

This Australian case moves us into the Middle Paleolithic, and farther. The elements we will present now are highly controversial and challenging...

A number of perforated bones have been interpreted to be Neanderthal flutes. In the Mousterian cave of Divje Babe (Slovenia), has been found a piece of femur bone from a young bear, with 4 holes on its front face, but without any other trace of any kind. It was dated 45 000 BP. According to the archeologists who studied it¹⁴, two contradictory hypotheses are both probable: either the holes have been made by hyenas, or by Neanderthals and then it would be the oldest known musical instrument...

In the Mousterian site of Schülen (Belgium), a piece of elephant bone has been found, with a dozen of parallel transversal grooves on one extremity (which had been obliquely cut). It was dated 40 000 to 50 000 BP. The grooves and the reliefs between them are smoothed, as if used. This would prove that this bone was a skiffle¹⁵ (common instruments for ethnologists). But F. D’Errico denies the human origin of the grooves¹⁶, and Lorblanchet doubts about it. But let’s not forget that the first artificial bone instruments have been probably created long after the *birth of music* anyway, for which archeological evidence would be hard to find...

⁹ Lorblanchet, p. 257.

¹⁰ ANATI E., “The rock art of Tanzania and the East African sequence”, *Bolletino del Centro Camuno di Studi Preistorici*, no 23, 1986.

¹¹ O’CONNOR Sue, 1995.

¹² Lorblanchet, p. 223.

¹³ Lorblanchet, p. 219.

¹⁴ TURK et al., 1995.

¹⁵ HUYGE 1990.

¹⁶ D’ERRICO 1991.

Several isolated discoveries seem to give a very ancient origin to body ornament sets. A group of naturally perforated fossils has been found on an Ancient Paleolithic site in Bedford, England. They might have been enlarged by humans... but as they were discovered in 1894, nothing can be validated.

Pieces of pearls from a necklace in ostrich-egg shells, dated 200 000 BP, have been found on the *Acheulean* site of El Greifa (Libya). “They present a standardized industrial perforation technique incredibly unique for that époque”¹⁷.

We can also mention a wolf-tooth with a perforation in its root, dated 300 000 BP (cave of Repolusthöhle, Austria), and bear-teeth (La Rochette, Mousterian, Dordogne; Sclayn, Belgium, 38 000BP), and finally, in the *Châtelperron* levels of the cave of Arcy-Sur-Cure (Yonne) where 26 perforated teeth were found... for this last case the ornamental function is highly probable. Many other older perforated objects are much more controversial, as they can have been made by animals, especially hyenas.

We can reasonably conclude, from these elements, that for a long time, naturally perforated objects may have exceptionally caught the attention of *Homo erectus* and Neanderthals, who would finally create artificially sets of ornaments short before they disappeared.

The first similar objects were created by *Sapiens Sapiens* using fox and bear teeth before 42 000 BP (cave of Bacho Kiro, Bulgaria).

“The apparition of man-made body ornaments is an important step in the evolution of humans, because it has a symbolic and social function: it represents the group or the individual which it distinguishes from others; it is made to be seen and identified by everyone; it is thus a form of communication implying a structured society”¹⁸.

A subject of passionate controversy is the interpretation of many “scratched bones” and stones older than Upper Paleolithic, to which authors as Steven Mithen¹⁹ give no value at all. For them, they “certainly show a sense of rhythm and symmetry, but rhythmic activities are universal animal characteristics [...] They respond to a simple proto esthetical pleasure based on visual symmetry. Their goal is not to transmit any information, nor any particular conception of the world.”²⁰

One important site with such objects is Bilzingsleben (Germany), dated 230 000 to 350 000 BP (*Homo erectus*). According to D. Mania²¹, the context of this site give the evidence of an “archaic ritual behavior” of these humans who had smashed and thrown “intentionally” in special places around the site the bones of dead fellows. In 1991, Mania discovered a bone with an “engraving of a feline associated with signs [...] cross, oval and square angles” which he said he identified also on other bones. This study is “vigorously” denounced by Lorblanchet who directly accuses Mania of subjectivity and lack of scientific rigor, and who says that no animal can ‘objectively’ be seen on this piece of bone.

Lorblanchet has much more interest in 6 other curious objects: A bone from La Ferrassie (Dordogne, *Mousterian*, in a sepulture) showing a clearly decorative pattern, and in the same cave, a stone covering the sepulture of a Neanderthal child (40 000 BP) and showing in front of him a series of engraved round holes (*cupula*): “This discovery gives the most solid proof of a symbolic expression preceding Upper Paleolithic”²². In this precise case, though the date is not so surprising, we are in a context in which Neanderthals without any contact with modern humans are already showing a symbolic activity, involving a reflection on ‘what’s

¹⁷ Lorblanchet, p. 203.

¹⁸ Lorblanchet, p. 208.

¹⁹ MITHEN S., 1998.

²⁰ DAVIDSON, DAVIS, HALVERSON, 1988.

²¹ MANIA 1990 and 1991.

²² Lorblanchet, p. 191. See also PEYRONY, 1934.

after death'... Other Mousterian objects are a piece of bone from the cave of Bacho Kiro (Bulgaria) dated 47 000 BP and a bone of deer from the cave of Turské Mastale (Czech Republic), contemporary of the former; this last one shows one of the oldest geometric signs ever (to describe it simply, it looks exactly like a capital 'A'). Even older is a Mousterian piece of schist (dated 50 000 BP, cave of Temnata, Bulgaria), with 2 series of 21 parallel lines each, on 2 different sides: "This piece is truly exceptional: the homogeneity of traced lines, the regularity of their length and of the spaces between them [and] the general tendency towards parallelism and towards occupying the totality of the 2 concerned sides"²³... make it really special. For M. Crémadès, it is "one of the oldest graphical manifestations on a stone in Europe"²⁴. On a Mousterian site where Neanderthal was cohabiting with modern humans in Quneitra (Israël), a flint dated 53 900 BP was carrying engraved concentric equidistant lines, in which A. Marshack saw a "symbolic composition". Finally, concerning *sapiens sapiens*, a baboon bone with 29 regularly disposed engraved lines, dated 38 000 BP, has been found in Border Cave (South Africa).

Before the lion-man of Hohlenstein-Stadel, the first plausible figurine (which Mithen seems to ignore, because it is clearly *Mousterian*, thus Neanderthal's work) is a bear-head sculpted 35 000 years BP in a rhinoceros bone (found in Tobalga, Siberia)²⁵.

Another 'figurine' is extremely older and more controversial: the "statuette" of Berekhat Ram (Israël, 250 000 to 280 000 years BP, *Acheulean*). Found by N. Goren-Inbar in the summer of 1981²⁶, it is still causing a passionate international debate (if not 'war') among specialists... we will listen to the few of them who really studied the object: They generally describe it as a kind of natural figurine looking like a human female (or even a heavy 'Venus'), which would have been 'enhanced' in its resemblance by *Homo erectus*... A. Marshack realized a microscope study of this object²⁷, and concludes that the neck had been further engraved using a stone-tool, and that the shoulder and breasts had also gone under artificial transformations... A second microscope study realized by Francesco d'Errico and April Nowell²⁸ concludes that "the modifications observed, especially below the 'head', cannot have been naturally done on such a material"²⁹. According to D'Errico, the "arms" have also been "realized with a tool", and the base has been "carefully" abraded so that the figurine could "stand up". Here again, the position is very different to that of Mithen who denies the value of a simple stone which at most had been worked at for "five minutes"³⁰ by *Homo erectus*... In this debate, a reasonable stand would be neither to deny a human activity here, nor to invent a "tradition" of prehistoric Venus's from Berekhat Ram to Brassempouy!³¹

Without looking for figurative forms, one can also pay attention to certain original "tools" created by early humans... The most intriguing one are the *bolas* introduced by *Homo erectus* (even before that, since 2 000 000 BP, apparently useless polyhedral forms were carved out of stones by *Homo habilis*, slowly getting closer to spheroids). Some researchers said that these perfect spheres were hunting stones meant to be thrown at animals... but many of them are heavier than 10kg, others are made of clay (too fragile). "Their disposition in piles and their association to tool-depots give the impression that we have to deal with elements of

²³ Lorblanchet, p. 189.

²⁴ Crémadès et al., 1995.

²⁵ ABRAMOVA Z.A. 1995.

²⁶ GOREN-INBAR and PELTZ 1995.

²⁷ Marshack 1997.

²⁸ D'ERRICO F. and NOWELL A., *Cambridge Archaeological Journal*, 10-123, 2000.

²⁹ D'Errico, "Sur les traces de l'Homo symbolicus", *La Recherche*, no HS4, 2000.

³⁰ MITHEN S., "Symbolism and the supernatural", in *The evolution of culture*, Edinburgh University Press, 1999.

³¹ That is however the conclusion to which Marshack often leads.

cults [...] 2 million years ago, humans had the idea of the sphere and tried to realize in physical objects, by means of hard work on a resisting matter [...] maybe discovering later possible uses for it”³².

One of the most serious set of archeological evidence for earlier origins of art can be found in the traces of red ochre in human habitats and shelters...

Eroded red basalt (producing a red pigment) has been found on the *acheulean* site of Gaded (Ethiopia), 1.5 million years BP. *Homo erectus* had also brought home red stones more than one million years ago in Oldowai Gorge (Tanzania)... We can even mention this natural red jaspilite stone, looking like a human face, which had been taken and transported by an *Australopithecus* 3 million years ago: According to Lorblanchet, this hints at a primate biological attraction for the color red³³. Let us remind here the reader that the color red has had a very special importance in animal evolution³⁴: 40 million years ago, it helped fruit-eaters identify ripe fruits, and also identify sexual signs...

In South Africa, red ochre has been signaled in the *Acheulean* layer of the cave of Wonderwerk, and dated 900 000 BP³⁵. Later, red ochre was found in *Acheulean* sites 300 000 years old in Africa, India and France (Terra Amata, 380 000 BP with 75 debris and the fireplace where red ochre was produced by combustion). Recent discoveries include the excavations in Twin Rivers, Zambia, where Larry Barham found 176 fragments of coloring matter of 5 different colors, in layers between 260 000 and 400 000 BP, and 132 others dated 200 000 BP³⁶. This discovery shows continuity in the use of red ochre by *Homo erectus* and the first archaic *Homo sapiens*.

In Czech Republic, in Berçov (150 000 BP, Mousterian) was discovered an important quantity of disseminated red ochre powder, and a grindstone used to produce this powder³⁷. In Hungaria, in Tata (100 000 BP) was found a polished ivory plaque covered with red ochre on one side.

In Africa, in the Middle Paleolithic, the use of coloring matter was continuous between 125 000 and 43 000 BP (Bambata and Pomongwe caves in Zimbabwe; Klasies River Mouth cave³⁸ which hosted the first ever modern humans, in South Africa). According to Ian Watts³⁹, the use of ochre increased a lot in the mid to late Middle Stone Age (but to obtain this nice evolution, he dismisses the Pomongwe cave, for no convincing reason).

According to Lorblanchet, “in Europe [...] between 100 000 BP [earlier than what Watts expects] and 40 000 BP, takes place an unprecedented growth in the use of coloring matter. [...] In *Mousterian* contexts, discoveries are multiplied”⁴⁰: Raj cave in Poland (70 000 BP), Molodova1 in Ukraine (44 000 BP). In Dordogne, the situation is quite original: Between 70 000 and 40 000 BP is observed an important and increasing use of... black color (Manganese) by Neanderthal, instead of red⁴¹.

“It is again in the Mousterian that ritual association of ochre and sepultures appears: In the Moustier [cave in France], a Neanderthal skeleton was covered with red ochre; two debris of ochre were placed near the head of the Chapelle-aux-Saints [other French cave].”⁴² In the

³² Lorblanchet, p. 118.

³³ Lorblanchet, p. 103.

³⁴ Lecture by Hans Van de Braak, October 2001, FSW Universiteit Erasmus Rotterdam.

³⁵ FLOOD 1997.

³⁶ BARHAM L.S., “Systematic pigment use in the Middle Pleistocene of central Africa”, *Current Anthropology*, 2001.

³⁷ Marshack 1981.

³⁸ GARANGER 1992.

³⁹ WATTS I., “The origin of symbolic culture”, in *The evolution of culture*, 1999.

⁴⁰ Lorblanchet, p. 104.

⁴¹ Y. Demars, 1992.

⁴² Lorblanchet, p. 106.

Mousterian shelter of Nahr Ibrahim (Lebanon), the remnants of a deer had been buried and covered with red ochre⁴³.

Since hundreds of millennia, human interest has been drawn to strange stones made by nature, mainly fossils of shells with geometric structures... A number of stone-tools have specifically been designed 200 000 years ago by *Homo erectus* around fossils, preserving them to be at the center of one face of the tools (West Tofts, Swanscombe, both in England; Saint-Just-des-Marais in France, 100 000 BP). In particular, one coral fossil found in Swanscombe had been transported on 200 km and designed as a tool (though this was very hard to notch it).

Interest in fossils continued into the Middle Paleolithic among Neanderthal Mousterians, who collected the fossils in their habitats (Tata, Hungaria, 100 000 BP; Külna, Czech republic; Darra-I-Kur, Afghanistan; Combe Grenal, La Ferrassie and La Plane in Dordogne; Arcy-sur-Cure, France; Schweinskopf-Karmelengerg, Germany; etc.). The stone was sometimes modified so that the fossil would be in the center of the fragment.

This list is significant enough “to show that, at least since *erectus*”, humans got an interest in these fossils, collected them (for the sake of curiosity?) and sometimes transformed them into tools. These fossils “probably introduced them in the domain of beliefs, myths and symbols”⁴⁴. Who could have made these shells and corals in stones? Such a question may have come to the mind of *Homo erectus*...

At the same time, in Middle Paleolithic, archeologists have discovered that humans were looking for special stones to make their tools: most of them were found 20 km around the habitat, but some of them were looked for in places at least 100 km away: these were stones with rare, bright colors (green lava, yellow jasper, rock crystal, dark obsidian) which were more difficult to notch than regular stones. One example among others is the site of Melka-Kunturé (Ethiopia, from 1.4 million BP onwards), where the preferred material was obsidian⁴⁵.

This quick panorama of archeological evidence was necessary, to realize that the different theories we are going to confront now, have great difficulties coping with the facts. It will also help us, not to fall in the flawed radical self-assurance of such theories.

⁴³ SOLECKI 1975, quoted by Lorblanchet.

⁴⁴ Lorblanchet, p. 93.

⁴⁵ Lorblanchet, p. 101.

The origins of Art: an evolution but no revolution?

The first coherent theory explaining the process of the birth of art was a structuralist one, given by André Leroi-Gourhan in 1964⁴⁶.

Leroi-Gourhan was conscious of the lack of material putting a shadow on most of possible prehistoric art: “If one considers recent primitive world, which is in the ethnographic museums, it is clear that most of artistic works are made of wood, skin, feathers, textiles which almost immediately disappear when abandoned, while bone, ivory or stone objects are rare and generally modest [...] What came to us is only the shadow of what was executed”⁴⁷. He states that red ochre hints at some kind of painting... He says that dance must have come first, followed by music and finally painting, “where the symbolization is the farthest from concrete movement, where intellectualization has suppressed the content of forms to keep only the signs. [...] From digestive satisfaction to the beautiful tool, to danced music, to dance watched in a chair, there would be the same phenomenon of exteriorization”⁴⁸. He even accepts that “if the roots of technique plunge back to *Australanthropians*, there is no scientific reason not to infer that the roots of language and rhythm do too”⁴⁹.

But, “to stay true, we must stick to excavations and let them talk their incoherent language. [...] Prehistoric ethnography has relied on easy half-certitudes [...] To take each time one case taken from prehistory and look for an equivalent case among known living peoples does not explain the behavior of prehistoric men. [It only proves that] they possessed a human behavior, in the modern sense.”⁵⁰ Consequently, as he says later, “I renounced to ethnological confrontation, refusing what I know about Australians or Esquimos”⁵¹. He even limits his scope again by refusing to take into account mobile art when searching the ‘sense’ of prehistoric art: “The objects in their excavations are like the fragments of a destroyed mosaic, each delivering only one element [and not the whole structure] : It is to rock-art only, forever fixed as a whole, that we can ask to deliver sequences of human thought”⁵².

Thanks to a systematic statistical study of rock art, “I became aware of the importance of signs, present everywhere in the midst of figures” He also saw regularly horses together with bison. He came to the conclusion that “everything was disposed according to a binary scheme” in which the bison and other B-elements were central (with a feminine character). He also links red ochre to feminine parts of the caves⁵³. “I found myself in front of an unexpectedly complex system, the skeleton of a religious thought [...] based on the opposition and complementarities of feminine and masculine values, symbolically expressed by animal figures and more or less abstract signs. [...] The most surprising is that in the course of time [of Upper Paleolithic] and space [of Europe], the skeleton of this system of representation remained unchanged”. The consequence of this, as Leroi-Gourhan acknowledges, is that the underlying figurative system and ideology must have been established long before the first

⁴⁶ LEROI-GOURHAN A., *Le geste et la parole* (2 vol.), 1964-1965.

⁴⁷ Leroi-Gourhan A., *Préhistoire de l'art occidental*, 1971.

⁴⁸ LEROI-GOURHAN A., *Le geste et la parole*, vol. 2 : *La mémoire et les rythmes*, p. 85-89.

⁴⁹ LEROI-GOURHAN A., *Le geste et la parole*, vol. 2 : *La mémoire et les rythmes*, p. 211.

⁵⁰ Leroi-Gourhan A., *Préhistoire de l'art occidental*, p. 30.

⁵¹ Leroi-Gourhan A., *Préhistoire de l'art occidental*, p. 79.

⁵² Leroi-Gourhan A., *Préhistoire de l'art occidental*, p. 74. This is what makes L-G perfectly fit into general structuralism...

⁵³ Leroi-Gourhan A., *Préhistoire de l'art occidental*, p. 117. This confirms the validity of the upcoming theory of Camilla Power...

cave-sanctuaries appeared. A much older system of symbolic representation of sexes must have existed even before⁵⁴.

Leroi-Gourhan also affirms that painting starts “not in the naive representation of reality but in abstraction”⁵⁵. This part of his theory is the less valid today... He says that the first figures only appear 30 000 BP, and are still archaic stereotypes by then. For him, Neanderthal were only modest precursors and “a little ochre, a few fossils, a bunch of spheroids and scratched bones are highly insufficient to hint at any religious behavior”.

He concluded from the partial information he got that, and this is an interesting idea, “figurative art is, at first, linked to language and closer to writing than to art [and it shows] concepts already highly organized by language. [...] Art was born in the intellectual coupling of phonemes and graphs”⁵⁶, of the mouth and the hand. “Language and figuration come from the same ability to take from reality elements which send back a symbolic image of reality”⁵⁷.

“So, if art is intimately linked to religion, it is because [art] gives language the dimension of the unspeakable, the possibility to multiply dimensions with accessible visual symbols”⁵⁸.

The theory of Leroi-Gourhan is highly valuable, but it appears today to show its limits. First, he perceives the long time period preceding Upper Paleolithic as merely an “era of technical rhythms”, in no way figurative... It is also extremely annoying to read him considering primitive dance of those early times as only a technical activity, closer to gesticulation than to ‘Art’.

Lorblanchet too, finds in this theory “the contradiction [...] between the ‘outburst’ of art in the Upper Paleolithic [...] and the slow thought processes announcing and permitting it”⁵⁹.

Finally, the least valuable aspect of the theory of Leroi-Gourhan is his stylistic chronology (with an abstract Style-I between 30 000 and 23 000, an awkward Style-II and finally a flourishing Magdalenian style 18 000 BP). The discovery of the Chauvet cave has once and for all destroyed this supposed ‘evolution’ together with any other chronological system, as it shows a sophistication and quality level never outdone since⁶⁰.

However, Leroi-Gourhan is the one who asked the main questions and started the greatest debates on the Origins of Art.

The archeologist Steven Mithen holds another firmly coherent theory about the birth of art.⁶¹ He links it to the apparition of material symbols on a regular basis and supernatural beliefs, and dates it around 30 000 BP.

He bases his theory on an evolutionary model of cognitive development. To summarize it simply, it follows 3 stages: First, early humans (*Homo erectus*, *sapiens* and Neanderthal) had a domain-specific brain, like a “Swiss army-knife”; technical intelligence, language abilities, social life intelligence and natural history intelligence⁶². Later, around 100

⁵⁴ Here again, we are heading towards the theory of sexual selection (!)...

⁵⁵ LEROI-GOURHAN A., *Le geste et la parole*, vol. 1 : *Technique et langage*, p. 263.

⁵⁶ LEROI-GOURHAN A., *Le geste et la parole*, vol. 1 : *Technique et langage*, p. 266-9.

⁵⁷ LEROI-GOURHAN A., *Le geste et la parole*, vol. 2 : *La mémoire et les rythmes*, p. 206-210.

⁵⁸ LEROI-GOURHAN A., *Le geste et la parole*, vol. 1 : *Technique et langage*, p. 280.

⁵⁹ Lorblanchet M., p. 18.

⁶⁰ CLOTES J. in CHAUVET et al., *La grotte Chauvet a vallon Pont-d’Arc*, 1995. And Lorblanchet, p.261.

⁶¹ MITHEN S., *The Prehistory of the mind*, 1996; and “Symbolism and the Supernatural” in *The evolution of culture*, 1999.

⁶² Here already, I highly doubt the validity of a language-ability which would not result from symbolic associations, and would be alone in its own portion of brain...

000 BP, early *Homo sapiens sapiens* would have acquired a “partial cognitive fluidity” melting together social, natural history intelligence and language, giving way to the birth of “transient religious ideas which could not be anchored into the mind using material artifacts”. And finally, only by 30 000 BP would the human mind have acquired a “full cognitive fluidity” including technical intelligence and allowing the creation of material symbols for religious purposes. This position is reinforced by Vialou, who affirms that the frontal lobes of humans suddenly developed with the apparition of *homo sapiens sapiens* fossils in Europe⁶³.

Mithen radically rejects many elements that do not fit into his theory (especially concerning Neanderthal, who could “never” have had any symbolic behavior). He makes a special point for red ochre: “Early Paleolithic body painting is a particularly good example of something that might be characterized as proto-symbolic behavior. Although a symbol is notoriously difficult to define, one essential feature is a degree of displacement between the signifier and the signified in terms of space and/or time”⁶⁴, which is not the case with self-body painting.

To achieve art, three mental abilities were necessary⁶⁵ : “The planning and execution of a preconceived mental template” (also needed to create tools); “intentional communication with reference to some displaced event or object” (starting with proto language); “the attribution of meaning to a visual image not associated with its referent” (also needed to recognize animal footprints). All three were clearly present in the early human mind, but not functioning together according to Mithen, until the “cultural explosion”.

The main problem of this theory is that its author uses archeological facts in a very personal way, to strengthen a model which has a poor empirical basis. In particular, we cannot follow Mithen when he rejects the obvious evidence for the funeral rites of Neanderthals. Moreover, it is very hard to accept the idea that cognitive processes were independent from each other in the brains of early humans (the so-called total lack of cognitive fluidity that Mithen postulates is far from being consensual⁶⁶). And even if we accept it, why wouldn't there have been a gradual process of ‘fluidification’ of mental processes starting with *Homo erectus*. This would help understand early activities such as creating perfect spheroid bolas, for which a uniquely ‘technical intelligence’ does not look convincing. This would also help understand a gradual process of symbolization, the signified moving in steps away from the signifier...

Especially, if we remind the idea (from Leroi-Gourhan) that art has a lot in common with the evolution of language, we can take special interest in the works of Robin Dunbar⁶⁷, who dates the “appearance of language (in the social sense) at around 500 000 years ago (coincident with the appearance of *Homo sapiens* or the latest *Homo erectus*).

But here again, nothing is less certain! The origins of language can be much older. The minimum requirements for language are a particular anatomy of the larynx (appearing together with *bipedia*) and of the brain (“the laterality of the brain”⁶⁸) and a social life permitting it. According to Heim, “articulate language depends on the laterality of the brain, that is the functional predominance of one hemisphere, most often the left one which contains

⁶³ Vialou et al., “Art Préhistorique”, in *Encyclopaedia Universalis* 1995.

⁶⁴ Mithen, “Symbolism and the Supernatural”, p. 154.

⁶⁵ Mithen, *The Prehistory of the mind*, chap. 9 : “The big bang of human culture: the origins of art and religion”.

⁶⁶ At least, that's what appears from an informal discussion I recently had on this subject with a researcher in Neurobiology from the University of Bordeaux II, Daniel Galey. F. de Waal and ethologists would also not appreciate the self-confident disdain that Mithen shows toward their works, which have the foolishness to contradict his model of disconnected cognitive abilities among most primates.

⁶⁷ Aiello and Dunbar, 1993; and Dunbar in *The evolution of culture*, 1999.

⁶⁸ HEIM J.L., 1988, p. 100.

the centers of language”. Studying prehistoric cranes, Heim claims that the brain of *Homo erectus* had already fairly developed centers of language. Lorblanchet agrees: “The cultural level of *Homo erectus* [... among which he mentions] the control of fire, the structure of habitat, involve a high degree of communication, and consequently the existence of an evolved language⁶⁹.”

Art is an encounter between a biological cognitive capacity and a social collective need... One the most promising theories explaining that primordial interaction is that of Camilla Power, who applies the Darwinian theory of Sexual Selection to the use of red ochre in Middle Stone Age⁷⁰...

“There is no reason to believe symbolic culture was ever essential for survival”⁷¹. Sexual selection is more inclined to be a selection for ‘extravagance and waste’, as it does in the animal world. But, concerning human art, the “context for the costliest signaling are ritual and religious. Participants regularly incur prohibitions on sexual activity”⁷². In her theory, C. Power tries to solve this contradiction: “What selection pressures promoted an interest in sharing and propagating conspecifics’ illusions?”

Encephalization has caused an increase in the energetic cost of having offspring, both for females and males. This would have led to male-male and female-female competition for mating, and to inter-sexual competition for the control of female reproductive capacities. In this competition, women were responsible for one very clear signal, menstrual blood (while among humans, concealed ovulation meant no more red swellings), to attract males.

“For any pregnant/lactating female, a menstrual female is a potential threat capable of diverting male energy and investment away from her. One response to this problem, as archaic *Homo sapiens* females experienced increasing reproductive stress, would be to adopt a reciprocal altruistic coalitionary strategy of manipulating menstrual signals. Each female coalition needed to prevent any male from sequestering the imminently fertile female; they should surround her and restrict sexual access. Given the economic value of the signal, rather than hide the menstruant’s condition, we would predict the opposite. Whenever a coalition member menstruated, the whole coalition joined in advertising this valuable signal as widely as possible to recruit available male energy to the coalition.”⁷³

This ‘sham menstruation’ then evolved with the use of red ochre to paint oneself and simulate menstrual blood in sexual rituals. “Between female coalition, a competitive dynamic is expected”, which would lead to increasingly elaborate ritualistic amplification of displays. “Greater regularity, planning and organization of performances would lead us to expect abundant and regular use of ochre.”

Such a *sociocentric* strategy would have represented “a vital step towards sustaining an imaginary construct and sharing that construct with others _ that is, establishing symbolism.”⁷⁴ Power even goes further by imagining that those female-coalitions would have developed *taboos* to prevent male uncooperative sexual behavior (such as rape-and-go).

The scenario described by Power is convincing, but her theory has yet two specific limits. First, it makes an important use of “ethnohistorical evidence of cosmetics usage in Africa”... But this should be done more cautiously, as ethnological knowledge does not prove much about Prehistory (remember the warnings of Leroi-Gourhan on that subject). Besides

⁶⁹ Lorblanchet, p. 66.

⁷⁰ POWER C., ‘Beauty Magic: The origins of art’, in *The evolution of culture*, 1999.

⁷¹ CHASE 1994.

⁷² Power, p. 94.

⁷³ Power, p. 98.

⁷⁴ Power, p. 100.

this, her theory focuses on *Homo sapiens*... Why not *Homo erectus*, when we know that his brain expanded up to 1000 cm³, and when we take into account all archeological data (including that of Neanderthal burials) ?

The most surprising and latest theory is that of evolutionist *biomusicology*...

The recent developments of medical imagery experiments have recently proved that the brain zones implicated in the treatment of music and language are mostly the same zones, to an extent that had not been expected⁷⁵⁷⁶. It is thus probable that music and language have been developed and evolved together.

The visual, body and oral communication of our faraway ancestors must have been at least as complex to that of present chimpanzees, and interactions between mother and child must have played an important role in socialization⁷⁷. Contemporary human and chimpanzee mothers both have a very peculiar way to communicate with their babies: they stare at their faces for a long time and send them 'melodious sounds', which for humans are exaggerate forms of words (this maternal communication is known as 'motherese'). For Dissanayake, this relationship had a part to play in the apparition of language... According to Dean Falk, the capacity to associate a name with a face is the beginning of language⁷⁸.

David Frayer and Chris Nicolay, studying skeletons, have concluded⁷⁹ that the anatomical capacity to articulate words and produce modern-type human songs was already present 1.5 million years BP with the first *Homo erectus*. Other studies show that lateralization of the brain was also already important at that time (see before). With brain – laterality, the left hemisphere specializes in the decoding of sounds and the right hemisphere in prosody⁸⁰: So, language was already in an advanced stage 1.5 million years ago.

Dean Falk made another breakthrough by re-examining skulls of ancient hominids. Internal molding of skulls permits to know the size and form of the brain, and to recognize the circumvolutions of the cortex (when printed on the skull)⁸¹. Falk, using this method with skulls of *Australopithecus africanus* dated 2.5 to 3 million years BP, found that their brain didn't look like any other known primate brain (including the *Homo* types)⁸². Although this brain is as little as that of other *Australopithecus* (one third of that of *Homo sapiens*), some parts of the frontal and temporal lobes are very wide and have taken the shape of corresponding areas in the modern human brain. Especially, the area of Brodmann is already the double of that of chimpanzees (comparable to modern humans); this area is implied in abstract thinking, the preconception of actions to come and initiative. The anterior part of the temporal lobes is also very wide in the brain of *A. Africanus*; these temporal poles are activated when we name a face⁸³. The evolution of the brain towards this level of complexity has occurred between 3 million and 2.5 million years BP.

⁷⁵ BESSON M. et BOBERT S., "Musique et langage: une meme origine?", *La Recherche*, HS4, 2000.

⁷⁶ FALK D., "Hominid Brain Evolution and the origins of music", *The origins of Music*, WALLIN N. et al., MIT Press, Cambridge, 2000.

⁷⁷ DISSANAYAKE E., "Antecedents of the temporal art in early mother-infant interaction", *The origins of Music*, 2000.

⁷⁸ Falk D., "L'Australopitheque gracile était-il musicien?", *La Recherche*, 2000.

⁷⁹ FRAYER D.W. and NICOLAY C., "Fossil evidence for the origin of speech sounds", *The origins of Music*, 2000.

⁸⁰ Falk D., *Science*, 221, 1072, 1983; TOTH N., *Journal of Human evolution*, 14, 607, 1985.

⁸¹ Falk D., "Breech Birth of the Genus Homo: why Bipedalism preceded the increase in brain size", *Origine(s) de la bipédie chez les hominidés*, ed. Y. Coppens et B. Senut, CNRS, Paris, 1991.

⁸² Falk et al., *Journal of human evolution*, 38, 695, 2000. Also Falk, *Science*, 280, 1714, 1998.

⁸³ DAMASIO H. et al., *Nature*, 380, 499, 1996.

The conclusion of all this is that language and music would have started to develop 2.5 to 3 million years ago among *Australopithecus Africanus*. Falk considers “unlikely that a long time could have passed between the apparition of the neuronal patterns necessary to the development of language and music, and the apparition of these two faculties. The implied neuronal circuits are indeed highly specialized: We can hardly imagine that they were selected without being quickly activated.”⁸⁴

⁸⁴ Falk, in *La Recherche*, p. 81.

Conclusion

Rock art, linked to a ritualized complex symbolism, is only one face of prehistoric art. The first artistic phenomena happened in cultural contexts which were very different from each other. We should definitely not look for one geographic cradle for the arts... because the cradle of all these phenomena is in the human brain. If we find common patterns in all art forms all over the prehistoric world, what they express is common cognitive structures (and no artistic 'tradition').

From the 'beginning', 35 000 BP, authenticated rock art presented all the styles and techniques that would flourish in the Magdalenian period of Lascaux; it already associated figurative and non-figurative patterns. So, as soon as art plainly develops itself with regularity, it shows a great diversity. It seems thus, that around 50 000 years BP, something allowed at least a quantitative outburst of art, in a social-religious context, which showed a mastered use of all the potentialities of the human mind, thanks to a fully developed cognitive fluidity.

But art itself did not appear in a revolution, an explosion or a 'big bang'. It was the result of a progressive process of change, disseminated all over the planet and along dozens of millennia. In the course of Lower and Middle Paleolithic, spontaneous inventions and creations took place, but they were probably most of the time not pursued long enough to leave us clear evidence.

Since 3 million years, hominids have shown more than survival-oriented behaviors. For hundreds of millennia, they used more and more red ochre, with a clear acceleration around 300 000 to 400 000 BP, and a second, greater one between 100 000 and 40 000 BP. A kind of functional aesthetics had definitely appeared with the bolas, 1.7 million years BP, and maybe even before, with *Australopithecus Africanus*, the cognitive cradle of human language and music may have appeared 2.5 to 3 million years BP.

The prehistory of art followed the evolutions of the brain, for a long time, probably long before *Homo sapiens* got on the stage. It is the tale of a long bio-cultural improvised self-discovery, and it is the best tale of how hominids became humans.

It is also a tale which keeps a great deal of mystery, and we shall not want to unveil it too hastily: "Any science which tries to explain everything is a pseudo-science. It is theology, and Teleology."⁸⁵ To avoid journalistic short-comings, we should leave the final word... to constructive doubt.

⁸⁵ GODELIER Maurice, in *La Recherche*, no HS 4, 2000.

Bibliography

- ABRAMOVA Z.A., *L'art paléolithique d'Europe orientale et de Sibérie*, J. Millon, 1995.
- AIELLO L.C. and DUNBAR R.I.M., "Neocortex size, group size and the evolution of language", *Current Anthropology*, no 34, 1993.
- ALLEMAND L., "Dessine-moi un axe de recherche", *La Recherche*, no HS 4, 2000.
- ANATI E., "The rock art of Tanzania and the East African sequence", *Bolletino del Centro Camuno di Studi Preistorici*, no 23, 1986.
- BAHN P., "Ne cherchez pas le berceau de l'art", *La Recherche*, no HS 4, 2000.
- BARHAM L.S., "Systematic pigment use in the Middle Pleistocene of central Africa", *Current Anthropology*, 2001.
- BESSON M. et BOBERT S., "Musique et langage: une meme origine?", *La Recherche*, HS 4, 2000.
- BOAS F., *Primitive Art*, Instituttet for sammelignende Kulturforschning, Oslo, 1927.
- CHASE P.G., "On symbols and the Palaeolithic", *Current Anthropology*, no 35, 1994.
- CHAUVET J-M et al. (Postface de CLOTTES J.), *La Grotte Chauvet a Vallon Pont-d'Arc*, Seuil, Paris, 1995.
- CRÉMADÈS et al., "Une pierre gravée de 50 000 ans BP dans les Balkans", *Paleo*, no 7, 1995.
- DAMASIO H. et al., *Nature*, 380, 499, 1996.
- DAVIDSON, DAVIS, HALVERSON, "Comment on 'deliberate engravings on bone artefacts of Homo erectus' of D. and U. Mania", *Rock Art research*, no 5, 1988.
- DEMARS Y., "Les colorants dans le Moustérien du Périgord, l'apport des fouilles de F. Bordes", *Bulletin de la société Préhistorique de l'Ariege*, Tome XLVII, 1992.
- D'ERRICO F., "Carnivore traces or Mousterian skiffle?", *Rock Art researchi*, vol. 8, no 1, 1991.
- D'ERRICO F., "Sur les traces de l'Homo symbolicus", *La Recherche*, no HS4, 2000.
- D'ERRICO F. and NOWELL A., *Cambridge Archaeological Journal*, 10-123, 2000.
- DISSANAYAKE E., "Antecedents of the temporal art in early mother-infant interaction", *The origins of Music*, 2000.
- DUNBAR, "Culture, honesty and the freerider problem", in *The evolution of culture*, 1999.
- FALK D., *Science*, 221, 1072, 1983.
- FALK D., "Breech Birth of the Genus Homo: why Bipedalism preceded the increase in brain size", *Origine(s) de la bipédie chez les hominidés*, ed. Y. Coppens et B. Senut, CNRS, Paris, 1991.
- FALK D., *Science*, 280, 1714, 1998.
- FALK D., "Hominid Brain Evolution and the origins of music", *The Origins of Music*, WALLIN N. et al., MIT Press, Cambridge, 2000.
- FALK D., "L'Australopitheque gracile était-il musicien?", *La Recherche*, 2000.
- FALK et al., *Journal of human evolution*, 38, 695, 2000
- FLOOD J., *Rock Art of the Dreamtime*, Angus & Robertson, 1997.

- FRAYER D.W. and NICOLAY C., “Fossil evidence for the origin of speech sounds”, *The origins of Music*, 2000.
- GARANGER J. (ed.), *La Préhistoire dans le Monde*, P.U.F., Paris, 1992.
- GODELIER Maurice, interview in *La Recherche*, no HS 4, 2000.
- GOREN-INBAR N. and PELTZ S., “Additional remarks on the Berekhat Ram figurine”, *Rock Art research*, no 12, 1995.
- HEIM J.L., *De l’animal a l’homme*, Le Rocher, Monaco, 1988.
- HUYGE D., “Mousterian skiffle? Note on a Middle Palaeolithic engraved bone from Schulen, Belgium”, *Rock Art research*, vol. 7, no 2, 1990.
- KLEIN R., “L’art est-il né d’une mutation génétique?”, *La Recherche*, no HS 4, 2000.
- LEROI-GOURHAN A., *Le geste et la parole* (2 vol.), vol. 1 : *Technique et langage*, vol. 2 : *La mémoire et les rythmes*, Albin Michel, Paris, 1964-1965.
- LEROI-GOURHAN A., *Préhistoire de l’art occidental*, Lucien Mazenod, Paris, 1971.
- LIMA P., “Un siècle d’interprétations”, *La Recherche*, no HS 4, 2000.
- LORBLANCHET Michel, *La naissance de l’art, genèse de l’art préhistorique*, Errance, Paris, 1999.
- MANIA D., *Auf den Spuren des Ur-Menschen*, Berlin, 1990
- MANIA D., “Zur Vorstellungswelt des Homo erectus von Bilzingsleben”, *Menschwerung: Millionen Jahre Menschheitsentwicklung*, ed. HERMANN und ULLRICH, Berlin, 1991.
- MARSHACK A., “On Palaeolithic ochre and the early uses of color and symbol”, *Current Anthropology*, 1981.
- MARSHACK A., “The Berekhat Ram figurine : A late Acheulian carving from the Middle East”, *Antiquity*, no 71, 1997.
- MITHEN S., *The Prehistory of the mind*, Thames and Hudson, London, 1996.
- MITHEN S., “Symbolism and the supernatural”, in *The evolution of culture*, Edinburgh University Press, 1999.
- O’CONNOR Sue, “Carpenter’s gap rockshelter I: 40 000 of Aboriginal occupation”, *Australian Archaeology*, vol. 40, 1995.
- PANOFSKY E., *La vie et l’art d’Albrecht Dürer*, Hazan, Paris, 1987.
- POWER C., ‘Beauty Magic: The origins of art’, in *The evolution of culture*, 1999.
- SEVERI Carlo, « Pas de société sans art : pourquoi ? », *La Recherche*, no HS4, 2000.
- TOTH N., *Journal of Human evolution*, 14, 607, 1985.
- TURK I.D.J. et al., “Ali so v sloveniji nasli najstarejše glasbilo v evropi? (The oldest musical instrument in Europe discovered in Slovenia?)”, *Razprave IV. Razredra*, Ljubljana, 1995.
- VIALOU et al., “Art Préhistorique”, in *Encyclopaedia Universalis* 1995.
- WALLIN N. et al., *The origins of Music*, MIT Press, Cambridge, 2000.
- WATTS I., “The origin of symbolic culture”, in *The evolution of culture*, 1999.
- WHITE R., “Un Big Bang socioculturel”, *La Recherche*, no HS 4, 2000.

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