Art in the Making: The evolutionary origins of visual art as a communication signal

Mendoza Straffon, L.

2. FROM THE CRADLE TO THE CAVE: A SURVEY OF PLEISTOCENE VISUAL ART

Art-historicity and its prehistoricity are interpenetrating and variable phenomena, historical in themselves. They are never wholly present in but never wholly absent from an actual individual artwork. Thus it might be a mistake – and a major source of the apparent insolubility of the question of art's origins – to look for a beginning in actual individual artworks, chronologically prehistoric or otherwise. A 'Figure 1' which could actually be dug up and exhibited will never be found.

WHITNEY DAVIS, 1993

The way scholars envision the art from early prehistory has been profoundly transformed over the past few decades. Once a term reserved exclusively for the enticing images of Europe's Palaeolithic cave paintings, prehistoric art now includes engraved patterns before regarded as simple 'doodles', and items such as beads and pendants, previously relegated to the category of trinkets for 'mere' decoration (Moro & González 2010:238). More importantly, recent finds have now demonstrated without a doubt that visual art did not emerge in a single sudden event, and that its different forms did not appear simultaneously. Rather, as I will review in the present chapter, visual art has developed over a long time, and has generated a great formal diversity – some of which has unquestionably been lost through the ages. There is a growing corpus of archaeological remains that constitute what is here referred to as 'the Pleistocene record of visual art', which includes objects such as beads, pendants, incised and engraved designs on various media, figurines, sculptures, reliefs, carvings, and painted motifs (usually on rock). Those art forms that are now irretrievable must have included more ephemeral sorts (body painting, designs on sand or earth) as well as applications on perishable materials (wood, hides, bark, feathers, fur, textiles, basketry, hair, and the human body).[24]

I must point out that the following survey is based on an extensive review of secondary literature. I personally have not carried out an analysis of the sites and materials that will be discussed so, I rely on the work, interpretations and opinions of the cited scholars. For this reason, the survey is constrained to instances which, to my present knowledge, have been preserved, identified, recovered, made public, and accepted by (the majority of) the archaeological community as of Pleistocene age. Chronologically, the survey spans the latter part of the Pleistocene era from 130,000 to 25,000 years before present (BP),

24 For instance, sand painting is still a well-known practice among Australian aboriginals, and the 19th century explorer James Bonwick reported that Tasmanians frequently created drawings "on a tree" (1870:47). Similar practices must have existed worldwide.

and leads from the cradle of our species, the African continent, to the painted caves of Ice Age Europe.

As discussed before, a general description of visual artworks comprises objects or patterns made, modified, and displayed to engage attention through the manipulation of visual qualities like colour, shape, texture, brightness, etc. The following survey offers a general overview of the earliest examples of such objects from the Pleistocene, which may be compressed in five categories: 1) ochre use – presumably for body painting and other applications, 2) personal ornaments, 3) incised objects, 4) carved figures, and 5) painting. The classification somewhat reflects the chronological sequence in which the various art forms appear in the record, and to some extent correlates with an increase in technical and organisational complexity.

The forms of Pleistocene visual art that will be reviewed are in themselves quite diverse, span large regions and time periods, and are found in various types of settings – isolated finds, habitation sites, ritual spaces, etc. Due to this diversity, 'one-size-fits-all' explanations of Pleistocene art have become suspect, particularly those which aim at a universal interpretation of content, motivation, 'meaning', or unilinear stylistic development (Nowell 2006:244). As I discussed in the previous chapter, a more productive approach might be to study Pleistocene visual art not only as a semiotic system, but first and foremost, as a class of human material culture (Ingold 1993:344). This is not to say that the semiotic aspect of visual art is irrelevant, but it is clear that at the moment our finest attempts to 'recover' its past meaning constitute educated guesses, at best, and more often than not, mere speculations. In contrast, by situating the emergence and development of artworks in the broader spectrum of the Pleistocene archaeological record, we may be able to formulate inferences about the circumstances under which this art was created and/or used, even if we remain unable to access its original meaning or intention.

The aim of the present chapter is, then, not to give a detailed review of the whole of the archaeological record of visual art in the Pleistocene, nor to reassess the evidence, or discuss interpretations of meaning or content.[25] Rather, the purpose is to identify probable chronological and cultural patterns of occurrence and change in the visual art forms that, seen in the light of the archaeological record, might point towards the circumstances in which visual art behaviour flourished as a human practice. With this objective in mind, I will focus particularly on two moments that are often referred to as 'bursts' of high human creativity, during which novel technologies and behaviours arose, including various forms of visual arts (McBrearty & Brooks 2000). The first is situated in the mid part of the African Middle Stone Age (MSA) between 130 and 70,000 years before present, and the second, in the European Early Upper

25 For thorough reviews of the Pleistocene record of visual art, see: Bahn & Vertut (1997); Cook (2013); D'Errico et al. (2003); D'Errico & Henshilwood (2011); McBrearty & Brooks (2000); Rau et al. (2009); White (2003); Zilhão (2007).

Palaeolithic (EUP) between 45 and 25,000 years before present. Note that the attention lies on the archaeological record of our species, *Homo sapiens*,[26] which as far as we can say with any certainty has been the only systematic producer of visual artworks.[27] In the following chapters, this survey will also provide the yardstick with which to assess origins-of-art models, and will be used to test specific predictions from those models.

2.1 Archaeological periods in focus: The MSA and EUP

One of the goals of this survey, as mentioned above, is to provide a general overview of the circumstances in which visual art first emerged and of its major developments during the Late Pleistocene period, so that it can be contrasted against existing hypotheses about the origins of art. Therefore, it concentrates on the two periods that, according to current data, encompass the earliest occurrences of visual art: the African Middle Stone Age (MSA), which spans from 280 to 30,000 years before present (BP), and the European Upper Palaeolithic (UP), which roughly dates from 45 to 12,000 BP.[28] Within these extensive periods, I will further zoom in on two moments which, according to archaeologists, involved a number of behavioural innovations in diet, technology, social organisation, and culture, including the appearance of new art forms: the MSA between 130-70,000 BP, and the European Early Upper Palaeolithic (EUP) between 45-25,000 BP.

During the periods of our interest, several hominin species still inhabited the Old World. The exact number of hominin species that have existed since the split between *Homo* and *Pan* (chimpanzees and bonobos) is still unknown, but estimates range between 8 and 27 (Bokma et al. 2012). It is also unclear how many of them co-existed at any one time,[29] but multiple lineages must have lived side by side perhaps for long periods (Endicott et al. 2010; Tattersall 2009). The complex picture of the evolutionary relations between these hominin sorts

26 Following the phylogenetic species concept, a species is understood as a lineage of organisms, distinguished from other lineages by its evolutionary trajectory, bound in time by its origin in a speciation event and its eventual disappearance by further speciation or extinction (Sterelny & Griffiths 1999:193). Seen in this light, Neanderthals, other extinct hominins – like the recently discovered Denisovans –, and *Homo sapiens* are considered separate species (Stringer 2012:36). This means that whether these other human groups were absorbed by modern African populations or died out, they constitute separate lineages by virtue of their own particular evolutionary path, which diverged from ours for at least 400,000 years, since the split from a last common ancestor (Hublin 2013). Therefore, 'our species' means here all individuals classified as *H. sapiens*, from the 200,000 year-old Omo fossils to contemporary populations (aka modern humans).

27 Alternatively, it is the only hominin whose visual artworks have left a distinguishable trace in the archaeological record.

28 Henceforth, BP: years Before Present.

29 Evolutionary biologist Folmer Bokma and colleagues report: "Allometric analyses of mammal families of similar size and weight as humans also suggested a low number of hominin species simultaneously in existence. Similar to these studies, we calculated that it is highly unlikely that there ever simultaneously existed more than 5 hominin species" (2012:2973).

is frequently being revised according to new fossil and genetic data (Carrión et al. 2011; Johanson & Wong 2009:253).[30] At the moment, we know of at least four extinct hominins that at some point co-existed with modern humans during the Late Pleistocene: *H. helmei/heildelbergensis* in Africa, Neanderthals in Europe and the Middle East, Denisovans in Asia, and *H. floresiensis* in Indonesia (Endicott 2010; Reich et al. 2010; Stringer 2012).[31]

Regarding the emergence of our own species, *Homo sapiens*, the earliest fossil specimens that may be classified as such are the remains found at the site of Omo Kibish, in the Omo River Valley in Ethiopia, dated to around 195,000 years ago. These are followed by the cranial remains of the Herto Bouri site, also in Ethiopia, which have been assigned an age of 150,000 years (Trinkaus 2005:209; White et al. 2003). These fossils, alongside genetic evidence which indicates that all living human populations share a common African female ancestor (Olson 2002; Stringer 2011), indicate that our species likely emerged in that continent some 200,000 years ago.

The coexistence of various human sorts is potentially problematic for Pleistocene archaeology, as it is sometimes difficult to attribute material remains to a particular hominin population. However, as I discuss elsewhere in this chapter, so far the evidence suggests that only *Homo sapiens* recurrently and consistently engaged in visual art-making. It is for this reason that every description, table or list of traits that aims at showing the differences between the archaeological signatures of extinct hominins and modern humans features visual art as a key – if not *the* key – element that distinguishes 'us' in the archaeological record (Wadley 2001:203).[32]

30 See: Bonde (2012); Stringer (2002, 2011); Trinkaus (2005); Reynolds & Gallagher (2012), and papers within.

31 Just over the past decade, researchers have discovered the last two hominin sorts. In 2004, scientists exploring the Liang Bua Cave on the island of Flores, in the Indonesian archipelago, discovered the bones of a tiny human of about a metre tall. Officially called *Homo floresiensis*, and popularly known as 'The Hobbit', this species lived as recently as 18,000 years ago and is thought to be a direct descendant of an archaic population of Asian *H. erectus* (Brown et al. 2004). In 2010, another hominin came to light, as a research team extracted DNA from a finger bone and a tooth of 40,000 years of age found at the site of Denisova Cave, in the Russian Altai Mountains. When the genetic sequencing was completed, to the everyone's surprise, it did not correspond with either the *sapiens* or Neanderthal genomes, but represented a new as yet unknown hominin type (Krause et al. 2010). The now called 'Denisovan' hominins are thought to have been a local group derived from an Asian *H. heidelbergensis* population. Whereas *H. floresiensis* seems to be a unique island species remotely related to modern humans, we share a more recent common ancestor with Neanderthals and Deninovans – *H. heidelbergensis* – from which the African and Eurasian lineages split some half a million years ago (Endicott 2010:93). To make matters more intricate, it now seems that some amount of interbreeding might have taken place between *Homo sapiens* and extinct hominin groups, as traces of their 'archaic' DNA is found in the genetic composition of living humans. Sub-Saharan African populations show genetic markers of 'archaic' African humans. Eurasian and American groups have been found to possess some Neanderthal genetic remnants, and traces of Denisovan genes are present among Australasian peoples (Stringer 2012).

32 See, for example: Bar-Yosef (2002:367); Gilman (1984:116); Henshilwood & Marean (2003:628); McBrearty & Brooks (2000:492); Mellars (1996:397); Roebroeks (2008:919).

The African Middle Stone Age (MSA)

The African Middle Stone Age, or MSA for short, is an extremely important archaeological period since it comprises the emergence of our species, *Homo sapiens*, and its expansion out of Africa (Trinkhaus 2005). Although imprecisely defined, the MSA denotes a set of African archaeological industries south of the Sahara that belong to the long period between 280 and 30,000 years BP (Clark 1988; Jacobs et al. 2008). The lithic industries of the MSA represent a transition from the Earlier Stone Age and its 'Acheulean' type tools like handaxes and cleavers produced from large flakes or cores, towards more sophisticated production techniques involving prepared cores, the use of flakes and blades as tool blanks, and retouching as a method for shaping or sharpening tools (Barham & Mitchell 2008:17). These new variety of stonetool technologies indicate general changes in hominin cognition and behaviour related, for example, to innovations in diet, resource acquisition, and social organisation.

Although, as mentioned, several hominin species coexisted in Africa during the MSA, a few well-studied sites seem to reveal the 'archaeological signal' of modern humans (*H. sapiens*), meaning that the activities that can be inferred from them resemble the sorts of practices observed among historical hunter-gatherer groups, such as the San Bushmen of the Kalahari Desert (Deacon 1992). Several of these sites are found near the coast of South Africa (Howiesons Poort, Diepkloof, Klasies River Mouth, Border Cave, Sibudu, and Blombos Cave), and some include very early traces of artistic behaviour (see section 2.3), which indicates that humans, modern in both anatomy and behaviour, were present in those locations (Henshilwood & Dubreuil 2011). These sites, whose dates span from before 100,000 and up to 60,000 years BP, include several novelties regarding lithic technology, the use of space, diet, and symbolism (Wadley 2001). Even the adoption of clothing can potentially be traced back to this period (Gilligan 2010; Toups et al. 2011). Naturally, the degree of innovation is neither constant nor homogeneous throughout the different sites, however, its significance and recurrence is sufficient to point towards the emergence of a recognizably modern hunter-gatherer way of life. Although the dates from these sites cannot be transferred to the whole of Africa (Soriano et al. 2007), they minimally indicate what was happening in some regions of that continent at the time. Furthermore, an increasing number of sites from North Africa seem to be corroborating the emergence of a pattern of modern human activity by 100,000 years BP (Balter 2011; Vanhaeren et al. 2006).

Although sufficient palaeoenvironmental data for the complete African MSA is still scarce, the existing information suggests that environmental factors may somehow be correlated with the appearance of the various changes in hominin behaviour mentioned above. Our period of interest within the MSA falls into a

climatic phase called Marine Isotope Stage 5 (MIS 5, 127-70,000 BP)[33]. This period is itself subdivided in five stages in which conditions kept changing from warm and wet to cold and dry (Barham & Mitchell 2008:239-40; Borroughs 2009:82-3).[34] The period previous to MIS 5, from 135-127,000 BP was one of very arid conditions, which may have driven human populations to occupy wetter regions, for instance along the coastal margins (Barham & Mitchell 2008:238). The beginning of MIS 5 constitutes an interglacial period (MIS 5e 127-116,000 BP), during which conditions were much like they are today. This was followed by a period of increased aridity (MIS 5d 116-105,000 BP). The next phase, MIS 5c (105-94,000 BP), was a warmer period, followed by a colder and dryer phase (MIS 5b 94-84,000 BP), and again by a warm period in MIS 5a (84-70,000 BP). After that, there was a general decline in temperature that can perhaps be attributed to the eruption of the Toba 'supervolcano' in Indonesia (Borroughs 2009:84-5). The eruption took place somewhere between 73,500 and 71,000 BP and brought about extremely dry conditions that had a great impact on African human populations, which may have been reduced almost to extinction (Ambrose 1998b; Barham & Mitchell 2008:262).

In brief, the environment of the human populations that produced the earliest traces of visual art in Late Pleistocene Africa was anything but undemanding, which probably led them to develop a wide array of behavioural and cultural strategies to cope with constantly changing conditions that ultimately had important effects on cognition (Shultz et al. 2012). Among others, for example, broadening the scope of exploited foodstuffs, occupying preferably resource-rich regions, such as coastal margins, and creating social safety networks of exchange. The possibilities and implications of some of these changes for human social interaction will be explored in chapter 6.

The European Early Upper Palaeolithic (EUP)

In Europe, the Upper Palaeolithic follows the Middle Palaeolithic, which lasted from around 300,000 to 50-40,000 BP. The transition between these two periods is marked by various populational and cultural changes that are manifested in the archaeological record as novelties in technological techniques and artefact types, differences in settlement and resource exploitation patterns, and the emergence of visual art, among others (Mellars 2004).[35] Many of these changes seem to coincide with the appearance of modern human populations in this

33 The Marine Isotope Stages (MIS) or Oxygen Isotope Stages (OIS) are "the designated climatic stages in the standardised ocean-sediment records. There are 19 stages defining the principal glacial and interglacial periods since the Matuyama-Brunhes reversal of the Earth's magnetic field around 750 kya" (Borroughs 2009:319).

34 MIS 5 "Encompasses a sequence of alternating sub-stages of warmth and cold, each lasting about 10,000 years" (Barham & Mitchell 2008:239).

35 For a detailed up-to-date review of the Middle to Upper Palaeolithic transition, see: (O. Bar-Yosef 2002, 2007; Roebroeks 2008).

territory, and the (cultural or biological) demise of the native Neanderthal groups, who thrived in Eurasia during the Middle Palaeolithic. The process of 'colonization' by modern humans, who probably entered Europe from the Middle East, may have begun as early as 50,000 BP (Hublin 2012).

The Upper Palaeolithic of central and western Europe is broadly subdivided in four successive archaeological phases: Aurignacian (45-28,000 BP), Gravettian (28-23,000 BP), Solutrean (23-16,000 B), and Magdalenian (16-10,000 BP). This survey will focus mainly on the first two phases (the Early Upper Palaeolithic), and particularly on the Aurignacian, for the earliest examples of visual art in Europe go back to his period.

The Aurignacian

The term 'Aurignacian' refers to both an assemblage of archaeological traits, and a chronological unit referring to the earliest Upper Palaeolithic phase extending from ca. 45,000 BP up to 27,000 BP (Davies 2001), and as mentioned, it is usually seen "as a proxy for the first expansion of modern humans into Europe" (Hublin 2012:13471). As an archaeological complex, its origin is believed to lie in Asia, the Northern Middle East or the Levant, where it is recognized as early as 47,000 or 45,000 BP (Kozlowski & Otte 2000; Davies 2001:195; Mellars 2004:463, 2005). In Europe, its earliest manifestations date back to ca. 45,000 BP in the south and 40,000 BP, or earlier, in the Western central regions (Higham et al. 2012; Hublin 2013; Mellars 2005:19). The latter will receive special attention here, since it is there where the earliest traces of visual art are found.

Despite the advances in absolute dating techniques over the last years, setting a fixed time range for the Aurignacian in Europe has remained a highly controversial subject. This is mainly due to problems with radiocarbon dating and what archaeologists Nicholas Conard and Michael Bolus have named the "Middle Paleolithic Dating Anomaly", produced by the "fluctuations in the production and deposition of radioisotopes in various media over the period from 30-50 k calendar years ago" (2003:356), which causes radiocarbon dates to appear at least 2,000 and up to 6,000 or more years younger than their calendar age (Churchill & Smith 2000:68; Conard & Bolus 2003; Mellars 2004: 462; Gamble 1999:273). While this so-called anomaly has been a relevant subject of debate on the chronology of the Aurignacian (Verpoorte 2005; Zilhão & D'Errico 2003), new dating techniques and calibration methods for existing dating datasets seem to confirm an early start of the Aurignacian in Europe, by 50-45,000 BP (Higham et al. 2012), which also "matches what we know of the dispersal of modern humans to the east, into Asia and toward Australia" (Hublin 2012:13472).

Much research has focused on tracing this complex geographically and chronologically since, "if one assumes that modern humans produced Aurignacian artefacts, dating the earliest Aurignacian could be viewed as equivalent to dating the arrival of modern humans in Europe" (Conard et al.

2003:166). This assumption has been questioned, mainly because so far no modern human remains going back to the early dates of the Aurignacian have been found in Europe. The earliest ones come from Romania and are dated to 36-34,000 BP, but lack any archaeological association (Hublin 2013:234; Verpoorte 2005). However, no Neanderthal remains have been found with Aurignacian artefacts yet; whereas modern humans recurrently have (Churchill & Smith 2000; Hublin 2013).

Regarding the lower chronological limits of the Aurignacian, there are several sites that have now yielded dates of 40,000 BP, and older. For example, the Catalan rockshelter of Abric Romani, which has given radiocarbon (AMS) dates of 37,000 BP, and Uranium-series dates going as far back as 43,000 BP. The marked difference in results between these dating techniques is attributed to the assumption that radiocarbon ages are underestimates by several thousand years. On these grounds, other Iberian sites such as L'Abreda (c. 38,500 BP), in Cataluña, and El Castillo (c. 38,700 BP), in Santander, may also be as old as 43,000 BP (Gamble 1999:273). Another set of early dates comes from the German region of Swabia. The site of Geissenklösterle, in the Ach Valley, has long been known for its rich Aurignacian levels. Radiocarbon (AMS) results for the lower Aurignacian layers of the cave have given an age of ca. 38,000 BP; while Thermoluminescence (TL) dates from burnt silex go back even further, to 40,000 BP (Richter et al. 2000; Conard et al. 2003; Conard & Bolus 2003:353). Also, bones from the adjacent cave site of Höhlenstein-Stadel yielded dates of ca. 42-34,000 BP (Conard & Bolus 2003:342). These and a new series of radiocarbon dates now suggest that the early Aurignacian of the Swabian region may date to 43-41,000 BP (Higham et al. 2012).

All in all, the Aurignacian of Western Europe is now recognized as of indisputable modern human authorship, and seems to have had a start prior to 40,000 BP (Hublin 2013), spanning up to 29,000 BP (Bocquet-Appel & Demars 2000:552). The emerging picture suggests that modern humans arrived early into Europe from the East, perhaps following the Danube river (Conard & Bolus 2003; Higham et al. 2012), and spread stepwise through the continent, possibly absorbing indigenous Neanderthal populations (culturally and/or biologically) along the way (Hublin 2013:242).

Most known early Aurignacian sites in Western Europe seem to be clustered in three general regions or "nodes of concentration, separated by vast zones which are either empty or with a negligible population density" (Bocquet-Appel & Demars 2000:551). These clusters are found in Aquitaine, the Franco-Spanish Pyrenees area, along with Cantabria and Catalonia, and Belgium Wallone, German Swabia, the Paris basin and the South of France. Apart from these, significant Aurignacian groupings are also found in Eastern Europe. Later sites spread north and south of these regions but seem to keep approximately the same pattern of distribution throughout the whole duration of the Aurignacian

and into the Gravettian (Bocquet-Appel & Demars 2000:554). It is possible that these clusters represent early foci of modern human occupation.

Climate-wise, the conditions of the European Early Upper Palaeolithic, like those of the MSA, were also full of 'ups and downs' (Borroughs 2009:115). The period of our interest (45-25,000 BP) falls within Marine Isotope Stage 3 (MIS 3, 60-24,000 BP), a period of rapid climatic fluctuations. The relatively mild conditions at 40,000 BP were immediately followed by a cold event at 39,000 BP, and again a stage of relative warmth from 38-32,000 BP, followed by cool-warm oscillations until the continuous decline in temperature that marked the start of the Last Glacial Maximum (the coldest period of the last Ice Age) which lasted roughly from 24-16,500 BP. Although there were 'strikingly cold periods' during MIS 3, when temperatures may have been 10° to 12°C below modern values, and precipitation rates were low (Churchill & Smith 2000:70), Eurasia remained habitable (Borroughs 2009:86). In fact, the cold conditions caused an increase of grasslands, arctic steppe and tundra environments, known as the European mammoth steppe, which supported large communities of grazing herbivores such as woolly mammoth, woolly rhinoceros, reindeer, red deer, horse and bison, whose large herds constituted prime hunting game for Palaeolithic humans (Gamble 1999:280-283; Guthrie & Van Kolfschoten 2000:17). So, although conditions during the Early Upper Palaeolithic may have been harsh in terms of climate, they were not in terms of resource availability, and human population numbers remained low but stable (Bocquet-Appel & Demars 2000:551; Forster 2004:261).

In sum, compared to the relatively mild and constant climatic conditions of the Holocene, the Late Pleistocene was a period of fluctuations that undoubtedly influenced the lifestyle and behaviour of modern humans, as geologist and palaeoclimate expert John Lowe explains (2001:18):

> For the last glacial-interglacial cycle […] at least 24 abrupt oscillations, from cold stadial conditions to warm interstadial conditions (almost as warm as those of the present day) and back to cold conditions again, characterize the interval between 110 and 14 [thousand years] BP. Some of these irregular oscillations lasted only 1 to 3 [thousand years], while some of the cold-warm transitions occurred within a few decades. [These events] may have had important influences on the survival, distribution and migration of human populations.

The shifting environmental circumstances of the mid MSA and the EUP, on the one hand indicate that we cannot really speak of *a* human evolutionary environment, except as one of variability and frequent change. On the other hand, these circumstances might help explain the discontinuous mosaic-like pattern of the archaeological record of visual art, since cultural traits, like the human communities themselves, likely fluctuated according to the demands of every new shift.

2.2 Pleistocene visual art: Identification and attribution

In this section, I discuss some of the problems of identifying artworks in the archaeological record. I argue that, to a point, these issues may be avoided by adopting a more specific definition of Pleistocene visual art and a better description of the types of items and practices that constitute it.

One of the questions that preoccupies (prehistoric) visual art scholars is how to recognize an artwork as such. As philosopher of art Stephen Davies wonders, "How can we distinguish culturally significant practices in which art is absent from those in which it is present?" (2000:206). This problem is particularly pressing when dealing with artworks from the remote past because in the archaeological record – inversely to Ernst Gombrich's famous statement – there are no artists, only art. Hence, we will only be able to say anything about the development of art in the Pleistocene provided we can recognize it among other traces of past human activity. To be art, according to art philosopher Gregory Currie, it suffices that an artefact be "produced with the intention that it have aesthetic features" (2011:17); i.e. qualities that amount to 'beauty', like symmetry, balance, elegance and vivacity. Under these terms, Currie postulates that (visual) art-making may have ancient roots in the manufacture of stone tools, particularly the (often) oval-shaped cutting tools known as handaxes.[36] Whereas such a broad characterisation has the intention of allowing the inclusion of archaeological examples into the art category, it is not infallible. Firstly, it is so broad that it may well include a great deal of human material culture, from stone tools to pencils, taking us back to the original problem of how to distinguish artefacts from artworks. In second place, despite its broadness, it leaves out 'found' objects, which can be used or displayed as visual art, like in the case of seashells which often occur in the archaeological record, as the following survey will show. Thirdly, and most importantly, an aesthetic element is not sufficient to define art, as Wilfried van Damme has noted, "art is more than aesthetics, and aesthetics is more than art" (2006:154), and by the same token, the 'aesthetic' is not limited to beauty. Rather, aesthetic features include all perceptible, attention-grabbing properties, in this case all visually-arresting properties, whose effects need not necessarily be positive (i.e. beautiful, pleasing). Art philosopher Stephen Davies, for his part, has suggested that although pleasing aesthetic qualities do not exhaust (visual) art, they can

36 Handaxes are the most abundant and longest used stone tool ever made; they first occur in the Lower Palaeolithic by 1.4 million years ago and prevail up to the late Middle Palaeolithic, around 50,000 years ago (Mithen 2003). Millions of such multipurpose tools were produced over time by at least four different hominin species: *Homo ergaster*, *H. erectus*, *H. heidelbergensis* and *H. neanderthalensis* (Kohn & Mithen 1999). Handaxes are found in Africa, Europe, North Asia and the Middle East, and come in different shapes, sizes and materials, but the most distinctive ones have a symmetrical oval shape. Many of these artefacts seem to have been worked beyond functionality, which has led some scholars to think that their makers were producing them from aesthetic conventions (Currie 2011; Kohn & Mithen 1999; Lycett 2008; Mithen 2003; Zahavi & Zahavi 1997).

help us identify it minimally. That is, although the visual art of any given culture may include a variety of (non-pleasing, non-modified, non-aesthetic) items difficult to recognize as artworks, at least those which have been produced to comply with gratifying aesthetic properties will be identifiable as such to cultural outsiders (Davies 2000:209). This indeed has been a common criterion used by researchers looking for traces of art activity in the archaeological record. To a great extent, visual art is identified archaeologically by analogy to what is considered visual art in the context of the researcher (Moro & González 2010).

A second criterion often used is 'non-utilitarianism', that is, whenever researchers "cannot think of any function, other than communicative or symbolic" (Chase 1991:200) then they tend to include artefacts in the category of artistic or symbolic artefacts (D'Errico & Villa 1997:28). However, identifying with any certainty whether some item is utilitarian or not is problematic. For instance, many of the objects usually classified as beads or simply body ornaments, may well have been used as buttons or garment closures (Gilligan 2010:52), but its function would not diminish their aesthetic or art-like qualities. For many archaeologists, artworks should not only have aesthetic properties, but should also be 'symbolic', i.e. "imbued with meaning" (Henshilwood & D'Errico 2011:76; Mithen 1996a:175). But identifying symbolism in the archaeological record is just as difficult. In our "symbolic species", to paraphrase Terrence Deacon (1997), everything and anything can be immersed in symbolism. This includes not only human-made or transformed items, but also basic human necessities such as food exude symbolic references (Levins & Lewontin 1985:262). Furthermore, symbolic ability by itself might not be a good measure of artistic behaviour since our closest primate relatives, the chimpanzees and bonobos (or pigmy chimpanzees), are able to successfully learn and use, however limitedly, gestural, graphic, and language-based symbols – e.g. sign language, numerals, and lexigrams (Gillespie-Lynch et al. 2011; Heimbauer et al. 2011; Matsuzawa 2009; Tomasello & Hermann 2010). This indicates that symbolic capacity, even if incipient, might be a shared hominin trait (Shea 2011:14; Wadley 2001:20) and thus should be expected to appear at least sporadically in the archaeological record predating the emergence of our species (Henshilwood & Marean 2003:644; D'Errico & Nowell 2000:146).[37] In relation to the evolution of modern humans, what should be explained is not when the (likely ancestral) capacity to use symbols appeared, but the circumstances under which humans engaged in the systematic *production* of symbol systems and how these became incorporated into the human cultural

37 However, this does not necessarily mean that there has been a gradual and continuous development of 'symbolic thought' culminating in visual art. We should be wary of notions of 'partially', 'proto-', or 'semi-' symbolic hominins or artefacts, which are frequently discussed by archaeologists. Symbolism (or the capacity for it) is not a gradable property. As Wobst explained (1977:326), something is either symbolic or it is not, but it cannot be 'slightly' or 'halfway' symbolic. Therefore, I reject the use of terms such as 'fully symbolic' (Henshilwood & Marean 2003:644) to describe modern human behaviour.

repertoire (Donald 1991:160; Vygotsky 1992:56; Wadley 2001:205).[38] Thus, most researchers agree that visual art minimally has aesthetic and symbolic properties. Nonetheless, neither the aesthetic or symbolic characterizations are sufficient to define it, nor do they offer an answer to Davies's question of how to distinguish art from non-art.

Having defined visual art as a human communication signal, I suggest that an important criterion for identifying visual art is *display*. That is, to function as a signal visual art must be presented or 'emitted' to potential receivers. Therefore, when display may be inferred as a primary function of aesthetic or symbolic artefacts, then we may include them in the category of visual art. Furthermore, because signals are conventional and shared, visual artworks should have certain recurrence within a given context, thus repeated occurrence offers another criterion for classifying objects as visual art.

Ethnographical analogy can also be a source of information for interpreting the archaeological record of visual art. Because Pleistocene humans had an appropriation economy based on hunting and gathering, data from historical hunter-gatherer groups can help in assessing some assumptions, for instance about the context, use and production of visual art-making practices. I am well aware of the methodological and ethical issues of using ethnographical data from historical groups to interpret Pleistocene human behaviour (Conkey 1987; Inglod 1996, 1999; Myers 1988). However, ethnographical analogies are central to archaeological interpretation, which relies on the principle that "in the past as in the present, there is a correlation between behaviour and material culture that allows us to reconstruct the former from the latter", and that there "are some general patterns to the ways humans use and discard artefacts" (Gándara 1990:74, *my translation*), which in turn are much influenced by economic and social organization. So, looking at how those patterns emerge and change among historical hunter-gatherers might tell us something about how they developed among extinct ones (Kuhn & Stiner 2001b:100).

Everything considered, the three main inclusion criteria for this survey are anthropic origin, (inferred) display purpose, and repeated occurrence in the archaeological record. The first of these requirements, that the object in question show evidence of having been made, modified, or used by humans (van Damme 2008:30), is not always easy to determine in archaeological materials, especially among non-tools from early sites. However, archaeologists have developed various techniques that allow them to indicate with more precision whether an object has been purposefully handled or modified, such as experimental replication, use-wear analysis, and enhanced electronic and digital photography and microscopy. For example, some pieces believed to be

38 As ethologist Desmond Morris concluded after comparing the 'artistic' behaviour of chimpanzees and humans, "both men and apes possess a sense of design and composition although [...] it was only man the hunter whose needs led him to utilize this talent and so develop picture-making as an active part of his natural existence" (1962:148).

engraved bones from the Lower and Middle Palaeolithic, upon closer technical examination, have turned out to be of natural (e.g. vascular groves), or animal origin (e.g. predator activity) (D'Errico & Nowell 2000; D'Errico & Villa 1997). Whereas in the case of MSA shell beads, these techniques have helped corroborate human manipulation and suggest probable uses (Bar-Yosef Mayer et al. 2009; Vanhaeren et al. 2013). All the objects included in this survey, as far as research indicates, have been collected, transformed or made by humans.

A display purpose is also difficult to resolve, as in the case of ochre use (see below), however, the combination of aesthetic properties, labour investment, context, and ethnographic analogy, strongly suggest that the five categories discussed in this survey were in principle produced to be displayed.

Finally, conceiving of visual art as part of a cultural system implies that it should appear as a recurrent practice in the archaeological record, and not only as an accumulation of isolated or 'one-off' cases. Cultural traits are typically socially shared, persistent, and variable in a population (van Schaik & Pradhan 2003). Therefore, continuity and/or recurrence in a constrained chrono-geographical span is used as an inclusion criterion. As a result, the present survey of Pleistocene visual art includes forms occurring at more than one site within the same time range (of at least 10,000 years) and within a particular geographic region; forms that occur at more than one archaeological level in one site (suggesting transmission of cultural behaviour over time); and, forms that are quantitatively significant at any given site or period (suggesting that they were used and/or produced by several individuals, i.e. culturally shared behaviour). Overall, the corpus includes evidence related to activities such as the colouring and painting of surfaces, personal and artefact ornamentation by various techniques, and the inferred intentional transformation of materials towards decoration or representation.[39]

39 The existing literature on prehistoric art often discusses a handful of artefacts as potential 'firsts' of visual art forms. The three most prominent examples are the Makapansgat pebble, and the Berekhat Ram figurine, and the Tan Tan statuette. These objects apparently show intervention by hominins, and are said to represent "the earliest example of some kind of aesthetic sense, or at least evidence for recognition of a likeness" (Bahn & Vertut 1997:23). Therefore, they are worth mentioning although they are excluded from this study for not complying with the criteria given above. The Makapansgat cobble, which resembles a human face, was found in the context of 3-million-year-old site belonging to Australopithecus. The Berekhat Ram statuette was recovered in Israel and estimated to be 250-280,000 years of age, predating the emergence of or species by some 50,000 years. The piece is made of volcanic tuff and was artificially enhanced by some hominin apparently to make it look like a female figure, which incidentally resembles the later Upper Palaeolithic 'Venuses' (D'Errico & Nowell 2000). The Tan Tan figurine is an anthropomorphic quartzite fragment found in a 400,000-year-old site in Morocco. Like the previous piece, this one also seems to have been partly shaped through human intervention, and further has some minuscule traces of red pigment (Bednarik 2003). Although these alleged cases of early art-like objects cannot be readily dismissed (Bahn & Vertut 1997:26; D'Errico & Nowell 2000:146), the interpretive problems and the lack of academic consensus surrounding them cannot be ignored either. Furthermore, even if such artefacts did represent an early aesthetic or formal recognition sense, as argued by Bahn and Vertut, as far as we can tell they did not constitute a systematic

I reiterate that my focus will be on (purported) *Homo sapiens* contexts. As mentioned before, so far as we can tell, our species is the only hominin sort to have produced artworks of sufficient quantity and kind to leave a definite, identifiable trace in the archaeological record. Even when the behavioural and cognitive complexity of Neanderthals is increasingly being recognized and understood, evidence for the regular production and usage of visual art among Neanderthals remains ambiguous and controversial (Álvarez & Jöris 2008:32; Howell 1999:226; Roebroeks 2008:923; White 2001). A detailed examination of purported artworks from the Middle Palaeolithic attributed to Neanderthal populations is, unfortunately, beyond the scope of the present study, and therefore will not be discussed in the inventory.[40]

Now, I finally turn to the survey of Pleistocene art forms, which will further map out the development that visual art, with the intention of recognizing trends and patterns in this process. At the same time, this survey will provide a basis for identifying potential factors that may have shaped and supported the emergence of visual art behaviour.

2.3 Tracing the origins of Pleistocene visual art: A general survey

This survey, as mentioned before, will focus not on examining the whole record of Pleistocene visual art, but on what is currently known as the earliest evidence for the five categories established above (ochre, engravings, ornaments, carvings and painting) . This evidence falls mainly within two periods: the midpoint of the African Middle Stone Age, and the early stages of the European Upper Palaeolithic. It must be noted that although we must rely on archaeological data (e.g. dates, geographical distribution) for the earliest evidence of visual art forms, these may not necessarily correspond with the *actual* original occurrences of art practices, that is, we should not immediately assume that the first appearance of art in the archaeological record truly reflects the emergence of art behaviour. It is more probable that, as philosopher Kim Sterelny has pointed out (2012:811):

> We do not see origins in the record, but the cultural effects of innovations as their effects accumulate. We do not see the first instance of an innovation; we see it once it has become a routine feature of the community toolkit.

Visual art became prominent in the Late Pleistocene, and as the survey shows, it often (though not always) intensified, diversified, and became more complex over time. The earliest traces of possible visual art activities are found in the

cultural practice nor do they seem to be in any way related to the development of visual art among modern humans (Davis 1993:346). And because it is the latter which I aim to explain, I have excluded the three discussed objects from my inventory of Pleistocene visual art.

40 For a review of this sort see: Langley et al. (2008); Roebroeks (2008); Zilhão (2007).

form of ochre extraction and processing. This is followed by the simple modification of materials, and later by the crafting of beads and finally, there is the systematic production of visual art objects and traditions. Nonetheless, this development is not assumed to have happened in strict linear chronological succession. The various visual art forms and techniques frequently appear, disappear, and reappear in the archaeological record, and 'simple' forms usually co-occur with more 'complex' ones. The apparent trend in the development of visual art – from simple to more complex forms – has been recurrently attributed to the enhancement of human cognitive capacities over the Pleistocene (e.g. Coolidge & Wynn 2005; Mithen 1996a; Morris-Kay 2010). However, the increasing diversification of visual art forms, media and techniques may also be interpreted in terms of increasing technological sophistication. As I will argue, the 'progression' of visual art forms may represent a growing labour investment in visual art which means that visual art production became an increasingly important practice to which more and more time, effort, knowledge, skill, and people were devoted. In other words, over the course of the Pleistocene visual art forms became progressively more frequent, complex and specialized (see discussion in section 2.4). Again, this need not imply a linear progression where simple forms gradually gave way to more sophisticated ones. Rather it probably involved a process of diversification, where existing types and practices provided 'scaffolds' for novel – and more complex – forms. According to the chronological order in which they first appear in the archaeological record, and the amount labour investment they entail (time and effort), I have grouped Pleistocene visual art forms into five groups: ochre pigments, personal ornaments, incised objects, carved and sculpted figures, and painting.

Evidently, the five categories suggested here are a simplification for the purpose of our study, and there is some overlap, for example, there is ochre on ornaments, there are engravings on ochre, some carved figures seem to have been used as pendants, and cave art usually includes a combination of techniques such as engraving, finger tracing, and painting. Furthermore, there are surely several other art forms we can think of which have been lost to archaeology, such as sand drawings, designs on wood, fibres or leather, and body art. Many researchers in fact agree that the human body must have been the first canvas of visual artistry (Donald 1991:277; Schildkrout 2004; Turner 1980). Ethnographic examples of body art include several techniques applied to the skin, teeth and hair, like shaping, cutting, piercing, scarifying, tattooing, branding, and painting. We could also include here hairstyles and clothing (Gilligan 2010). Traces of these practices are naturally lost with the decomposition of the human body and biological materials, however, some indirect evidence can be used to infer them, like the presence of ochre pigments, which will be the first category to be discussed.[41]

41 Body art (e.g. tattoos, scarification, painting) and the use of garments can also be inferred from figurative art. For example, the 'Venus' figurines have proven a valuable source of information about

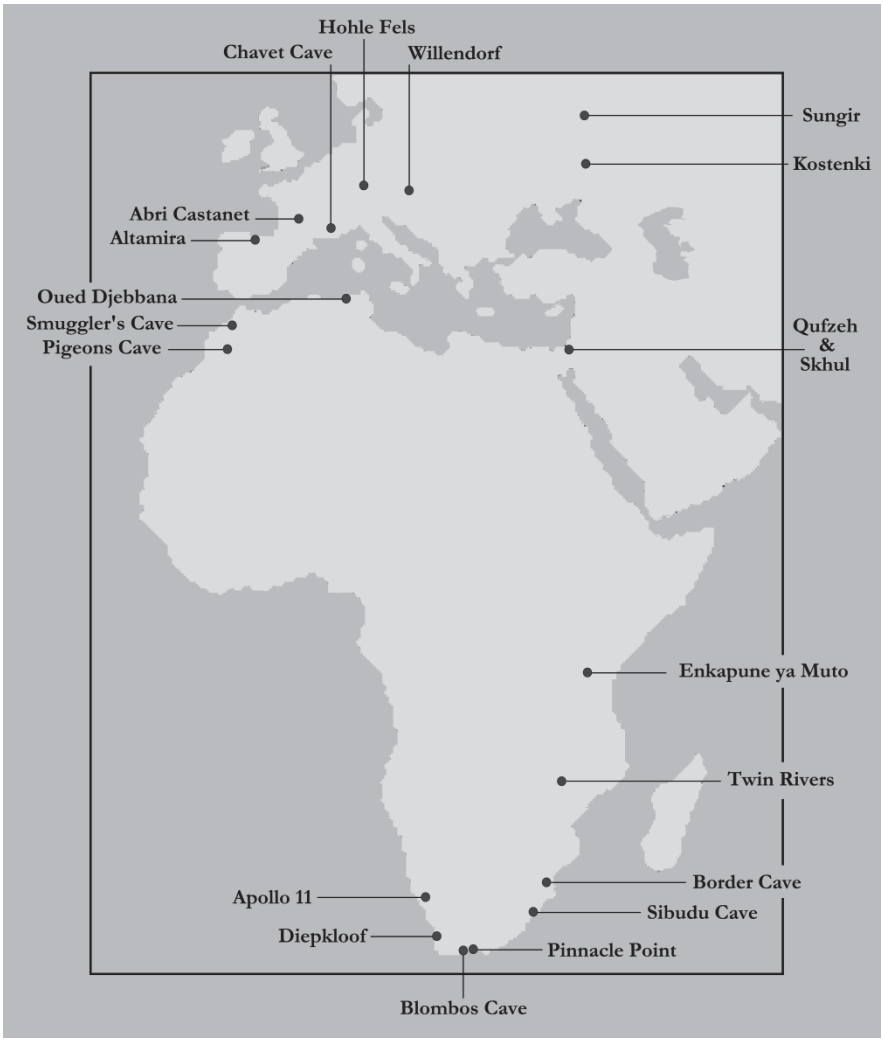

Figure 2. *Geographical location of the most important sites included in this survey.*

Ochre pigments

Ochre is a generic term that encompasses several naturally occurring minerals with high contents of iron oxides that produce a range of hues in yellow, brown, orange, and red. Typical ochre minerals like limonite or hematite can be rubbed directly on surfaces to apply colour or be crushed to produce powders of reddish shades that can then be used as pigment (Henshilwood et al. 2011:219). Other

Palaeolithic female hairstyles, headgear, and garments, and of possible body art patterns (Soffer et al. 2000). Rock art from the European Palaeolithic has also provided some clues about the use of complex clothing and hats (Gilligan 2010).

naturally occurring minerals which may be used for pigment production include, among others, gypsum and kaolin (white), charcoal and manganese dioxide (black).

The archaeological evidence of pigment use is rather ambiguous in that we are normally presented with only traces of ochre processing, or merely the raw material itself. As observed by archaeologist Francesco D'Errico and colleagues (2012:943):

> Pigments found at archaeological sites in the form of modified chunks or residues adhering to objects are generally the by-product of a sequence of actions that is difficult to reconstruct. It is for this reason that the interpretation of early pigment use is often controversial in nature.

Although we do find some examples of pigment applied to objects in the record of early Pleistocene visual art, most of the time its final purpose has to be inferred by the researcher. Accordingly, this subsection is divided in two parts: one dealing with evidence for the extraction and processing of ochre minerals (possibly to produce coloured pigments), and the other dedicated to the different uses that we can observe directly or infer indirectly from the archaeological context.

Ochre extraction and processing

The earliest possible evidence of ochre exploitation in Africa actually is over 200,000 years old, predating the earliest fossil specimens of our species, and thus surpasses the time range set for this survey. However, the information is relevant because it suggests that our immediate hominin ancestors had "at the very least an awareness of these minerals and their properties and their availability in the landscape" (Barham 1998:708), which sets an important precedent for the development of ochre use as a regular behaviour among *H. sapiens*. Evidence from various sites, most notably Kapthurin in Kenya (Barham 2002:189, McBrearty & Brooks 2000:528) and Twin Rivers in Zambia (Barham 1998, 2002), includes the accumulation of large quantities of ochre minerals (e.g. limonite, hematite, specularite) some of which show traces of intentional abrasion, indicating that they may have been scraped and rubbed onto surfaces to obtain yellow and reddish hues (Barham 1998:705, 2002:188). Conservatively, the dates from these sites indicate that by 270,000 years BP African hominins already "had incorporated color into their lives" (Barham 2002:189).

The first example of ochre exploitation by *Homo sapiens* comes from the South African site of Pinnacle Point (Marean et al. 2007; McBrearty & Stringer 2007). In this location, archaeologists found an accumulation of over fifty pieces of red ochre, a dozen of which showed traces of use (grinding and scraping). This ochre find, dated to 164,000 BP, "has all the hallmarks of pigment for body-painting and perhaps colouring of other organic surfaces" (Marean et al. 2007: 907).

The evidence of ochre extraction in South Africa during the Late Pleistocene is abundant. Ochre use is recorded at the sites of Klasies River and Howiesons Poort going back to 100,000 and 80,000 years BP, respectively. The archaeological material from Border Cave includes 'hematite pencils' older than 100,000 years, and Blombos Cave has a record of ochre exploitation spanning multiple stratigraphic layers dated from 100 to 75,000 years ago (McBrearty & Brooks 2000:528; Watts 2009).[42] At the latter site, a recent find revealed an ochre processing workshop that includes two toolkits used for producing and storing an ochre mixture. The toolkits consist of two abalone shell containers, a stone cobble, probably used as a hammerstone, mineral residues from grindstones, crushed bones whose marrow could be used as a pigment binder, charcoal, and red ochre. This find has been dated to circa 100,000 years BP and is the best evidence that in the MSA humans were purposively exploiting ochre for pigment extraction (Henshilwood et al. 2011). It also gives an indication of the sorts of activities and materials involved in ochre-processing.

There are other early examples of ochre extraction and use beyond Africa. In the site of Qafzeh Cave, in Israel, several lumps of red ochre with traces of scraping have been recovered from stratigraphic layers dated to 92,000 BP (Hovers et al. 2003). These pieces of ochre were transported into the site from outward locations where intense red hue minerals (hematite) could be found, indicating purposive selection and preference for particular raw materials. The ochre lumps were found alongside some smaller bits, possibly debris, suggesting a work area or ochre processing-workshop. There also is a possible association of ochre occurrence with human burials and marine shells at this site (Bar-Yosef Mayer et al. 2009; Hovers et al. 2003). Incidentally, Qafzeh constitutes the first modern human occupation outside Africa, although it may be considered an extension of habitat range, rather than a 'migration' (Borroughs 2009:109). This modern human enclave in the Levant, however, did not flourish for long, and its members soon went extinct leaving no traceable descendants in any existing gene pool (Forster 2004:261; Mellars 2004:461). The data from this site offers further support that ochre extraction and use was established as a customary activity among *H. sapiens* populations by 100,000 BP.

In Europe, the use of ochre minerals is well documented in the Neanderthal archaeological record of the Middle Palaeolithic, particularly towards the end of that period between 60 and 40,000 BP (Caron et al. 2011; D'Errico 2008; D'Errico et al. 2010; Soressi & D'Errico 2007; Roebroeks et al. 2012; Zilhão et al. 2010). Iron oxides producing orange, yellow and red were exploited, although in low quantities. The most common colour mineral used among these hominins was manganese dioxide, which produces a black pigment (D'Errico 2008:170). The differences in ochre use between the Middle and Early Upper Palaeolithic,

42 The sites mentioned here only include the earliest samples of ochre exploitation but the actual record is much more extensive. For a general overview, see: Watts (1999).

however, are both quantitative and qualitative. Not only is the frequency of ochre exploitation in the later period much higher, but also a preference for the colour red is quite marked (Watts 1999, 2009). Furthermore, in the Early Upper Palaeolithic, especially in the Gravettian, red ochre is often found in burials (Riel-Salvatore & Gravel-Miguel 2013:330).[43]

Ochre applications

Whether ochre use qualifies as evidence of human visual art behaviour has been hotly debated among archaeologists. Although the aesthetic, symbolic or ritualistic connotations of red ochre in particular have often been highlighted (e.g. Knight et al. 1995), ochre can have many different domestic (utilitarian) applications that would not necessarily involve any artistic intentions (Wadley 2005; Wadley et al. 2004). There is no need, however, to divorce the utilitarian from the artistic. Ethnographic data show that pigments may be used in both practical as well as symbolic contexts, and that these are not mutually exclusive (McBrearty & Stringer 2007:794; Rifkin 2012).

Some practical applications of ochre include, among others, the treatment and preservation of hides and production of leather objects (Dubreuil & Grosman 2009:948). Ochre can also be mixed with resins and wax to produce an effective adhesive to, for instance, attach stone tools like points, blades and arrows to hafts and shafts (Wadley 2005). Ochre clays are also known to have some medicinal properties, for instance antiseptic, astringent and deodorizing qualities; and when eaten they can have a purging effect and help against stomach pain (Velo 1984, 1986). Finally, ochre and other mineral pigments either mixed with oils or by themselves can offer skin protection against insects and the elements, as 'sunblock' (Ellis et al. 1997).

The fact that pigment use is also well documented in the Neanderthal record points to the possibility that it could have been a widespread hominin practice, either for its visual properties or as a useful adhesive for the production of composite tools or in the treatment of animal hides. The question of whether ochre was attributed any symbolic meaning applies equally to Neanderthals as to early modern humans (D'Errico 2008; Zilhão et al. 2010). Symbolism is not an intrinsic quality of coloured minerals, but rather it is a property given by social practice. Thus, as noted by archaeologist Wil Roebroeks and colleagues (2012:1893) the mere occurrence of ochre or other pigments should not immediately be taken as evidence for either artistic or symbolic behaviour.

43 The association of red ochre and human burial is also observed in one of the earliest known archaeological sites in Australia, Lake Mungo dated around 60-40,000 BP, where a modern human skeleton covered in red ochre pigment was found (Bowler et al. 2003; Klein & Edgar 2002:248; Stringer 1999). It is notable that the source of the ochre was about 200 kilometres away from the burial site, which implies that the material was specifically sought after and transported a long distance (Klein & Edgar 2002:249).

The issue remains whether ochre and other minerals were used as pigments in artistic activities. The ethnographic record shows that pigments have a generalized use in body ornamentation and ritual activities, as paint or dye applied to the face, body and hair, attires, and in tattooing. Body paint and these other examples of pigment application are unfortunately ephemeral activities that leave no direct trace in the archaeological record. But the generalized use of body painting among historical hunter-gatherers (both living and extinct), and its cultural relevance as a (primordial) marker of social identity strongly suggests that the use of pigments for bodily decoration was probably practiced at some point among Pleistocene humans (cf. Fiore 2008; Layton 1989; Power 1999; Turner 1980; Schildkrout 2004). So, if ethnographic data serves as an analogy, at least for modern humans, it is rather likely that throughout prehistory pigments were used as hide preservatives, adhesives, medicine, sun and insect protection, as well as for personal and artefact ornamentation and in ritual. The use of mineral pigments does not preclude at all the functional or the ceremonial, "ochre seems to have been a material with both symbolic and utilitarian functions" (McBrearty & Stringer 2007:794).

It is however significant that among the members of our species particularly red-coloured minerals were recurrently targeted and preferred over blacks or whites, which points to an intentional selection that would not be expected if pigment use had been strictly utilitarian (McBrearty & Stringer 2007; Watts 1999). The persistent presence of red ochre in Pleistocene funerary contexts furthermore points towards its probable importance in ritual activity. The relation between red ochre and human burial may be an ancient one as evidenced by the possible association at Qafzeh (Hovers et al. 2003:507). Red ochre is also a frequent element in funerary contexts from the Gravettian in Upper Palaeolithic Europe – e.g. Sungir, Russia; Krems-Wachtberg, Austria; Dolní Vestonice, Czech Republic (Einwögerer et al. 2006; Formicola 2007:446; Riel-Salvatore & Gravel-Miguel 2013:330). It may be argued that the incidence of red ochre in human burials may be related to its preserving and deodorizing qualities, but symbolic references to blood, life and death can hardly be avoided in light of ethnographic and historical records showing that red pigment often plays an important role in the symbolic lives of many human groups, in Australia, Africa, and the Americas (Knight 2009; Morris 2010:10; Wrenschner 1980). Anthropologist Ernst Wreschner has noted that there might be an evolutionary perceptual/aesthetic bias towards the colour red because of its potential emotional association with blood, and conceptions of life and death (1980). Similarly, Ian Watts, who has analysed the Pleistocene ochre record extensively, has highlighted that beside redness, ochre properties such as lustre and brilliance might also act as sensory stimuli that produce an 'aesthetic effect' in humans (1999:129).[44] The aesthetic appeal of red ochre is also suggested by the

44 Anthropologists Chris Knight, Ian Watts and Camilla Power have attempted to explain "why red ochre became the cultural species marker of *Homo sapiens*" (Power 2009:257) by suggesting

fact that Pleistocene ornaments (beads and pendants) often show traces of having been rubbed with it (see below), which shows that they were either purposefully coloured, or they acquired the ochre by contact with coloured surfaces (e.g. skin, hair, garments).

In conclusion, ochre use seems to be an ancient human practice. Moreover, in both Africa and Europe the appearance of modern *H. sapiens* is accompanied by an increase in the frequency and quantity of red ochre exploitation. So, even if by itself it remains ambiguous as evidence for visual artistic behaviour, as Watts has argued convincingly, the habitual occurrence of red ochre minerals (for pigment production) may be considered a defining archaeological marker of our species (2009:80).

Personal ornaments

Archaeologists usually classify as personal or body ornaments those "small, durable objects that are somehow modified for suspension or attachment to

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that early modern human females developed the bio-social strategy of faking menstrual blood with red ochre pigments for their own benefit (Knight 1991; Knight et al. 1995; Power 1999, 2004; Watts 1999, 2009). Their 'sham menstruation' or 'female cosmetic coalition' model proposes that the costs of pregnancy and child rearing on females and decreased mobility of mothers due to the high dependability of their infants, constraining their access to resources. Therefore, human females needed to secure maximum male cooperation in subsistence and parental investment. Males are likely to direct their interest and resources to fertile females. And since human females have lost physical signs of oestrus, menstruation works as the only reliable indicator of female fertility so, women would want to advertise and amplify that signal to attract males and entice them to provide for them (and their offspring) with the promise of future mating opportunities. Using visual signalling as a collective deception strategy would also entail the foundation of symbolism and ritual. On the one part, 'faking' involves convention and displaced reference in which a group (in this case the female coalition) agrees that a signal stands for something that is not. And on the other, that agreement would have to be made public and reinforced by costly collective rituals that display commitment to the coalition. The 'sham menstruation' hypothesis, so briefly sketched here, faces various problems. Firstly, it assumes the loss of oestrus in the human lineage, which supposedly triggered changes in reproductive strategies; but it is possible that oestrus signs such as the genital swelling of chimps is a separate development that humans never presented, or that its loss goes back a long time, to the evolution of bipedalism (Pawlowski 1999). Either way, it should not be given weight as the direct cause of human socio-sexual organization. Secondly, although sham menstruation is documented ethnographically, there is no evidence that it was generally practiced by early *H. sapiens* groups (Hovers et al. 2003:510). Utilitarian, rather than symbolic explanations for the presence of red ochre in Middle Stone Age African sites cannot be discarded, as discussed in the text (Boyd et al. 1995). Thirdly, it assumes that the strategy would invariably succeed, but fails to explain satisfactorily why men would 'fall for it' (Taylor 1996:104). Furthermore it does not clarify, for example, why non-related males would be tolerant of each other, or why female coalitions did not end up in a gender segregated matriarchal system, as among elephant groups. Finally, hominin females probably did not have to come up with a scheme to 'force' men to provide for them and help them rear their offspring, since male-female bonds and intersexual cooperation is near-universal among higher primates (van Schaik & Dunbar 1990). Thus, the sexual division of labour probably is not a result of early *H. sapiens* female coalitions, but more likely is an ancestral form of social organization, as it is also common among social carnivores (Guthrie 2005).

other materials" (Kuhn & Stiner 2007b:43), including beads, pendants, and 'charms', which are referred to generically as 'beads'. These could have been used as object decorations (e.g. garments, batons, baskets) as well as for jewellery (White 1992:554).

Once considered mere 'trinkets', archaeologists now recognize the artistic, symbolic and social potential of these items and the important role that they might have played in the lives of Pleistocene humans (Moro & González 2010). This re-evaluation acknowledges that ornaments can be imbued with specific social functions. Several authors agree that body ornamentation is a good medium for social communication, particularly to convey messages of ethnicity and identity (Coe 2003; Kölbl 2009; Kuhn & Stiner 2007a, 2007b; Vanhaeren 2005; White 1993; Wiessner 1983, 1984; Wilkins 2010; Wobst 1977; Zilhão 2007). Furthermore, because personal ornaments "are the most characteristic artifacts that help to trace human symbolic behaviour" (Álvarez & Jöris 2011), they are also considered a hallmark trait of modern humans (D'Errico 2007:130; McBrearty & Brooks 2000:521).

Body decoration in ochre and other pigments (body painting) can also carry social messages (Fiore 2008). But, as noted by archaeologists Steven Kuhn and Mary Stiner, beads, pendants, charms and jewellery perform better than pigment as a technology for information transmission because they free communication from direct face-to-face interaction and can encompass a wider range of messages. Thus, the emergence of body ornamentation might indicate "an expanded scale of social interaction, with messages exchanged over larger areas and among a wider variety of people" (2007a:51). This implies a qualitative change in the way people used ornaments to engage in communication. I will elaborate on this in chapter 6.

According to the criterion of labour investment, I have divided personal ornaments in two subcategories. The first, modified ornaments, includes natural items (e.g. shells, teeth, fossils, etc.) that have been selected and frequently, though not always, slightly modified presumably for display. The second subcategory, manufactured ornaments, is constituted by those ornaments which have been fully shaped by a more complex production process that includes selecting a raw material and subsequently working and modelling it to obtain the desired form. These include, for instance, beads made 'from scratch' using ivory, antler, stone, and bone.

Modified ornaments

The type of ornaments discussed in the following paragraphs entail in most cases natural objects that have been collected and slightly altered by humans to fulfil their new function, for instance by polishing, perforating, or stringing them. In any case, the amount of labour applied to the materials after collection was not considerable, although the modification process might still have required special knowledge of the materials and certain skill (see: Tátá et al. 2014).

Modified ornaments, then, are human-altered natural objects such as shells, stones, animal teeth, etc. that often have been interpreted as beads or pendants, for use in jewellery, but that could equally have been braided in the hair, sewn to pieces of clothing, or attached to personal items like bags, baskets, or domestic utensils (White 1992:554).

This kind of items has recently become centre stage in discussions on the origins of visual art. Since the discovery of a collection of shells dating from 75,000 BP at the site of Blombos Cave in South Africa in the early 2000s (Henshilwood et al. 2004), the number of finds, and the age of the shells has only increased. The evidence now indicates that at the least by 100,000 years ago, humans were using modified marine shells for display purposes, likely as personal ornaments. Most of these early beads come from coastal sites in the North and South of Africa, but there are also significant examples from the Middle East and the Levant. The latter region has in fact yielded potentially the oldest objects of this kind. Excavations at the cave site of Skhul in Mount Carmel, Israel, during the early 1930s exposed a rich archaeological context that included the buried remains of ten (modern human) individuals, lithic artefacts, and a few seashells. The site has been dated between 135 and 100,000 BP. A recent analysis of the shells, now housed in the natural History Museum in London, revealed that at least two perforated *Nassarius gibbosolus* specimens were probably used as beads. The cave, high up from sea level, could not have been reached by the sea so that the shells could not have been naturally deposited, also animals would not have transported them that far, and there are not enough shells to consider human consumption. Therefore, it is likely that the cave dwellers selected and transported the shells to the site, and given that they are perforated, it is probable that they were used for suspension (Vanhaeren et al. 2006). At the nearby site of Qafzeh Cave (92,000 BP) ten marine bivalve shells (*Glycymeris insubrica*) were found. As in the previous case, the presence of the shells is best explained by human agency, since the cave is some 40 km away from the coast. Also, most of the shells have perforations, traces of use wear, signs of stringing, and some of them also bear red ochre stains (Bar-Yosef Mayer et al. 2009). Finally, archaeologist Steven Kuhn and colleagues (2001) have reported a series of shell beads from the sites of Ksar ‘Akil in Lebanon, and Üçağizli Cave in Turkey, dating back between 41 and 43,000 BP. Most of the specimens correspond to the species *Nassarius gibbosula* and *Columbella rustica*, although the bivalve *Glycymeris* and other small gastropod shells are also present. Many of the shells are perforated presumably for suspension. Again, the presence of the shells can be attributed to human intervention, and it is notable that the inhabitants of these sites, as in the other cases, “were selective in their choice of shells for ornament making, preferring comparatively rare varieties with luminous white or brightly colored shells, some with arresting patterns” (Kuhn et al. 2001:7642).

In Africa, small marine shells probably used as ornaments have been found in several Pleistocene sites. On the north of the continent, in Morocco, they

have been recovered at Smuggler's Cave, with a date of 108,000 years BP (Balter 2011), at Pigeons Cave, 82,500 years BP, at Rhafas Cave, 80-70,000 years BP, and at Ifri n'Ammar, 83,000 years BP (D'Errico et al. 2009). The 13 seashells (*Nassarius gibbosulus*) from Pigeons Cave were transported some 40 km, and show intentional perforations, signs of wear, and one bears red pigment residues (Bouzouggar et al. 2007). Finally, the collection from the Musée de l'Homme in Paris included a *Nassarius* shell from the site of Oued Djebbana, in Algeria, with an estimated age of 90,000 BP (Vanhaeren et al. 2006:1787).

In South Africa, the richest collection of MSA shell beads has been recovered at Blombos Cave. A total of 68 *Nassarius* shells from stratigraphic layers dated to c. 75,000 BP (Henshilwood et al. 2004). Here, too, the examination of the shells has discarded the possibility of natural deposition, leaving human action as the only explanation. Microscopic and experimental analysis has indicated that the shells with perforation were probably pierced with a bone point, and show traces of stringing and wear (Fig. 4). Most of the shells were found in groups, which is indicative that each group might have been part of single beadwork items (Vanhaeren et al. 2013:2). The shells form Blombos, in short, are the best evidence that in the mid MSA these objects were being used for display, probably as ornaments. Elsewhere in South Africa, six perforated *Afrolittorina africana* seashells were found at Sibudu Cave and dated to 70,000 BP (D'Errico et al. 2008), however further analysis has not yet confirmed that they were used as beads (Vanhaeren et al. 2013:501). Finally, Border Cave yielded a perforated *Conus* shell associated with a human burial, dated to 76,000 BP (Vanhaeren et al. 2013:500).

So far, there are no more finds of shell beads in sub-Saharan Africa after 70,000 BP. The next find of African personal ornaments is constituted by manufactured beads of ostrich eggshell dated *ca*. 40,000 BP (see below). In any case the evidence further suggests "that soon after 100,000 years, and possibly even earlier, personal ornamentation became a widespread practice in Africa, and adjacent areas of southwest Asia" (Bouzouggar et al. 2007:9968).

In Europe, personal ornaments begin to appear at high frequencies in the Early Upper Palaeolithic, at the time related to the spread of modern humans into this region.[45] Throughout the Aurignacian (45-28,000 BP), there are abundant modified ornaments made from marine shells, often from small gastropods (including *Nassarius*) and mammal teeth, but also from a wide range of other materials, such as freshwater, terrestrial and even fossil shells, fish vertebrae, animal bone, minerals, crystals, and amber (Álvarez & Jöris 2011; Kuhn & Stiner 2007b:44; White 2007). Clearly, eye-catching lustrous (and often

45 Zilhão and colleagues (2010) have reported the presence of shells in Neanderthal occupations in Spain, dated to ca. 50,000. At Cueva de los Aviones, 4 *Glycymeris insubrica* shells were found, and Cueva Antón a shell of *Pecten maximus* with pigment remains has been recovered. The authors suggest that these must have been used as personal ornaments. In my opinion, however, the evidence is not as conclusive as it is for the MSA and EUP sites.

exotic) raw materials were selected to be modified into ornaments (Álvarez & Jöris 2011:35; White 1993). The use of modified natural objects as ornaments continued during the whole of the Upper Palaeolithic, but along these, manufactured beads also became common.

Manufactured ornaments

In contrast to the previous category of objects, the following paragraphs deal with ornaments which have gone through a more elaborated and exhaustive manufacturing process, where the raw material has been collected, worked (sometimes extensively), and shaped to create the final artefact.[46] This process entails a greater investment of labour as well as time, a good knowledge of the qualities of the raw material and the tools and techniques to modify it. These kinds of personal ornaments made 'from scratch' appear in the archaeological record later in time than the modified sort. Like the previous, manufactured ornaments may have been used as body decoration, to adorn artefacts, or even as buttons (Gilligan 2010:57; White 1992:554).

In Africa, the oldest of these manufactured ornaments, as mentioned before, are ostrich eggshell beads. At the site of Border Cave, in South Africa, 14 of these have been found in layers pertaining to 44-41,000 BP (D'Errico et al. 2012). To create them, people first cut and shaped 'blanks' of ostrich eggshell, which were then perforated and reduced to round discs. At Enkapune Ya Muto rockshelter in Kenya, in a layer dated to around 41,000 BP, 25 ostrich eggshell beads in different stages of the production process were excavated, revealing the laborious manufacturing method. As noted by archaeologist Stanley Ambrose, these items "may mark the dawn of an era of new artefact manufacturing techniques (drilling and grinding) and of personal adornment" (1998a:388). At times, the beads were further modified by heating, to turn them dark (D'Errico et al. 2012), or by applying ochre (Ambrose, *pers. comm.*) (Fig. 5)[47]. Ostrich eggshell beads have been found at other locations in Africa with similar dates (e.g. Mumba rockshelter in Tanzania), suggesting a widespread cultural tradition (Ambrose 1998a; D'Errico et al. 2012). Incidentally, ostrich eggshell beads are very important in the economy of the contemporary !Kung San hunter-gatherers of the Kalahari, constituting the core of their gift exchange system – the *hxaro* (Wiessner 1982). This suggests a function for the Pleistocene examples, and also creates the possibility of some cultural continuity in the region (D'Errico et al. 2012; Deacon 1992).

46 Randall White has used the term "purposely fabricated beads" (1989:218), for what I have called "manufactured ornaments".

47 Fig. 5 shows: on the top two rows, finished eggshell beads, some with traces of ochre and burning (the second bead from the right on the second row is bone). The next three rows show earlier stages in bead manufacture. The middle disk on the bottom row has traces of red ochre, suggesting that it might be a finished artefact, rather than a preform. I thank Prof. Stanley Ambrose for this detailed information.

In Europe, as with modified ornaments, there is a high occurrence of manufactured beads in archaeological sites from the Aurignacian onwards. The most common raw material used in this region for making beads was mammoth ivory, but other materials like bone, antler, minerals, limestone, and amber were also habitual (Álvarez & Jöris 2011).

The fabrication process of ivory beads has been well-studied and reveals that these ornaments were semi-mass produced, creating standard shapes, some of which show regional patterning. For example, in France the most common form in the Aurignacian is the so-called basket-shaped bead (White 1989:223, 1993:280) (Fig. 6), whereas in German Swabia it is the tear-drop-shaped and the two-holed bead that are typical (Barth et al. 2009; Kölbl 2009; White 1993:283) (Fig. 7). Ivory pendants could be created individually by carving and scraping a piece of ivory into shape, but more commonly beads were produced in series. This process involved preparing an ivory rod, dividing it in segments by thinning to produce preforms or blanks, perforating each preform, and then smoothing and polishing each blank into the final form (Barth et al. 2009:16; White 1989:224) (Fig.3).

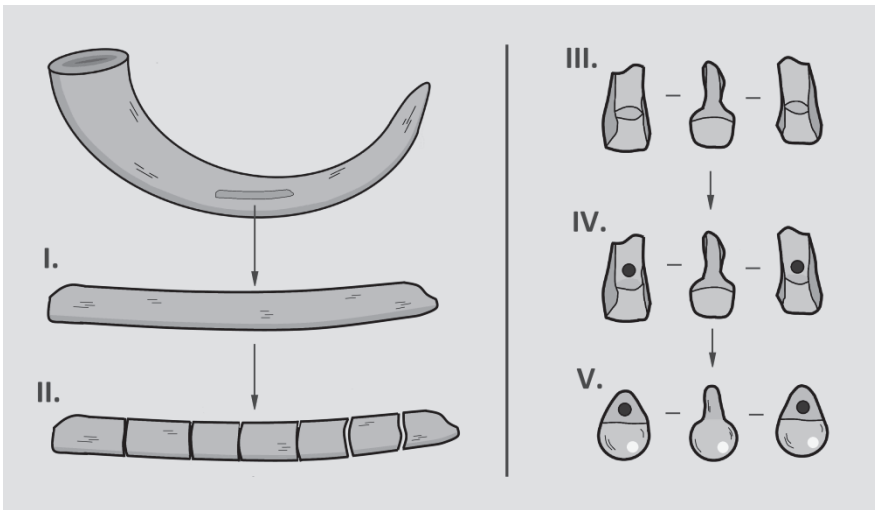

Figure 3. *Five discrete stages in the production process of Aurignacian ivory beads.*

Greater variation in form is to be expected in beads produced from scratch, as the makers are not as constrained by the original form of the raw material as in the case of modified natural objects like shells or animal teeth. The fact that some forms, materials and production techniques were localized even within regions (Kölbl 2009) indicates that the knowledge involved in bead-making was socially transmitted and, as reproduction experiments have revealed, it required considerable time and skill. Archaeologist Randall White, who has studied and reconstructed various techniques for fabricating ivory Palaeolithic beads, has estimated that “well over one hour of labor per bead is required by this process”

(1993:282). The reconstruction of beads reveals on the one hand a labour-intensive sequence, but on the other hand, it also shows that people were maximizing production by using techniques that allowed the creation of several beads from a single piece of raw material, reducing waste and time investment. This, along with the remarkable standardization of Aurignacian beads, hints "at incipient craft specialization" (White 1989:223).

The use of these artefacts as personal ornaments during the Early Upper Palaeolithic is supported by the fact that manufactured beads have often been found in burials. The most remarkable example is the multiple burial site of Sungir, in Russia. This grave, which dates back to the Gravettian (ca. 28,000 BP) or the Aurignacian (ca. 32,000 BP), contained the remains of five individuals, three of which were lavishly ornamented with thousands of beads that were originally sawn on their clothes and headgear, and also strung as jewellery. The bodies also bore modified ornaments (fox teeth and schist pendants), showing that these two kinds of decorations were used side-by-side (White 1993:287- 294). The Sungir burial is, of course, exceptional. However, a recent comparative analysis of Palaeolithic mortuary practices has shown that actually ornaments and ochre are "notably more frequent" in Early Upper Palaeolithic burials (namely from the Gravettian), than in graves from the later Palaeolithic (Riel-Salvatore & Gravel-Miguel 2013:330).

In the funerary sample from the EUP, manufactured beads are commonly found in the graves of adults and infants, usually in low quantities per individual, and often near the head, neck, torso, and arms, indicating that, as in Sungir, these were most probably attached to headgear and items of clothing worn in daily life (Riel-Salvatore & Gravel-Miguel 2013:330), that is, the ornaments probably were not grave goods created especially for the funeral occasion. The possibility that both adults and children were frequently buried with their everyday ornaments supports the idea that these items had strong personal connotations of individual identity.[48]

48 The close association with garments could also be an ancient one. As Ian Gilligan has suggested, it is possible that the emergence of personal ornaments correlates with the introduction of complex sawn clothing (2010). Blombos Cave has yielded bone awls that could have been used for garment production as early as 84,000 BP (Gilligan 2010:50), and studies on the divergence between head and clothing lice suggest that humans may have started wearing clothes systematically by 170,000 BP. (Toups et al. 2011). Garments certainly provide an excellent medium for displaying beads and charms.

Figure 4. *75,000-year-old shell beads from the site of Blombos Cave, South Africa.*

Figure 5. *Ostrich eggshell beads from the site of Enkapune Ya Muto, Kenya, dated to ca. 41,000 BP.*

Figure 6. *Aurignacian basket-shaped mammoth ivory beads from Abri Castanet, France*

Figure 7. *Aurignacian two-holed mammoth ivory beads from the site of Vogelherd, in Swabia, Germany.*

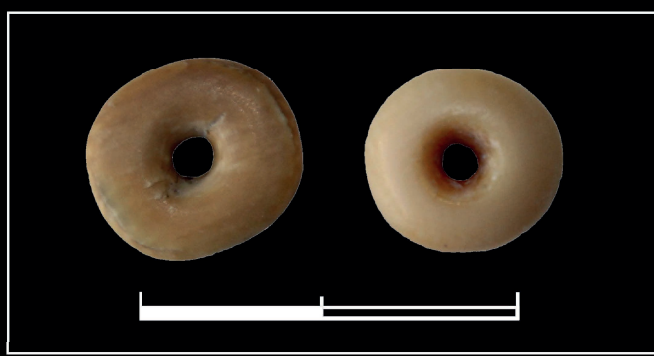

Figure 8. *Disk-shaped mammoth ivory beads (reproductions).*

Incised objects

This category includes all objects showing traces of intentionally made designs, generally by incision or engraving, on various materials.[49] In principle, the labour investment involved in making these patterns may be no greater than that required for modified ornaments. Although it might take more dexterity and precision to create a discernible design on a surface (Henshilwood & D'Errico 2011:77). Minimally, "an external understanding of conventional tools, techniques, and gestures, raw materials, tool breakage patterns, stability of working surfaces, and special strategies for engraving is required" in engraving or incising actions (White 1996:219).

The earliest reliable examples of this category come from various Middle Stone Age sites in Africa (Cain 2006; Henshilwood & D'Errico 2011). Most notably, in Blombos Cave a collection of over a dozen engraved pieces of ochre dated between 100 and 75,000 years ago has been recovered (Henshilwood et al. 2009; Henshilwood & D'Errico 2011:78). Several bone fragments incised with linear patterns have also been found at this site (Henshilwood et al. 2002). While some of the grooves on these objects may seem random scratches, many of the pieces in the collection clearly show deliberate, geometric, patterned marking. Furthermore, a few pieces portray clearly organised geometrical arrangements. The best known example is the rectangular piece of reddish-brown siltstone which bears a deliberate double chevron design, recovered from a layer dated between 78 and 74,000 BP (Fig. 9). Closer examination has shown that the piece was faceted and ground in preparation for the engraving (Henshilwood et al. 2009:33), indicating that the incising involved more than a spontaneous action.

Incised or notched fragments of ostrich eggshell have been recovered from the basal strata at Apollo 11, Namibia, dating back to at least 83,000 years ago (Wilkins 2010:110). Another remarkable collection of ostrich eggshell pieces, of no less than 270 fragments, comes from the rock shelter of Diepkloof in South Africa, and has been dated to around 60,000 years BP (Texier et al. 2010). The pieces on this collection show deeply engraved, well-arranged linear motifs. Close analysis has indicated that a standardised engraving technique was used for the markings, with the long parallel lines done first, and the shorter, crossing

49 There are a number of incised pieces of bone from Lower and Middle Palaeolithic sites which have been claimed to be intentional and of a symbolic nature. The most notorious of these is the bone from the German site of Bilzingsleben, which bears some parallel markings (Mania & Mania 1988). However, as with other cases of 'early symbolism' the origin of this piece remains debatable and ambiguous (Mithen 1996a:175). For example, it proves difficult to determine whether the incisions were made intentionally or were a by-product of other actions such as sharpening cutting tools or defleshing the bone (Davis 1993:344). As the reader will note, these kinds of markings are qualitatively different from those discussed in these section, which show clear design patterns and therefore allow to infer some intentionality and a display function, which are two of the inclusion criteria given at the beginning of this survey.

lines, second. The incised eggshell fragments have been interpreted as the probable remains of ostrich egg water containers, like the ones known from San ethnography. San hunter-gatherers traditionally use ostrich eggs to collect and store water in different locations throughout the landscape. Often, these containers are marked with geometric patterns, similar to the ones on the archaeological examples, to indicate ownership or content (Henshilwood & D'Errico 2011:80; Texier et al. 2010).

The early archaeological assemblages of the European Early Upper Palaeolithic typically include incised objects such as engraved pieces of bone, ivory and stone which have generally been classified as mobiliary or portable art (Bahn 1998:84). Some of the earliest examples from the Aurignacian show linear patterns, dot arrangements, crosses and some schematic motifs (Mellars 1996:398; Zilhão 2007:34). For instance, the bone and ivory shafts engraved with parallel and criss-crossed lines from Vogelherd, Germany and Mladeč, Czech Republic, and the bone fragments engraved with linear motifs from Arcy-sur-cure in France (Mellars 1996:395, 415). Later engraved pieces – from the Gravettian, Solutrean and Magdalenian periods – frequently feature figurative motifs as well, including human and animal figures. Engraved motifs are also a common component of European rock art. Cave and open-air rock art sites generally include numerous instances of linear, geometric, or representational patterns engraved on rock (Bahn & Vertut 1997:166).

Objects incised with linear or geometric patterns could be interpreted as strictly 'notational', for instance as mnemonic aids, records, tallies, or time-keeping purposes (D'Errico 1998; Marschack 1972), rather than as artworks. 'Notational' objects are well known from the ethnographic record, for instance the 'message sticks' among Australian hunter-gatherers (Howitt 1889) and the record-keeping notched sticks of the Irkut Buryat of Mongolia (Luria & Vygotsky 1992:77). For some authors, having a notational function would disqualify incised objects as visual art (Elkins 1996:200). However, we again cannot rule out artistry on account of functionality (White 1996). Moreover, according to the criteria used for this survey, the relevant aspect is not whether the incised objects are notational or decorative, but rather that they represent the human intention to mark particular objects in a precise way for display, and that these markings were part of a conventional communication system (cf. Henshilwood & D'Errico 2011:92).

Carved and sculpted objects

The production of carved or sculpted two- and three-dimensional objects frequently involves a much greater amount of work and expertise than the art forms that we have discussed so far. It requires a good knowledge of the base material, appropriate – perhaps specialized – tools, and, in the case of figurative motifs, artistic skill and understanding of conventions to properly depict the desired subject.

Carved figures are still absent from the archaeological record of Late Pleistocene Africa.[50] The Eurasian Upper Palaeolithic, in contrast, includes several impressive examples of such items. Recently, remains of what seems to be an ivory anthropomorphic figurine have been recovered at the Russian site of Kostenki. The possible human head has been dated to 42-45,000 BP (Anikovich et al. 2007; Cook 2013:56), which would make it the oldest example of figurative representation yet found. However, identification is uncertain due to the worn condition of the piece.

The German region of Swabia, has yielded what so far is the earliest tradition of figurative art, consisting of over 40 figurines carved in mammoth ivory, found in various Aurignacian contexts dated between 40 and 30,000 BP (Conard & Bolus 2003; Porr 2010:92). The cave sites of Hohle Fels, Geissenklösterle, Vogelherd, and Höhlenstein-Stadel, among others, have yielded the dozens of figures depicting Pleistocene fauna (mammoth, horse, bison, lion, bear, water fowl) and a few anthropomorphic and therianthropic (human-animal) representations (Cook 2013:48; Rau et al. 2009). The oldest of these so far is a female 'Venus' figurine from the basal Aurignacian layers at Hohle Fels, estimated to be some 40,000 years of age (Fig. 10). The small figure, carved in ivory, is just 6 cm by 3.5 cm, and shows a female body with exaggerated sexual features, it has a loop for a head which shows use wear, indicating that it was suspended and presumably carried or worn as an ornament or charm (Conard 2009). Its body is marked with grooves and the right arm has some linear marks that suggest a body art design — e.g. tattoo, scarification, or paint (Cook 2013:38).

One of the most notable of the Swabian carvings is constituted by the therianthropic figure of the *Löwenmensch*, or Lion Man, from the site of Höhlenstein-Stadel. This sculpture was originally excavated in 1939, and was first published thirty years later, instantly becoming an icon of Swabian prehistoric art. It depicts a standing character with human and feline features. The body is very anthropomorphic, but the head, hands and feet are clearly catlike. Like the Hohle Fels Venus, the Lion Man's upper left arm bears a linear design that could be depicting body art. Archaeologists recently explored the original excavation spot of the Lion Man and were able to find some missing pieces, such as fragments of its right arm, neck and back. The figure, now dated ca. 35,000 BP, has since then been carefully restored and is now nearly complete, measuring 31.1 cm in height (Ulmer Museum 2013) (Fig. 11). The figure was carved on a single mammoth tusk, and replication experiments have indicated that it would

50 In 2006, Sheila Coulson from the University of Oslo announced that Rhino Cave in the Tsodilo Hills of Botswana contained a large rock whose surface had been carved by humans to make it resemble a python, and purported a 70,000-year-old 'python cult' at the site. This would have made it the earliest instance of figurative carving world-wide. Although the cave does contain numerous rock engravings, and the natural rock formation resembles a serpent, archaeologists who have worked at this site for years have seriously challenged Coulson's claims as largely speculative (Robbins et al. 2007). Therefore, I have not included it in this survey.

have taken up to 400 hours of meticulous work to create it (Cook 2013:33). To some scholars, this therianthropic figurine denotes the emergence of truly modern abstract thought, where the fusion of unrelated concepts (animal-human) give way to a novel idea (Mithen 2007:22; Wynn et al. 2009). To others, the blending of animal and human properties supports interpretations of shamanic beliefs and practices among Pleistocene hunter-gatherers (Conard 2003:831; Dowson & Porr 2001; Lewis-Williams 2002:202). It is remarkable that at the nearby site of Hohle Fels a second much smaller Lion Man figurine, of just a couple of centimetres in size, has been found (Fig. 12). This exemplar, also in ivory and of an estimated similar age as its larger counterpart, strongly indicates that the Aurignacian population of Swabia can be understood as a cultural unity who shared a common system of artistic conventions, and most likely of customs and beliefs (Conard 2003; Conard & Bolus 2003; Porr 2010).

Other remarkable ivory figurines from the Swabian cave sites include the small but very detailed representations of mammoth and a horse from Vogelherd, with an estimated date of 35,000 BP (Cook 2013:52-4) (Fig. 13). The largest of the mammoth figurines, 5 cm in length, probably depicts a young animal with rounded back and no tusks (Fig. 13C). The polished body of the mammoth has deliberate geometric markings along the back and belly, and it has a small gap between the front and hind legs, through which it could have been strung or sawn to a garment. The second mammoth figure, of only 3.7 cm, shows an adult animal and is complete with tusks and tail, this one also bears some geometric pattern along the back (Fig. 13A). The highly polished horse figure is 4.8 cm long and shows an animal in profile with details of the face and mane, and also has markings on the body (Fig. 13B). Experimental replication suggests that it would have taken some 35 hours to make the horse figure (Cook 2013:54).

All of the carved figures from Swabia show tremendous craftsmanship and dedication, and although each is unique and seems to reflect individual choices and idiosyncrasies, as a whole, they constitute the earliest figurative art tradition in Europe (Porr 2010). The Aurignacian assemblages from Swabia are of further interest because there seems to have been a population 'vacuum' between the Middle and Upper Palaeolithic (Hahn 1987), meaning that Neanderthals had already abandoned the region before the start of the Aurignacian period (Conard 2004; Conard & Bolus 2003:361; Gamble 1999:377). In consequence, the makers of the figurines could only have been a population of modern humans.

After 30,000 BP, figurines and other carved objects become more common in the European Palaeolithic record. Generally grouped under the category of 'portable' art, examples include figurative sculptures and decorated tools (e.g. batons, awls, shafts, spear-throwers) carved on ivory, bone, antler, horn, stone, and various minerals (Cook 2013).

Figure 9. *Engraved ochre piece from Blombos Cave, South Africa, dated to ca. 75,000 BP.*

Figure 10. *40,000-year-old 'Venus' from the site of Hohle Fels, Germany, carved on mammoth ivory.*

Figure 11. *The Löwenmensch (Lion Man) from the site of Höhlenstein-Stadel, Germany. Sculpted from a single piece of mammoth tusk.*

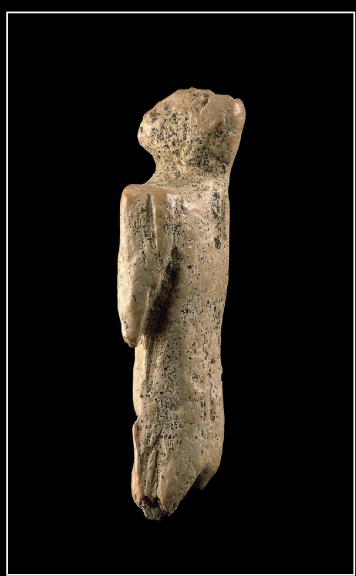

Figure 12. *The tiny Lion Man from the site of Hohle Fels, Germany.*

Perhaps the best-known group of Palaeolithic sculptures are the female statuettes commonly known as 'Venuses', which have been found throughout a vast extension of the Eurasian continent. In their majority, these female statuettes pertain to the archaeological period known as Gravettian (28-23,000 BP), although female figures continue to be found up until the end of the Pleistocene (Cook 2013:61-107). The stereotypical 'Venus' figurine (e.g. Willendorf) is a small female representation, naked or scarcely clothed, with accentuated breasts, hips, thighs and buttocks, and contrastingly minimized upper limbs and facial features (Fig. 14). In actuality the term is (mis)used to denote any female figurine from the European Palaeolithic, underestimating their variability and thus giving the wrong impression that they comprise a cohesive group of artefacts similar in appearance and function (White 2003). The 'Venuses' have been subject to a great variety of interpretations; among many: as fertility idols (Bégouen 1925), as sexually-arousing aids or 'palaeo-erotica' (Absolon 1949; Collins & Onians 1978:14; Guthrie 2005:325), as fertility imagery used in rituals (Guthrie 2005:337; Taylor 1996:123), female self-representation used as pregnancy charms (McDermott 1996), and as representations of a mother-goddess (Gimbutas 1981). These 'readings' are however highly dubious since, as mentioned before, the 'Venuses' are not a cohesive category but include figures and fragments of different sizes, forms, materials, styles, geographies, and ages (White 2003). Some of them, however, show clear regional and temporal variations, which perhaps would allow for more specific interpretations (Gamble 1982).[51]

Because of their often figurative nature, carved and sculpted objects lend themselves more easily to any number of interpretations, as in the case of the 'Venus' figurines. But interpretations aside, these artefacts represent a new category in terms of labour investment, requiring for their production more time, effort, knowledge and skill than the forms of personal adornment discussed before (Porr 2010:96). The particular case of the Aurignacian figurines from Swabia also allows us to recognize clear sets of cultural conventions identifiable by the recurrent use of materials, themes and forms in a restricted time-space. These may therefore be considered as a veritable Pleistocene visual art tradition.[52]

51 Although most archaeologists are now critical of the term 'Venus', it is hard to avoid. After more than a century of having been in use, it is so strongly associated to Palaeolithic female figurines that any new find of this sort is immediately and inevitably so named, and interpretations of ritual and sexuality are unnecessarily but invariably called forth. Such was the case with the Hohle Fels 'Venus', said to reinforce the "sexual-symbolism aspect of the art" in the Palaeolithic (Conard 2009).
52 Another interesting group are the 26,000-year-old clay-modelled figurines found at the Czech sites of Dolní Věstonice, Pavlov and Predmostí, and the Austrian site of Krems-Wachtberg. These animal and anthropomorphic figures may comprise a second example of an early Palaeolithic cohesive artistic tradition (Bahn 1998:90).

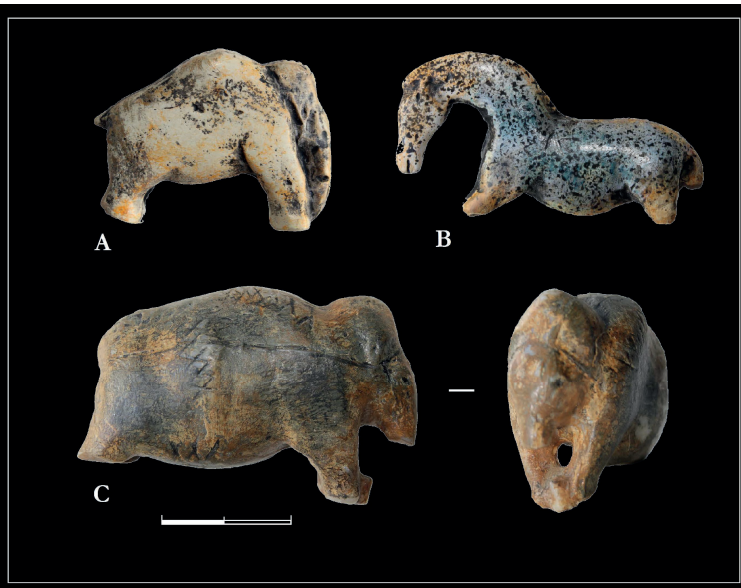

Figure 13. *Mammoth ivory figurines from the site of Vogelherd, Germany (reproductions). A) Adult mammoth. B) Horse. C) Young mammoth.*

Figure 14. *The 'Venus' of Willendorf, Austria. Carved from limestone, it shows traces of red ochre coloration. Dated to the Gravettian, ca. 25,000 BP. (Reproduction).*

Painting

Here I refer specifically to the practice of painting on large surfaces, such as rocks and walls, otherwise known as rock painting. This art form, like the rock art traditions of Palaeolithic Europe and Australia, is probably the most complex and labour-intensive of all Pleistocene visual art. Wall painting requires not only skill, but also a large amount of social and natural knowledge. Palaeolithic painters minimally needed to know the landscape well in order to choose the sites where they would work, they needed to know where to obtain the pigments and other raw materials required, and know how to mix and apply them. Not to mention, the amount of time and effort invested in the execution of the paintings themselves (Conkey 1993). The span of some styles of Palaeolithic painting also indicates that the makers had to be well-versed in social and artistic conventions to reproduce particular themes and motifs repeatedly.

As with the previous category, early Pleistocene examples of wall painting are lacking from the African continent. The earliest known example of painted art in Africa is the figurative image of an animal (eland?) on a rock slab found in the Apollo 11 Cave in Namibia, dated to 27-25,000 years BP (Wendt 1976), although some authors speculate it might be as old as 40,000 years (Masson 2006:61). It has been suggested that some rock art traditions from Australia (e.g. the Bradshaw paintings at Ubirr and the petroglyphs at Dampier), might also extend as far back as 40,000 years or more, making it potentially older than Palaeolithic cave art (Morell 1995:1908; White 2003:183), but this chronology remains inconclusive. Currently, the earliest accepted dates for the so-called Bradshaw style at Ubirr lie between 25-17,000 BP (Brumm & Moore 2005:160). For now, the earliest instances of systematic rock painting come from the European Palaeolithic.

In 1994 the announcement of the discovery of Chauvet Cave, in Vallon Pont d'Arc, Ardèche, France, made world news. This site has become renowned not only for its impressively realistic painted panels depicting numerous animals (cave lion, bear, horse, woolly rhino, bison, and mammoth, among others), but also because it has changed the standard view of the development of figurative art in the Palaeolithic (Fig. 15). Some of the most spectacular painted caves from France (e.g. Lascaux) and Spain (e.g. Altamira) have been attributed to the Solutrean and Magdalenian periods, which had always been considered the 'heyday' of Palaeolithic painting. However, Chauvet yielded Aurignacian dates, going as far back as 32,000 BP, indicating that figurative cave art was not only older than expected, but also quite magnificent from very early on (Clottes 2003). However, the accuracy of the dating of Chauvet has been questioned on various grounds (Pettitt 2008; Pettitt & Bahn 2003). Firstly, most of the samples for the radiocarbon dates were taken from the cave floor, therefore they may be representative of human activity in the cave, but not necessarily of the paintings (Pettitt 2008). Second, the styles, themes, and techniques used in the painted panels are typical of later periods (Gravettian and Solutrean), but absent in other

Aurignacian-age sites (Combier & Jouve 2014). Finally, Aurignacian occupations are in general scarce in the area around the cave, making Chauvet an unlikely isolated site (Combier & Jouve 2014; Pettitt 2008). Nevertheless, other scenarios must be considered, apart from the possibility that the dates may indeed correspond to the actual age of the panels. For example, that the paintings were created in various moments, with some images pertaining to the Aurignacian and some to later periods or, that other Aurignacian caves of similar quality and age have yet to be discovered. Some scholars have suggested that the overlap of themes between the Swabian figurines and the Chauvet panels (both depicting Pleistocene fauna like cave lion and bear) may support the Aurignacian age of the latter (Conard 2003, 2009; Zilhão 2007:34). But beside the faunal content, these two art traditions are very dissimilar, not only do they involve different forms and techniques (carving vs. painting) but also the context in which they were used and produced is divergent (Pettitt 2008:911). The ivory sculptures were all made, used and discarded in domestic spaces, and were found among occupation debris alongside personal ornaments, suggesting that their production and use was embedded within everyday activities and were probably connected to individual persons (Porr 2010). Whereas, Chauvet Cave has the characteristics of a non-residential ceremonial site, more likely associated to the organized collective activity of a group (Broglio et al. 2006:7).

Despite the caveats, the Aurignacian origin of the Chauvet paintings has been generally accepted (Pettitt 2008), and in any case the paintings must be at least of Gravettian age, since the entrance to the cave seems to have become blocked by 21,000 BP (Sadier et al. 2012). Furthermore, there are now indications that figurative painting may have been a usual practice during the Aurignacian. The site of Fumane Cave in Italy has yielded rock fragments that seem to have detached from the cave ceiling which bear ochre and some simple schematic paintings going back to 35-32,000 BP (Broglio et al. 2006). Another roof-collapse with traces of paint depicting a zoomorphic figure and an engraving of a vulva at the site of Abri Castanet, in France, has given a date of ca. 36,000 BP (White et al. 2012). Also, a recent dating project covering several well-known painted caves in Spain, including Altamira, El Castillo, and Tito Bustillo has yielded dates going back to the Aurignacian in all of the sites (40-34,000 BP), suggesting that the caves were visited throughout the Upper Palaeolithic for artistic motives (Pike et al. 2012). Similarly, the Spanish site of Altxerri B, in the Basque country, includes painted motifs of various animals (feline, bear, horse) and has been dated to 34-30,000 BP (González-Sainz et al. 2013). These results support the suggestion that painting practices have a deep temporality in Europe, where they seem to have developed locally among modern human populations (Jöris & Street 2008:797).

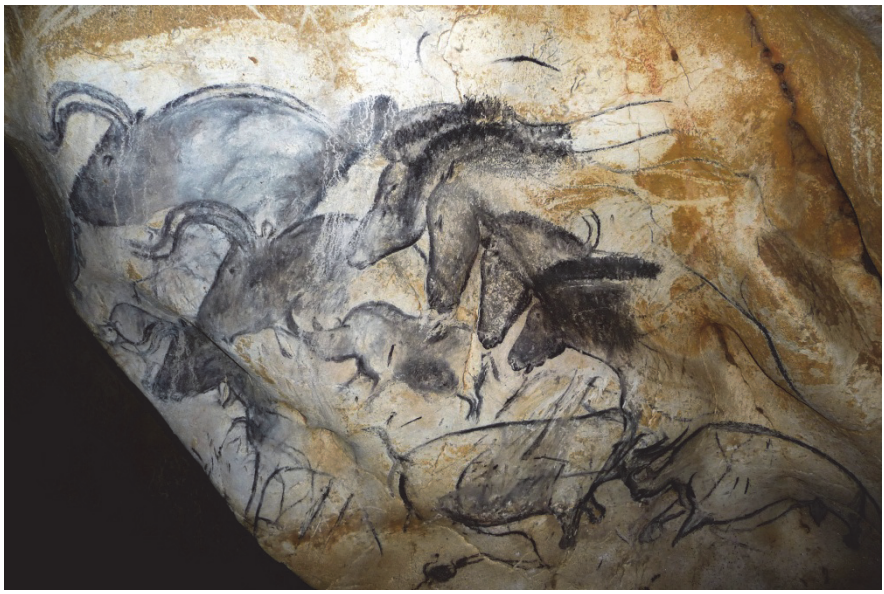

Figure 15. *The horse panel at Chauvet Cave, France. An early example of a complex figurative rock art tradition from the Early Upper Palaeolithic.*

As in the case of carved and sculpted objects, instances of rock painting become more common in Europe after 30,000 years. Wall painting practices seem to have peaked towards the Magdalenian period (18,000-10,000 BP), in the coldest phases of the last Glacial era with most painted caves clustered around the Périgord region in France and the Spanish area of Cantabria suggesting that cave-painting might have been a localized artistic tradition. Although at the moment few examples from other regions are known (e.g. Kapova Cave in Russia, and Coliboaia Cave in Romania), it is probable that other Palaeolithic painted sites are still to be discovered.[53] The improvement of dating methods and the increasing sample of dated caves also may start clarifying the development of rock painting traditions in the European Pleistocene. At the moment, it seems that Palaeolithic painting increased in complexity over time, from the early Aurignacian to the developed Aurignacian and Gravettian, and later. Alistair Pike and colleagues, for instance, noted that the motifs which yielded the earliest dates at the Spanish sites of Altamira, El Castillo and Tito Bustillo were simple, abstract, non-figurative and monochrome designs, for instance geometrics and hand stencils. Whereas, the later panels become more concerned with figurative art, particularly animal depictions (Pike et al. 2001:1412). This pattern of increasing sophistication towards figurative art in Palaeolithic painting, however, need not be correlated with increased human

53 Coliboaia Cave in Romania, whose date is currently estimated at 35-23,000 BP, is stylistically and thematically, highly reminiscent of Chauvet Cave (Ghemis et al. 2011).

cognitive abilities, creativity or imagination (e.g. Mithen 2001). Rather, it can be explained more parsimoniously by an increasing specialization of visual art practices. This is supported by the highly conventional regional and chronological styles of figurative painting, and the use of distinct locally distributed techniques and 'paint recipes' (Clottes 1993; Conkey 1993:109). As I discuss below and further in chapter 6, specialization of artistic practices likely correlates with larger mean population sizes and more intensive inter-group interactions as the Palaeolithic progresses.

2.4 Trends in the development of Pleistocene visual art

At a first glance, it would seem that the archaeological record of Pleistocene visual art evolved in a linear fashion, making it easy to assume that the development of visual art occurred in an uninterrupted progression from simple (pigment use) to complex (figurative painting). But in reality, the development of Pleistocene art is more intricate than that. As we have seen, visual art has been recurrently present as a human behaviour for at least the last 100,000 years of our history. However, there are periods where it is almost invisible in the archaeological record, and others where it is abundantly present and varied (McBrearty & Brooks 2000:529). Furthermore, not all forms are found in all regions during the same time periods, and the presence of one form does not compel nor preclude its co-existence with another.

The emergence of visual art hinges on some basic abilities (dexterity, knowledge of raw materials, labour investment in material culture, and the social use of artificial signs – i.e. symbolism) that to some extent were already in place early in hominin evolution (McBrearty & Brooks 2000:486). But the convergence of such traits in the systematic practices that we now recognize as visual art only started to leave clear traces by 120,000 years ago, if we consider the estimated date for the Skhul beads – or even earlier if we consider the evidence of ochre pigment production – and was certainly in place by 100-75,000 BP (Barham & Mitchell 2008:256).

The pattern of episodic bursts and gaps in the early record of visual art may be in part attributed to a 'taphonomic bias', that is "the tendency for younger things to be over-represented relative to older things in the archaeological record due to the operation of destructive processes like erosion and weathering" (Surovell et al. 2009:1715). Differential processes and conditions of deposition and preservation play an important role. For instance, certain types of sites (e.g. open air, coastal, reoccupied, urbanized, etc.) and certain soils (e.g. acidic, moist) do not favour the survival of archaeological materials. In Pleistocene coastal sites, visibility in the record is largely affected by the changes in sea level over the past glacial and interglacial events (Blome et al. 2012:584). Also intrusive elements like fauna and roots can disturb the sites over time and produce the mixture of archaeological material from different

moments. Evidently, the older the site the greater these issues become. Other factor affecting the shape of the archaeological record of Pleistocene visual art is constituted by the researchers' biases. For example, at sites where archaeologists are not expecting to find certain materials (e.g. personal ornaments), evidence may be overlooked or misclassified. Also, some regions have been historically more accessible for study than other potentially rich areas that remain underexplored. Furthermore, dating techniques are continuously improving but are not infallible, particularly when dealing with materials of great age, as exemplified by the 'Middle Palaeolithic dating anomaly', and the difficulties of dating rock art, discussed above. It is important to note that all of these factors intervene in archaeological interpretation, as philosopher of archaeology Raymond Corbey explains (2005:114-5):

> Take five meters of sediment in an *abri*, a shallow cave in Southern France, consisting of a few score of perturbated layers, some of which contain knapped flint, fragments of animal bones, and traces of fire. The layers may represent some two hundred thousand years of hominid activities. Now take one of those layers with archaeological material, approximately five centimeters thick. It may not be clear whether this is the sedimentation of weeks, months, or centuries of occupation; of one continuous period of use of the cave or of a number of visits to the spot. Nor may it be clear whether that layer is 80,000 years old, 120,000 years, or a mixture of remains from several periods. Such date provide rich playing fields for archaeological interpretation, not unlike the inkblots in the Rohrschach projection test used by psychologists. There are various preconceptions with respect to what a 'camp site', 'language', a 'ritual deposition', or a sequence of technological acts are and how these phenomena should be conceptualized. Such preconceptions, together with the ambiguous data, make up our reconstructions of the past.

But in spite of these 'epistemic disadvantages' (Turner 2007:7), archaeologists, and historical scientists in general, can and do build (partial) explanatory models of past events, based not only on inferences and deductions made by examining the traces of past activity, but also on observations of current patterns of activity, techniques for simulating, modelling, and comparing data, and the general existing corpus of scientific knowledge. These models, evidently, are themselves also biased and influenced by personal and academic preferences and backgrounds, that is why continuous reassessment in light of new data and theories is advised.

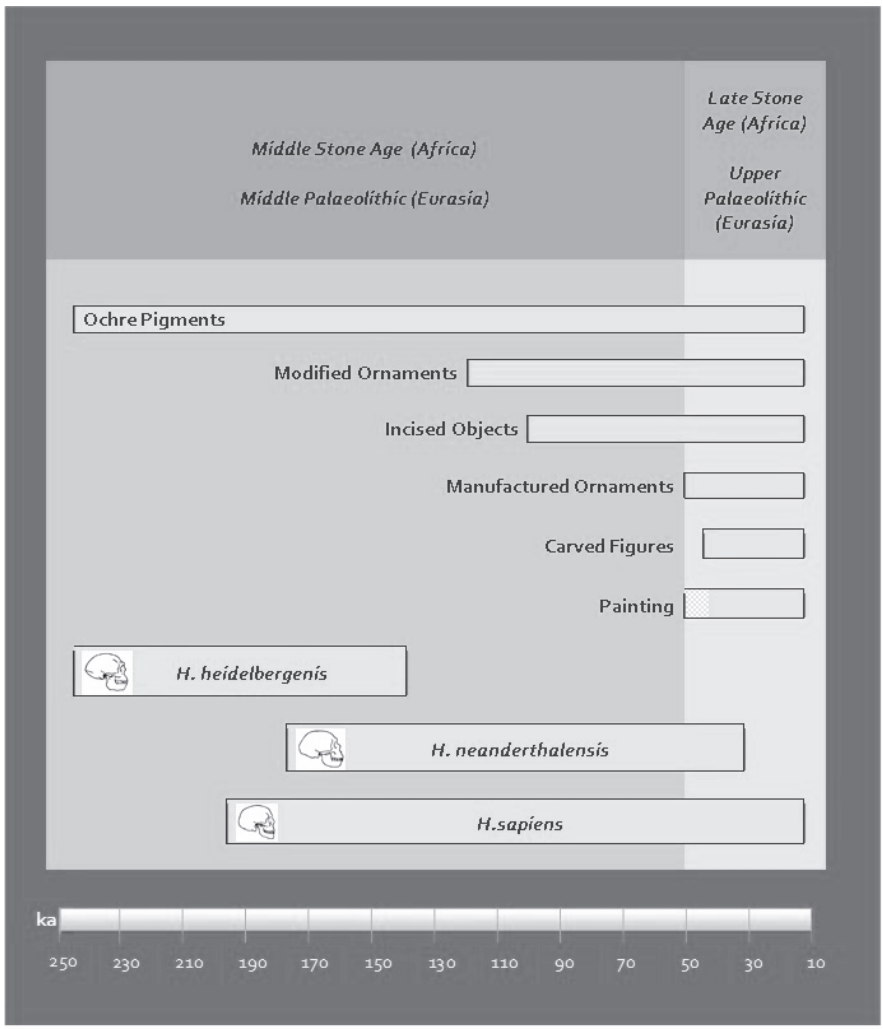

Figure 16. *Chronological relation of archaeological periods, hominin species, and visual art forms from the Late Pleistocene.*

Going back to our subject, the current state of the record, despite the problems mentioned, still allows us to make some general inferences about the development of visual art forms in the Pleistocene. The first is that personal ornaments are the earliest (preserved) form of visual art and, probably the most widespread as well. All historically recorded human groups, even those with the 'simplest' technologies and smallest population sizes, have engaged in bodily decoration, as noted by evolutionary scholars, from Charles Darwin

([1879]2004:640) to Merlin Donald (1991:277).[54] This suggests that personal ornamentation may be considered a veritable universal human behaviour, deeply rooted in our species. Other forms of visual art are, in contrast, not that common. For example, art forms such as figurative carving and painting, have not always been recorded either archaeologically (e.g. in the mid MSA) or ethnographically (e.g. among the contemporary Amazonian Pirahã and Huaorani). These differences should also be accounted for by origins-of-art models. As I mentioned before, some models have explained the absence of these forms in the archaeological record prior to 45,000 BP in terms of cognitive ability, that is, they suggest that before that time humans simply did not have the mental capacity to produce figurative sculpture or painting (e.g. Coolidge & Wynn 2005; Klein & Edgar 2002; Mithen 1996a; Morris-Kay 2010). However, such discrepancy can also be explained in terms of technological involvement, that is the purposeful manipulation of raw materials and the application of (previously acquired) knowledge, skill, and technique (Gibson 2012; Ingold 2000:299). In this manner, I have suggested that what the development of visual art may reflect is increasing labour investment and specialization in art-making activities, that likely correlate with changing modes in social organization (as I further discuss in chapter 6).

In a broad manner, labour investment in visual art may be understood as the number of actions or 'steps' minimally required to produce a finished artwork or design. For example, ochre use may require 2 to 4 steps, depending on the application. If applied directly to a surface, we may talk minimally of two steps: finding and extracting the raw material and applying it. If the surface requires modification before ochre may be applied to it, or the ochre piece is itself modified (e.g. shaped into a 'crayon'), it would entail a third step. In the case of pigment production, an extra step would involve grinding or crushing (Henshilwood et al. 2011:222). Similarly, the production of modified personal ornaments like the shell beads discussed above would require at the least 3 steps: finding/selecting the raw material, modifying it (e.g. through piercing or drilling with an awl or burin), and finally stringing or hanging (Tátá et al. 2014), but occasionally it also involved rubbing, polishing, or colouring (with ochre). Making beads 'from scratch', incising objects, and carving require even a larger chain of operations that includes selecting the raw material, preparing the surface, making or selecting adequate tools for modification, and engraving,

54 For example, the extinct foragers from Tierra del Fuego (Argentina), Baja California (Mexico), and Tasmania, who depended on a very simple tool-kit, all had rich traditions of bodily decoration. The Fuegians are said to have been fond of wearing necklaces, pendants, bracelets and other jewellery made of shell and bone, and were known for their intricate tradition of body painting (Fiore 2008; Garson 1886). The Californians wore complex headdresses, hair and body decorations made of pearls and feathers hung from fibre strings, and only occasionally may have practiced rock painting (Aschmann 1959). The Tasmanians, for their part, had a complex system of bodily decoration through scarification and wore a variety of body and hair ornaments, while lacking the rock painting traditions of the mainland groups (Ryan [1943]1996:11-2).

carving or reducing the material until the final product is obtained, not to mention the processes of learning and practicing of skills implied beforehand. For example, the production of ivory beads minimally requires five discrete stages (Barth et al. 2009:16; White 1989:223). Incising objects involves material selection, preparation of the surface, and the elaboration of a design with a tool (e.g. a burin), either of a simple abstract or geometric pattern, as in the Blombos ochre (Henshilwood et al. 2009), or a complex figurative representation, as in the engraved portable art pieces of Palaeolithic Europe (Cook 2013:186). Carving figurines, for instance on ivory or wood, would entail a more laborious process, as would modelling in clay or stone (Cook 2013:148). As discussed before, even the small ivory figurines from Swabia would have taken up to 35 person-hours to make (Cook 2013:54). Finally, figurative rock painting seems to have been the most labour-intensive of all Pleistocene art forms. First, the maker would have needed to obtain and prepare the pigments for the paint, for instance through grinding and mixing with some binder to create a coloured liquid or paste, or shaping coloured minerals into 'pencils' or 'crayons'. Then, the maker would have required to know or find an adequate spot in the landscape and in the target surface itself. The latter also would have required preparation such as lighting aids — for example, in Lascaux several oil lamps have been found (Ruspoli 1987:28). Often the wall surface or background was primed through rubbing or scrapping, as in Chauvet Cave (Clottes 2003). Finally, creating the paintings themselves also required various steps, according to the motif. Faunal images were frequently outlined first by engraving, tracing or drawing (Cook 2013:180). Then, the figures could be filled in, sometimes with aid of brushes or pads of fibres or hair (Clottes et al. 2003:157). Overall, the amount of effort and time involved make it highly probable that the production of figurative cave paintings, from beginning to end, involved the joint endeavour of more than one individual, perhaps over a long period of time (Conkey 1993; Cook 2013:182; Lewis-Williams 1995). It is also relevant to point out that Palaeolithic cave painting seems to have taken place mostly in formal spaces reserved for such activity (ritual spaces), whereas all the other art forms appear to have taken place in domestic environments.

In addition, many of the art practices I have described overlapped. Blombos Cave, for instance, offers an extraordinary record showing that some MSA populations were simultaneously making use of ochre pigments, modifying shells for ornamentation, and creating engraved designs by 80,000 BP. In the European Upper Palaeolithic, too, people who were making wall paintings were also producing carvings and personal ornaments. This invites the questions of how people could afford the time and effort to invest increasingly in visual art practices, why these diversified into the media left in the record, and how come that certain forms (e.g. painting) moved from the domestic to the formal. In my opinion, the growing degree of investment in visual art is likely correlated to specialization in the division of labour in larger groups. Division of labour refers to "the degree to which different individuals within a social group specialize on

different tasks" (Fewell et al. 2009:484). The division of labour by sex and age is the basis of the hunter-gatherer economy, where men, women, children, teenagers, and elders typically perform socially assigned activities related to resource acquisition and processing, artefact production, domestic activities, social engagements, etc. (Kaplan et al. 2000). There are, however, a small number of specialized tasks – that is, tasks that are done "by a single or a few individuals" (Ehn 2009:13). Ethnographic data from small-scale hunter-gatherer groups (e.g. the San) suggest that ritual performance (e.g. healing), instrumental music-making, and visual art practices such as rock painting are specialized activities, whereas the production of tools and personal ornaments (e.g. beadwork) are not — although they can be gender-related (Lewis-Williams 1995; Wiessner 1983, 1984).

For their part, labour studies indicate that there is a positive relationship in human societies between the number of specialized traits and group size (Ehn 2009:17; Jeanson et al. 2007:290). Therefore, if we assume that the patterns of organised labour that we see among contemporary hunter-gatherers might have been somewhat similar in the Pleistocene, we may (albeit sketchily) explain some of the patterns in the record of visual art. The earliest art forms (modified objects such as shell beads and engraved objects) did not involve much work. In the case of the shells, for example, perhaps the most laborious task involved their acquisition. Manufactured ornaments, in contrast, entail more effort, skill and time and, in some cases (Aurignacian beads), formalized manufacturing processes that already hint at insipient technical specialization, i.e. a single or few ways of producing an artefact. The time-consuming practice of ivory carving in Swabia, with its conventional themes and forms, might also indicate technical specialization. However, all of these visual artworks seem to have been produced, used, and discarded in domestic environment by various sorts of individuals. In contrast, figurative cave painting is not only formalized and labour-intensive, but also probably involved the joint work of several individuals, and took place in non-habitational spaces. This activity only comes into view in the developed Aurignacian and the Gravettian, coinciding with a higher incidence of sites and artefacts that suggest larger human populations (Davies 2001).[55] So, the appearance of figurative painting in the European Upper Palaeolithic may reflect the emergence of visual art as a specialized activity (done by a few individuals). The specialization of non-subsistence practices, in turn, may imply the specialization or reorganisation of resource acquisition and other tasks that allowed to free time and effort to invest in visual art practices. These issues will be revisited in chapter 6.

55 This does not mean that whenever group sizes increase, complex artistic traditions will arise. Specialization depends not so much on group size as on social organisation (i.e. institutions). Even when population numbers fall, if the institutions remain, specialized work and knowledge can survive. Conversely, if the social institutions collapse, despite stable population numbers, specialization will likely be lost to a great extent (Stymne 2009).

This admittedly prosaic labour-based model can explain, for example, why figurative painting did not appear earlier, without having to invoke any changes in cognitive ability (e.g. Mithen 1996a), memory (Coolidge & Wynn 2005), or consciousness (Lewis-Williams 2002).

2.5 Conclusion

The archaeological record, despite its incompleteness, biases, preservation issues, and other flaws, remains our best source of information for tracing back the early history of human artistic practices. As I reviewed in this chapter, so far this record indicates that by 100,000 years ago, at the latest, humans were consistently engaging in some forms of visual art.

Four main conclusions may be drawn from the record review carried out above:

1) Visual art is a reliable archaeological marker of *H. sapiens*, since it is "the only noteworthy difference" between the record of modern humans and other hominins, particularly Neanderthals (D'Errico 2007:130).
2) The practice of ornamenting the body truly is a universal human behaviour, and as far as we can tell, it constitutes the earliest form of visual art.
3) Visual art did not come "with a bang" (Pfeiffer 1982:11), nor did it evolve sequentially from simple to complex forms, as Leroi-Gourhan foresaw it ([1964]1993:372). Rather, like any other human technology, visual art co-evolved with social organization which in the Pleistocene, as today, varied across geography and time.
4) The intensification of visual art production and the emergence of novel forms of visual art (e.g. figurative painting) in the European Early Upper Palaeolithic record may be explained by a model of growing labour specialization.