

# THE ORIGINS OF 'MODERN HUMANS' AND PALAEOART RECONSIDERED

Robert G. BEDNARIK

Convener, IFRAO, P.O. Box 216, Caulfield South, VIC 3162, Australia. auraweb@hotmail.com

**Abstract:** *There is a widespread belief in archaeology that what are defined as modern humans and the cognition that led to palaeoart arose together about 35,000 years BP. This paper reviews the basis of this belief and examines both gracile human origins and the early evidence for symboling. It is shown that the favoured explanation of the rise of 'modern humans' is without adequate basis, that there is no evidence for a intrusive replacement of robust *Homo sapiens* in Europe or anywhere else, and that the development of human cognition is essentially not connected to skeletal evolution. Palaeoart was in widespread use by traditions of Middle and even Lower Palaeolithic technologies, in Australia, Asia, Africa and even in Europe.*

**Keywords:** *Palaeoanthropology, Robusticity, Modernity, Graffiti, Palaeoart, Europe*

**Résumé:** *Il y a une opinion très répandue dans les milieux archéologiques qui définit l'émergence de l'homme anatomiquement moderne et de l'art paléolithique il y a approximativement 35,000 ans. Dans cet article, l'auteur interroge les bases de cette conviction et examine l'origine des humains de type gracile ainsi que les premiers témoignages de comportements symbolique. L'auteur établit le fait que les explications en cours sur l'émergence de l'homme anatomiquement moderne sont basées sur des convictions inadéquates et qu'il n'y a pas d'évidences qui soutiennent le remplacement importun de l'*Homo sapiens* de type robuste en Europe ou ailleurs. Il est démontré que le développement du système cognitif humain ne va pas forcément de pair avec l'évolution ostéologique du squelette humain. L'art paléolithique était déjà très répandu dans les cultures du Paléolithique moyen et inférieur en Australie, en Asie, en Afrique et même en Europe.*

**Mots clés:** *Paléoanthropologie, robuste, gracile, modernité, Europe*

The conceptually most complex portable and parietal art of the Upper Palaeolithic is not of the late phase of that period, but of the Aurignacian, at its beginning (Bednarik 1995a). It includes the two therianthropes from Swabia (Hohlenstein-Stadel, Schmid 1989; and Hohle Fels, Conard *et al.* 2003), numerous further portable items from other caves in the Swabian Alb, the anthropomorph from Galgenberg (Bednarik 1989), the small corpus of rock art of l'Akène (excavated before the decorated passage became closed 30,260 ± 220 BP; Ambert *et al.* 2005: 276–7; Ambert and Guendon 2005); the early phase of the rock art in Baume Latrone (Bégouën 1941; Drouot 1953; Bednarik 1986); and most particularly the early phase in Chauvet Cave (Chauvet *et al.* 1995; Clottes 2001; Clottes *et al.* 1995; Valladas *et al.* 2004), a site that probably became sealed about 24 ka (thousand years) ago (Bednarik 2004). 'Aurignacians' seem to have been especially interested in 'dangerous animals', and one of the most interesting cultural markers of 'Aurignacoid' traditions is the evidence of intentionally deposited remains of cave bears, notably their skulls and long-bones (Fig. 4.1). Such deposition evidence occurs in Chauvet. Yet the dating endeavours by Clottes and colleagues at that site have attracted more sustained criticism than any of the other attempts to date European Pleistocene cave art (Zuechner 1996; Pettitt and Bahn 2003). Nevertheless, the site's rock art is the best-dated of the Palaeolithic sites so far subjected to any form of scientific dating. The reason for this disagreement is that the Chauvet results were the first to severely challenge the traditional stylistic chronology of Upper Palaeolithic rock art (Bednarik 1995a). Some authors define Chauvet as blending in well with aspects of style and content of secure Aurignacian art, such as the series of portable objects from south-western Germany, while others reject the Aurignacian antiquity of Chauvet

on the basis of their individual stylistic constructs, and favour its placement in the Magdalenian.

The real problems with Chauvet are not even considered by the critics of the dating attempt, who seem only concerned with salvaging a stylistic chronology. Two issues are of paramount importance: all carbon isotope determinations of the *European Late Pleistocene Shift* in southern Europe need to be considered sceptically, because of the effects of the Campanian Ignimbrite event and the cosmogenic radionuclide peak about a millennium earlier (Fedele *et al.* 2002). The best available <sup>14</sup>C determinations for the CI eruption place it between 35,600 ± 150 and 33,200 ± 600 carbon-years BP (Deino *et al.* 1994), but the age of the event derived from a large series (36 determinations from 18 samples) of high-precision single-crystal <sup>40</sup>Ar/<sup>39</sup>Ar measurements is 39,280 ± 110 BP (De Vivo *et al.* 2001). Fedele and Giaccio (2007) have proposed that a significant volcanogenic sulfate signal in the GISP2 ice core, occurring precisely 40,012 BP, represents the Campanian eruption. Therefore, in southern France, carbon isotope dates only marginally lower than the carbon age of the CI event may well be several millennia too low, and the true age of the early Chauvet phase could easily be as high as 36 to 38 ka.

More than ten years ago I pointed out that we have no evidence whatsoever that the Early Aurignacian is the work of 'moderns' (Bednarik 1995a), to which I can now add that we have no proof of an 'anatomically modern' ethnicity of the makers of *any* *tool tradition of the entire first half of the so-called Upper Palaeolithic* – including the entire Aurignacian. The search for physical modernity is itself misguided (Tobias 1995); modernity is indicated by cognition and culture, and more specifically by the

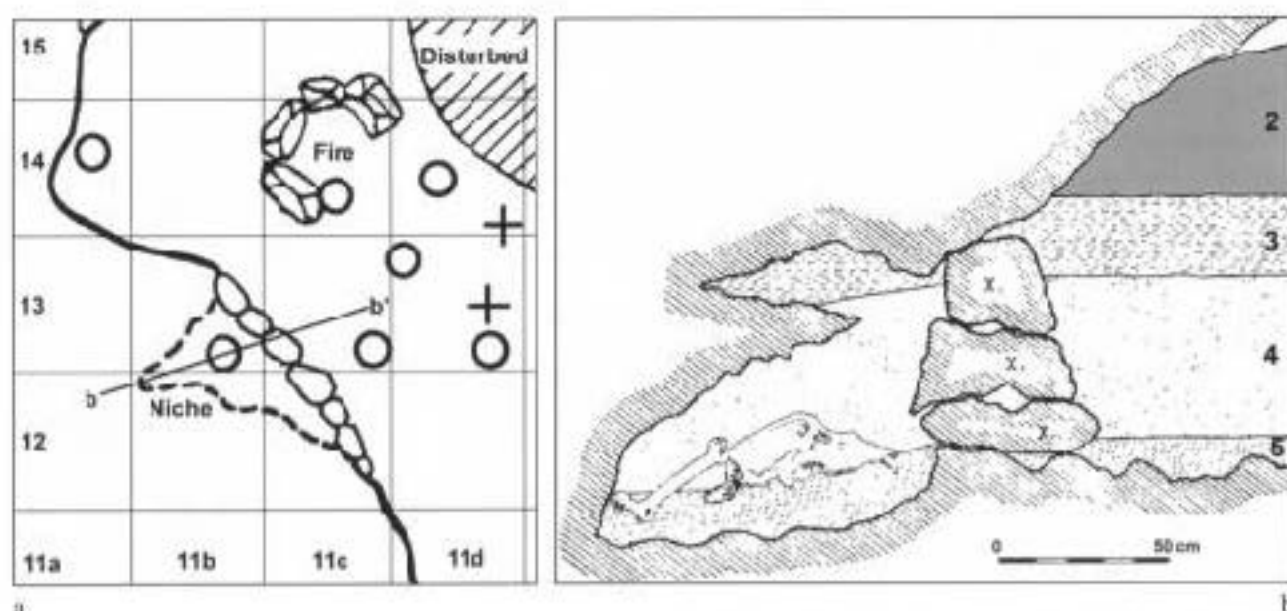


Figure 4.1. Plan view (a) and section (b) of the western niche in Veternia Cave, Croatia, indicating the artificial masonry wall and other elements of the Final Mousterian. The circles indicate cave bear skulls, the crosses represent human skulls (after Malez 1959).

external storage of cultural information (Donald 1993). The present archaeological and palaeoanthropological evidence suggests that we have Neanderthaloid remains from the time interval in question, and we have no securely provenanced 'moderns'. European Pleistocene archaeologists are obliged to consider the possibility that the Aurignacian is the work either of 'Neanderthals' or of their descendants who experienced genetic drift rather than 'replacement'. Science works by falsification, and the proposition to be tested now is that Aurignacian 'art', like Châtelperronian 'art', was created not by 'moderns'.

Contrary to Chusich and Smith (2000), the Stetten specimens tell us nothing about the skeletal anatomy of the 'Aurignacians' (Czarnetzki 1983: 231; Giese 1974). The putative age of the Stetten specimens, 32 ka, now stands refuted by their direct dating to the late Neolithic period (Conard *et al.* 2004), confirming the obvious: that they are intrusive burials. Direct carbon isotope determinations, of samples taken from the mandible of Stetten 1 (Fig. 4.2), the cranium of Stetten 2, a humerus of Stetten 3 and a vertebra of Stetten 4 all agree, falling between  $3983 \pm 35$  BP and  $4995 \pm 35$  BP.

The Hahnöfersand calvarium, described as so robust that it was judged to show typical Neanderthal features (Bräuer 1980), was initially dated to the earliest 'Upper Palaeolithic' (Fra 24:  $26,300 \pm 600$  BP; UCLA-2363:  $25,000 \pm 2000$  BP, or  $33,200 \pm 2990$  BP; Bräuer 1980). These results conflict sharply with those secured by Terberger and Street (2003): P-11493:  $7470 \pm 100$  BP; OxA-10306:  $7500 \pm 55$  BP. The re-dating of the skull fragment from Paderborn-Sande yielded even more dramatic differences. Originally dated at  $27,400 \pm 600$  BP (Fra-15; Henke and Protsch 1978), Terberger and Street

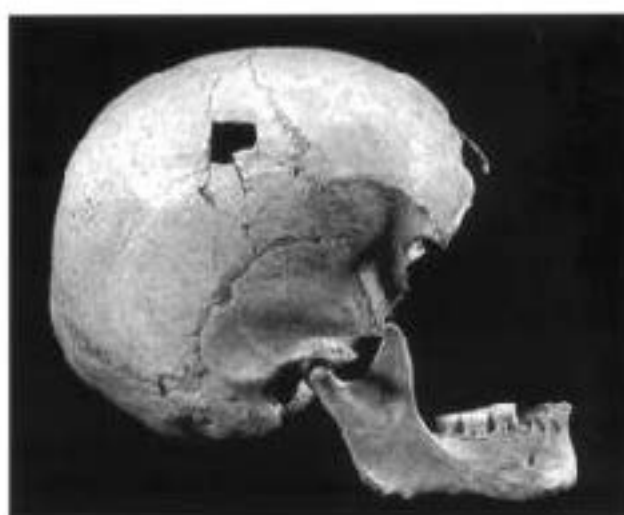


Figure 4.2. The skull and mandible of Stetten 1, long claimed to be of the Aurignacian, is actually of the late Neolithic.

(2003) report an age of only  $238 \pm 39$  BP (OxA-9879). Then there is the cranial fragment of Binshof near Speyer, dated by R. Protsch in the 1970s as Fra-40 to  $21,300 \pm 320$  BP. According to Terberger and Street it is only  $3090 \pm 45$  carbon years old (OxA-9888). These authors also analysed two specimens from the Urdhöhle near Döbritz, which had been attributed to the Upper Palaeolithic, and found them both to be about 8400 years old. The skull from Kelsterbach had been dated to  $31,200 \pm 1600$  BP (Fra-5) (Protsch und Semmel 1978; Henke und Rothe 1994), but has mysteriously disappeared. It is now also believed to be of the Holocene, perhaps the Metal Ages (Terberger and Street 2003). Indeed, of all the German

'Upper Palaeolithic' specimens, only one remains safely dated to earlier than 15,000 BP, from Mittlere Klause in Bavaria. A carbon isotope date of  $18,200 \pm 200$  BP (UCLA-1869; from a tibia fragment (Protsch and Glowatzki 1974) has been confirmed by Terberger and Street's date from a vertebra, of  $18,590 \pm 260$  BP (OxA-9856). It has therefore become clear that there are currently no 'modern' remains from the first two thirds of the west-central European Upper Palaeolithic.

Similarly, the sample from Crô-Magnon, traditionally regarded as typical representatives of invading 'moderns' in Europe, has been falsely attributed. Sonnevile-Bordes (1959) placed the four adults and four juveniles in the late Aurignacian. Movits (1969) suggested an age of about 30 ka BP and preferred an attribution to the Aurignacian 2. The recent re-dating to about 27,760 carbon years BP (Henry-Gambier 2002) renders previous opinions invalid, and the remains are probably of the Gravettian. Moreover, the very pronounced supraorbital torus, projecting occipital bone and other features of cranium 3 are Neanderthaloid rather than gracile. This and other aspects of the partially robust Crô-Magnon series question the full 'modernity' of the group – but irrespective of this, it tells us also nothing about the anatomy of the 'Aurignacians'.

The identical claims for the Mladeč specimens from the Czech Republic are just as tenuous. It is uncertain that the cave was even accessible to Upper Palaeolithic humans (Jelínek 1987). Recent attempts to provide direct dates from some of the human remains (Wild *et al.* 2005) yielded five results ranging from about 26,330 to 31,500 BP. The fossils are therefore at best from the latest part of the Aurignacian period (45 ka to 30 ka BP), but also point to a possible Gravettian age. Moreover, there is considerable evidence that the Mladeč humans were far from fully 'modern' (Smith 1982, 1985; Frayer 1986; Trinkaus and Le May 1982). Sexual dimorphism is pronounced, with male crania being very robust. The material from Pavlov Hill is among the most robust available from the European Upper Palaeolithic, sharing its age of between 25 and 27 ka with yet another Moravian site of the Gravettian, Předmostí. The more gracile finds from Dolní Vestonice are around 25 ka old and still feature some archaic characteristics (particularly the Neanderthaloid specimen DV16). Morphologically similar specimens also come from Cioclovina (Romania), Bacho Kiro levels 6/7 (Bulgaria) and Miesslingtal (Austria) so this is unlikely to be a local phenomenon.

Other specimens that have been considered as very early European Moderns include the calotte from Podhába, near Prague, variously described as sapienoid and Neanderthaloid, but undated. Then there are the robust but 'modern' hominin remains of the EUP (early 'Upper Palaeolithic') at Velika Pečina, Croatia, close to the Neanderthal site Vindija. This specimen is now considered to be only  $5045 \pm 40$  carbon years old (OxA-8294; Smith *et al.* 1999).

The loss of the only relevant Spanish remains, from El Castillo and apparently of the very early Aurignacian, renders it impossible to determine their anatomy. French contenders for EUP age present a mosaic of unreliable provenience or uncertain age, and direct dating is mostly not available. Like the Vogelherd and other specimens, those from Roche-Courbon (Geay 1957) and Combe-Capelle (originally attributed to the Châtelperronian levels; Klaatsch and Hauser 1910) are thought to be of Eolocene burials (Perpère 1971; Asmus 1964), and the former is now apparently lost. Similar considerations apply to the partial skeleton from Les Cottés, whose stratigraphical position could not be ascertained (Perpère 1973). Finds from La Quina, La Chaise de Vouillon and Les Roches are too fragmentary to provide diagnostic details. The *os frontale* and fragmentary right maxilla with four teeth from La Crouzade, the mandible fragment from Isturitz and the two juvenile mandibles from Les Rois range from robust to very robust. Just as the Crô-Magnon human remains now appear to be of the Gravettian rather than the Aurignacian, so do those from La Rochette. The Fontéchevad: parietal bone does lack prominent tori but the site's juvenile mandibular fragment is robust. The currently earliest 'intermediate' finds in Europe, the Peștera cu Oase mandible and face from south-western Romania (Trinkaus *et al.* 2003), are perhaps about 35,000 carbon years old, but are without an archaeological context. Although in some aspects 'modern', their 'derived Neanderthal features' identify them as a Post-Neanderthal rather than a gracile 'modern'. Soficaru *et al.* (2006) have reported six human bones from another Romanian cave, Peștera Muierii, which are also intermediate between robust and gracile Europeans (~30,000 BP).

This pattern of features intermediate between what palaeoanthropologists regard as Neanderthals and moderns is found in literally hundreds of specimens apparently in the order of 45 to 25 ka old. Gracilisation is a universal process in all world regions then occupied by humans, from Portugal to Australia. Intermediate forms between archaic *Homo sapiens* forms and *Homo sapiens sapiens* include examples, some of them much older, from right across the breadth of Eurasia, such as those from Largo Velho, Crete, Starosele, Kozhok, Akhshtyr', Romankovo, Samara, Sungir', Podkumok, Khvalynsk, Skhodnya, Narmada, as well as Chinese remains such as those from Jinniushan. The model of the replacement protagonists cannot tolerate such intermediate forms, nor can it allow hybrids, yet in Europe there is a clear continuation of some Neanderthaloid features right up to and into the Holocene. This is demonstrated not only by the Hahnöfersand specimen, but also by many others, such as the equally robust Mesolithic skull fragment from Drigge, about 6250 years old (Terberger 1998). The process of gracilisation has in fact continued to the present time, with notable changes continuing in the Final Pleistocene and the Holocene. The humans at the beginning of the Holocene were about 10% more robust than modern Europeans, those of the Solutrean were more



robust again, as were those of the Gravettian. The latter in fact show very distinctive sexual dimorphism, with the males being almost as robust as 'Neanderthals', the females far more gracile, but still more robust than Holocene males. EUP hominins, including those of the Aurignacian and Châtelperronian, are more robust again, and from all available evidence should be considered Neanderthal. Therefore the most distinctive aspect of human evolution over the past 45 ka is a continuous trend of gracilisation.

There are now almost no supposedly modern specimens left as possible contenders for attribution to EUP or Aurignacoid industries. The maxilla from Kent's Cavern, United Kingdom (c. 31 <sup>14</sup>C ka BP), and the Pestera Cioclovina remains (~29 <sup>14</sup>C ka BP) lack secure and diagnostic archaeological association. There are, however, numerous 'Neanderthal' remains to fill this void. Of particular interest are the most recent, those from Saint Césaire (Châtelperronian, c. 36 ka), Arcy-sur-Cure (Châtelperronian, c. 34 ka), Trou de l'Abîme (Aurignacian), Vindija Cave (Olshewian, c. 28 and 29 ka) and Máriáramóte Upper Cave (Jankovichian, c. 38 ka). Arcy-sur-Cure yielded numerous ornaments and portable art objects, which prompted various convoluted explanations of how these pendants could have possibly found their way into a 'Neanderthal' assemblage (e.g. White 1993; Hublin *et al.* 1996; a similar accommodative argument was used by Karavanic and Smith 1998 in explaining the UP bone points of Neanderthals in Vindija layer G1). The Vindija late Neanderthals used EUP tools and technology (Abern *et al.* 2004) and are more gracile than Neanderthals of earlier periods, and they are considered to be transitional (Smith and Raynard 1980; Wolpoff *et al.* 1981; Frayer *et al.* 1993; Wolpoff 1999). Vindija Vi-207 is a mandible of 29,080 ± 400 carbon years BP (OxA-8296), Vindija Vi-208 is a parietal of 28,020 ± 360 carbon years BP (OxA-8295) (Smith *et al.* 1999).

Therefore all the evidence from the crucial period of 45 to 25 ka indicates in Europe a mosaic of robust and intermediate human anatomy, and one of gradual gracilisation. It is incredible that this trend has attracted almost no detailed attention, despite obviously being repeated in the three other continents then occupied. For instance in Australia there are distinctive gracile specimens, well over 30 ka old and, some would say, even twice that age, while in the same geographical region, near the Murray River, robusticity is well represented as recently as 10 ka BP. Just as in Europe, the two morphological types share technologies and even palaeoart traditions. Just as in Europe, cultures and physical traits are clearly unrelated, but in Australia no archaeologist has ever suggested that one group 'scavenged' palaeoart objects from the other. By explaining away the incredible reduction of brain size, bone robustness and musculature as being attributable to mass migration and replacement, if not genocide, European researchers have replaced search for evidence with dogmatic belief. There is, after all, not one iota of

evidence of an Upper Palaeolithic tradition passing through northern Africa or the Levant before such tools appear in Siberia and Europe. Nor is there any evidence along such potential migration routes of figurative art traditions, all the evidence indicates that these evolved in situ, in such places as south-western Germany and southern France. So did the EUP tool traditions, commencing in various centres from Spain to the Far East, and so also did human anatomy, in all regions of the world then occupied by humans.

The EUP tool, rock art and portable art traditions of Europe can be either the work of 'Neanderthals', or of the descendants of Neanderthals, or of invading 'moderns'. There is currently no evidence for the third possibility. Consequently we need to assume that the Aurignacian was a technological and cultural tradition of robust, Neanderthal-like people. This brings us back to Chauvet Cave, where we began these considerations. On the basis of current evidence, the strongest hypothesis is that the rock art in that cave was made by 'Neanderthal' people.

Of particular interest in that context are the very numerous human footprints in Chauvet Cave (in Salle des Bauges, Salle du Crâne and Galerie des Croisillons). The superbly preserved human tracks I have examined in the cave are, in my view, more likely to be of Neanderthaloids than of 'Moderns', for a number of reasons. In most if not all 'Neanderthal' skeletal remains it appears that the big toe is shorter than the second toe, whereas the converse applies to the known 'Crô-Magnon' remains as well as footprints. This may of course be coincidence, both versions can be found among modern Europeans. However, in the case of the supposedly 8 to 10-year-old child that strode through Chauvet Cave, the second toe is not only longer, it is offset above its two neighbours (Fig. 4.3). In a child not used to wearing tight footwear, this might be a diagnostic feature. Moreover, the Chauvet tracks also show other characteristics that differ from most modern human tracks. The ratio of the widths across heel and front of foot is markedly greater, and more pressure has been applied to the outside margin, which is perfectly straight (Clottes 2001: Fig. 28). This suggests a somewhat bow-legged gait, which may be consistent with 'Neanderthals'.

Finally, there is the fallacious argument that 'art' began with the mythical intrusive 'modern' people in Europe. We have long known that art-like productions precede the Upper Palaeolithic by hundreds of millennia (Bednarik 1992, 1995b). Even figurative art did not commence with Chauvet, the earliest currently known example is one of three engravings from Oldisleben (Fig. 4.4), being of the Micoquian (Bednarik 2006). Now that we assume that even the palaeoart of the Châtelperronian, the Bachokirian and the Aurignacian is the creation of robust Neanderthal-like people, we lack any good reason to doubt that robust humans of the Middle and even of the Lower Palaeolithic lacked the capacity of symbolism and palaeoart production. We have long known about



Figure 4.3. Footprint of a Neanderthaloid child on the floor of Chauvet Cave, France.

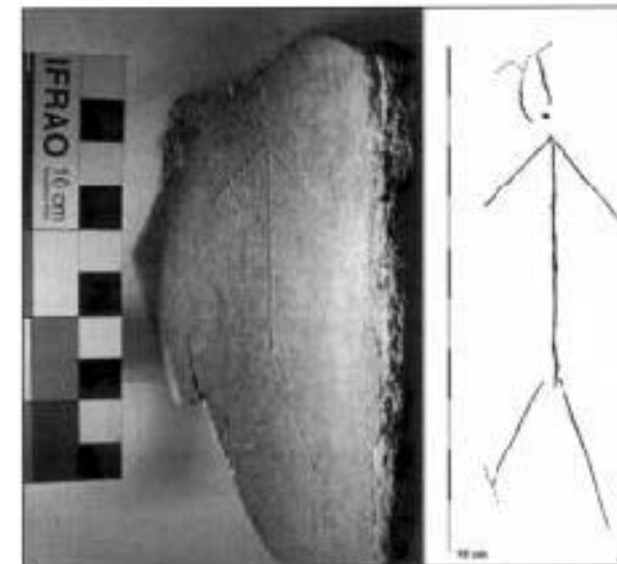


Figure 4.4. Engraving on a shoulder blade from Oldisleben, Germany, apparently figurative, of the Micoquian.

thousands of such productions, which include stone beads (Fig. 4.5) (Bednarik 2005) and proto-sculptures (Fig. 4.6) of the Acheulian (Bednarik 2003), and petroglyphs even from a cultural layer predating Acheulian occupation (Fig. 4.7) (Bednarik *et al.* 2005).

In summary, we have no evidence that the Aurignacian, Châtelperronian, Uluzzian, Uluzzo-Aurignacian, Proto-Aurignacian, Olshewian, Bachokirian, Bohunician, Spit-

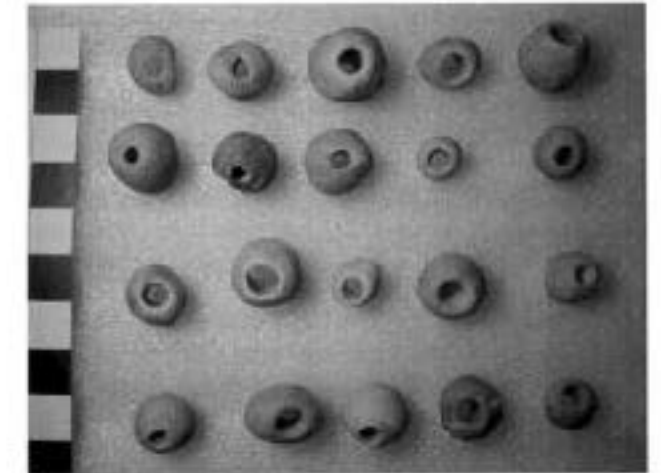


Figure 4.5. Acheulian stone beads from Bedford, England.

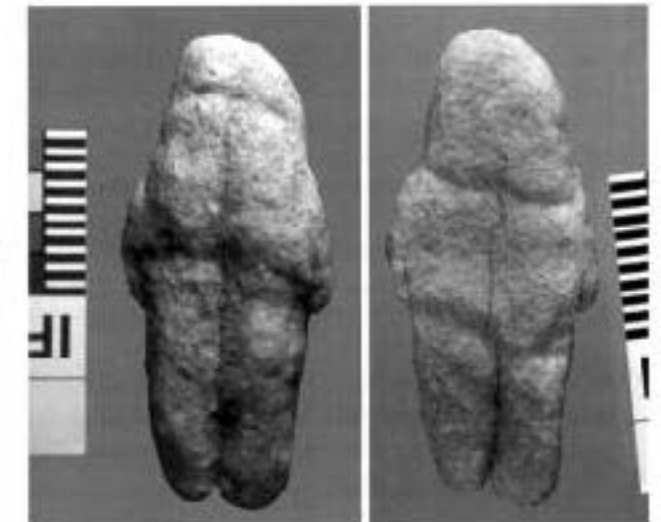


Figure 4.6. Proto-sculpture of the Middle Acheulian, from Tan-Tan, southern Morocco, naturally shaped quartzite with artificial grooves and microscopic traces of former haematite coating.

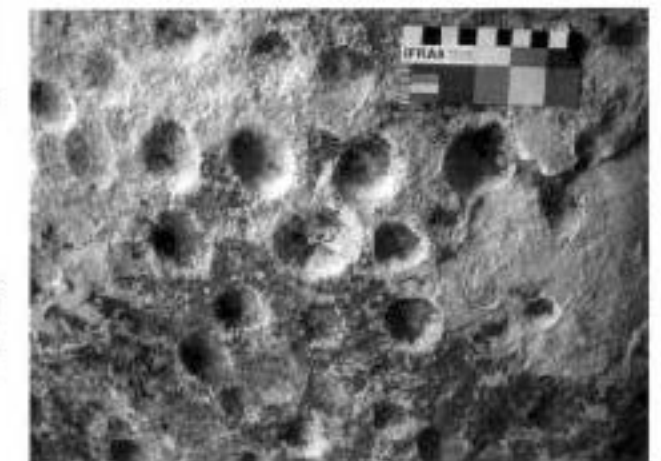


Figure 4.7. Cupules dated to the Lower Palaeolithic period, Daraki-Chattan, India.



syn culture, Szeletian, Jaakovichian, Streletian, Altmühlian, Liacombian or Jerzmanovician (all of which seem to have developed in situ) are the work of physically modern people. We have evidence that at least some of them are of 'Neanderthals' or 'Post-Neanderthals', and quite probably this applies to all pre Gravettian traditions in Europe. By the time of the Gravettian, the rate of gracilisation of humans suggests culturally moderated breeding: robust characteristics were selected against by culturally determined preferences. Gracilisation is a global phenomenon of the Final Pleistocene and Holocene, and it has been completely neglected until now that its great evolutionary cost (reduced muscle bulk and brain size, more delicate bone architecture) suggests natural selection was replaced by unintended 'self-domestication'.

## References

- AHERN, J.C.M.; KARAVANIĆ, I.; PAUNOVIĆ, M.; JANKOVIĆ, I.; SMITH, F.H. (2004) – New discoveries and interpretations of fossil hominids and artifacts from Vindija Cave, Croatia. *Journal of Human Evolution* 46, p. 25–65.
- AMBERT, P.; GUENDON, J.-L.; GALANT, P.; QUINIF, Y.; GRUNSEIN, A.; COLOMER, A.; DAINAT, D.; BEAUMES, B.; REQUIRAND, C. (2005) – Attribution des gravures paléolithiques de la grotte d'Aldène (Cesseras, Hérault) à l'Aurignacien par la datation des remplissages géologiques. *Comptes Rendus Palevol*, Elsevier, Paris 4, p. 275–284.
- AMBERT, P.; GUENDON, J.-L. (2005) – AMS estimates of the age of parietal art and human footprints in the grotte d'Aldène (southern France). *International Newsletter on Rock Art*, Foix 43, p. 6–7.
- ASMUS, G. (1964) – Kritische Bemerkungen und neue Gesichtspunkte zur jungpaläolithischen Bestattung von Combe-Capelle, Périgord. *Eiszeitalter und Gegenwart* 15, p. 181–186.
- BEDNARIK, R.G. (1986) – Parietal finger markings in Europe and Australia. *Rock Art Research*, Melbourne 3, p. 30–61, 159–170.
- BEDNARIK, R.G. (1989) – The Galgenberg figurine from Krems, Austria. *Rock Art Research*, Melbourne 8, p. 118–125.
- BEDNARIK, R.G. (1992) – Palaeoart and archaeological myths. *Cambridge Archaeological Journal*, Cambridge 2, p. 27–43.
- BEDNARIK, R.G. (1995a) – Refutation of stylistic constructs in Palaeolithic rock art. *Comptes Rendus de l'Académie de Sciences Paris*, Paris 321 (série II, No. 9), p. 817–821.
- BEDNARIK, R.G. (1995b) – Concept-mediated marking in the Lower Palaeolithic. *Current Anthropology* 36(4), p. 605–634.
- BEDNARIK, R.G. (2003) – A figurine from the African Acheulian. *Current Anthropology* 44/3, p. 405–413.
- BEDNARIK, R.G. (2004) – The cave bear in Chauvet Cave. *Cave Art Research*, Melbourne 4, p. 1–12.
- BEDNARIK, R.G. (2005) – Middle Pleistocene beads and symbolism. *Anthropos*, St Augustin 100/2, p. 537–552.
- BEDNARIK, R.G. (2006) – The Middle Palaeolithic engravings from Oldisleben, Germany. *Anthropologie*, Brno 44/1, p. 113–121.
- BEDNARIK, R.G.; KUMAR, G.; WATCHMAN, A.; ROBERTS, R.G. (2005) – Preliminary results of the EIP Project. *Rock Art Research*, Melbourne 22, p. 147–197.
- BEGOUËN, H. (1941) – La Grotte de Baume Latrone à Russan (Sainte-Anastasia). *Mémoires de la Société Archéologie du Midi de la France* 70, p. 101–130.
- ERÄUER, G. (1980) – Die morphologischen Affinitäten des jungpleistozänen Stirnbeins aus dem Elbmündungsgebiet bei Fahnöfersand. *Zeitschrift für Morphologie und Anthropologie* 71, p. 1–42.
- CHURCHILL, S.E.; SMITH, F.H. (2000) – A modern human humerus from the early Aurignacian of Vogelherdhöhle (Stetten, Germany). *American Journal of Physical Anthropology* 112, p. 251–273.
- CHAUVET, J.-M.; BRUNEL-DESCHAMPS, E.; HILLAIRE, C. (1995) – *La Grotte Chauvet à Vallon-Pont-d'Arc*. Paris: Seuil.
- CLOTTE, J. (ed.) (2001) – *La Grotte Chauvet: l'art des origines*. Paris: Seuil.
- CLOTTE, J.; CHAUVET, J.-M.; BRUNEL-DESCHAMPS, E.; HILLAIRE, C.; DAUGAS, J.-P.; ARNOLD, M.; CACHIER, H.; EVIN, J.; FORTIN, P.; OBERLIN, C.; TISNERAT, N.; VALLADAS, H. (1995) – Les peintures paléolithiques de la Grotte Chauvet-Font d'Arc, à Vallon-Pont-d'Arc (Ardèche, France): datations directes et indirectes par la méthode du radiocarbone. *Comptes Rendus de l'Académie des Sciences de Paris*, Paris 320, Ser. II, p. 1133–1140.
- CONARD, N.J.; GROOTES, P.M.; SMITH, F.H. (2004) – Unexpectedly recent dates for human remains from Vogelherd. *Nature*, London 430, p. 198–201.
- CONARD, N.; LANGGUTH, K.; UERPMANN, H.-P. (2003) – Einmalige Funde aus dem Aurignacien und erste Belege für ein Mittelpaläolithikum im Hohl Fels bei Schelklingen, Alb-Donau-Kreis, in *Archäologische Ausgrabungen in Baden-Württemberg 2002*, p. 21–27. Stuttgart: Konrad Theiss.
- CZARNETZKI, A. (1983) – Zur Entwicklung des Menschen in Südwestdeutschland. In: H. Müller Beck (ed.): *Urgeschichte in Baden-Württemberg*, p. 217–240. Stuttgart: Konrad Theiss.
- DEINO, A.L.; SOUTHWON, J.; TERRASI, F.; CAMPATOLA, L.; ORSI, G. (1994) –  $^{14}\text{C}$  and  $^{40}\text{Ar}/^{39}\text{Ar}$  dating of the Campanian Ignimbrite, Phlegrean Fields, Italy. In *Abstracts, ICOG 1994*, Berkeley, CA.
- DE VIVO, B.; ROLANDI, G.; GANS, P.B.; CALVERT, A.; BOHRSON, W.A.; SPERA, F.J.; BELKIN, H.E. (2001) – New constraints on the pyroclastic eruptive history of the Campanian volcanic Plain (Italy). *Mineralogical Petrology* 73, p. 47–65.
- DONALD, M. (1993) – Précis of the origins of the modern mind. Three stages in the evolution of culture and cognition. *Behavioral and Brain Sciences* 16, p. 737–791.
- DROUOT, E. (1953) – L'art paléolithique à La Baume-Latrone, *Cahiers ligures de préhistoire et d'archéologie*, Pt 1, p. 13–46.
- FEDELE, F.G.; GIACCIO, B. (2007) – Palaeolithic cultural change in western Eurasia across the 40,000 BP timeline: continuities and environmental forcing. In: P. Chenna Reddy (ed.): *Exploring the mind of ancient man. Festschrift to Robert G. Bednarik*, p. 292–316. New Delhi: Research India Press.
- FEDELE, F.G.; GIACCIO, B.; ISAJA, R.; ORSI, G. (2002) – Ecosystem impact of the Campanian Ignimbrite eruption in Late Pleistocene Europe. *Quaternary Research* 57, p. 420–424.
- FRAYER, D.W. (1986) – Cranial variation at Mladeč and the relationship between Mousterian and Upper Palaeolithic hominids. *Anthropologie*, Brno 23, p. 243–256.
- FRAYER, D.W.; WOLPOFF, M.H.; SMITH, F.H.; THORNE, A.G.; POPE, G.G. (1993) – The fossil evidence for modern human origins. *American Anthropology* 95, p. 14–50.
- FRAY, P. (1957) – Sur la découverte d'un squelette aurignacien? en Charente-Maritime. *Bulletin de la Société Préhistorique Française* 54, p. 193–197.
- GIESELER, W. (1974) – *Die Fossilgeschichte des Menschen*. Stuttgart: Konrad Theiss.
- HENKE, W.; PROTSCH, R. (1978) – Die Paderborner Calvaria – ein diluviales *Homo sapiens*. *Anthropologischer Anzeiger* 36, p. 85–108.
- HENKE, W.; RUTHE, H. (1994) – *Paläoanthropologie*. Berlin.
- HENRY-GAMBIER, D. (2002) – Les fossiles de Cro-Magnon (Les-Eyzies-de-Tayac, Dordogne): Nouvelles données sur leur position chronologique et leur attribution culturelle. *Bulletin et Mémoires de la Société d'Anthropologie de Paris* 14/1–2, p. 89–112.
- HUBLIN, J.-J.; SPOOR, F.; BRAUN, M.; ZONNEVELD, F.; CONDEMI, S. (1996) – A late Neanderthal associated with Upper Palaeolithic artefacts. *Nature*, London 381, p. 224–226.
- JELÍNEK, J. (1987) – Historie, identifikace a význam mladěčských antropologických nálezů z počátku mladého paleolitu. *Anthropologie*, Brno 25, p. 51–65.
- KARAVANIĆ, I.; SMITH, F.H. (1998) – The Middle/Upper Palaeolithic interface and the relationship of Neanderthals and early modern humans in the Hrvatsko Zagorje, Croatia. *Journal of Human Evolution* 34, p. 223–248.
- KLAATSCH, H.; HAUSER, O. (1910) – *Homo Aurignaciensis Hauseri*. *Prähistorische Zeitschrift* 1, p. 273–338.
- MOVIUS, H.L. (1969) – The Abri of Cro-Magnon, Les Eyzies (Dordogne) and the probable age of the contained burials on the basis of the nearby Abri Pataud. *Anuario de Estudios Atlánticos* 15, p. 323–344.
- PERPÈRE, M. (1971) – *L'aurignacien en Poitou-Charentes (étude des collections d'industries lithiques)*. University of Paris, unpublished PhD thesis.
- PERPÈRE, M. (1973) – Les grands gisements aurignaciens du Poitou. *L'Anthropologie* 77, p. 683–716.
- PETTITT, P.; BAHN, P. (2003) – Current problems in dating Palaeolithic cave art: Candamo and Chauvet. *Antiquity* Cambridge 77, p. 134–141.
- PROTSCH, R.; GLOWATZKI, H. (1974) – Das absolute Alter des paläolithischen Skeletts aus der Mittleren Klause bei Neuessing, Kreis Kelheim, Bayern. *Anthropologischer Anzeiger* 34, p. 140–144.
- PROTSCH, R.; SEMMEL, A. (1978) – Zur Chronologie des Kelsterbach-Hominiden. *Eiszeitalter und Gegenwart* 28, p. 200–210.
- SCHMID, E. (1989) – Die Elfenbeinstatuette vom Hohlenstein-Stadel im Lonetal. *Fundberichte aus Baden-Württemberg* 14, p. 33–96.
- SMITH, F.H. (1982) – Upper Pleistocene hominid evolution in south-central Europe: a review of the evidence and analysis of trends. *Current Anthropology* 23, p. 667–686.
- SMITH, F.H. (1985) – Continuity and change in the origin of modern *Homo sapiens*. *Zeitschrift für Morphologie und Anthropologie* 75, p. 197–222.
- SMITH, F.H.; RANYARD, G. (1980) – Evolution of the supraorbital region in Upper Pleistocene fossil hominids from south-central Europe. *American Journal of Physical Anthropology* 53, p. 589–610.
- SMITH, F.H.; TRINKAUS, E.; PETTITT, P.B.; KARAVANIĆ, I.; PAUNOVIĆ, M. (1999) – Direct radiocarbon dates for Vindija G<sub>1</sub> and Velika Pećina Late Pleistocene hominid remains. *Proceedings of the National Academy of Sciences of the United States of America* 96/22, p. 12281–12286.
- SOFICARU, A.; DOBOȘ, A.; TRINKAUS, E. (2006) – Early modern humans from the Peștera Muierii, Baia de Fier, Romania. *Proceedings of the National Academy of Sciences of the U.S.A.* 103/46, p. 17196–17201.
- SONNEVILLE-BORDES, D. DE (1959) – Position stratigraphique et chronologique relative des restes humains du Paléolithique supérieur entre Loire et Pyrénées. *Annales de Paléontologie* 45, p. 19–51.

- TERBERGER, T. (1998) – Endmesolithische Funde von Drigge, Lkr. Rügen – Kannibalen auf Rügen? *Jahrbuch für Bodendenkmalpflege Mecklenburg-Vorpommern* 46, p. 7–44.
- TERBERGER, T.; STREET, M. (2003) – Jungpaläolithische Menschenreste im westlichen Mitteleuropa und ihr Kontext. In J. M. Burdukiewicz, L. Fiedler, W.-D. Heinrick, A. Justus and E. Brühl (eds.): *Erkenntnisjäger: Kultur und Umwelt des frühen Menschen*, p. 579–591. Halle: Veröffentlichungen des Landesamtes für Archäologie Sachsen-Anhalt – Landesmuseum für Vorgeschichte, Vol. 57/2.
- TOBIAS, P.V. (1995) – The bearing of fossils and mitochondrial DNA on the evolution of modern humans, with a critique of the ‘mitochondrial Eve’ hypothesis. *South African Archaeological Bulletin* 50, p. 155–167.
- TRINKAUS, E.; LE MAY, M. (1982) – Occipital bunning among Later Pleistocene hominids. *American Journal of Physical Anthropology* 57, p. 27–35.
- TRINKAUS, E.; MOLDOVAN, O.; MILOTA, S.; BILGAR, A.; SARCINA, L.; ATHREYA, S.; BAILEY, S.E.; RUDRIGO, R.; MIRCEA, G.; HIGHAM, T.; BRONK RAMSEY, C.; van der PLICHT, J. (2003) – An early modern human from the Peștera cu Oase, Romania. *Proceedings of the National Academy of Sciences of the United States of America* 100/20, p. 11231–11236.
- VALLADAS, H.; CLOTTES, J.; GENESTE, J.-M. (2004) – Chauvet, la grotte ornée la mieux datée du monde. *À l'Échelle du Millier d'Années* 42, p. 82–87.
- WHITE, R. (1993) – Technological and social dimensions of Aurignacian-age body ornaments across Europe. In H. Knecht, A. Pike-Tay & R. White (eds.), *Before Lascaux: the complex record of the early Upper Palaeolithic*, p. 277–299. Boca Raton: CRC Press.
- WILD, E.M.; TESCHLER-NICOLA, M.; KUTSCHERA, W.; STEIER, P.; TRINKAUS, E.; WANEK, W. (2005) – Direct dating of Early Upper Palaeolithic human remains from Mladeč. *Nature*, London, 435, p. 332–335.
- WOLPOFF, M. (1999) – *Paleoanthropology*, second edn. New York: McGraw-Hill.
- WOLPOFF, M.; SMITH, F.H.; MALEZ, M.; RADOVČIĆ, J.; RUKAVINA, D. (1981) – Upper Pleistocene hominid remains from Vindija Cave, Croatia, Yugoslavia. *American Journal of Physical Anthropology* 54, p. 499–545.
- ZUECHNER, C. (1996) – The Chauvet Cave: radiocarbon versus archaeology. *International Newsletter of Rock Art*, Foix, 13, p. 25–27.