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A naturalistic bird representation from the Aurignacian layer at the Cantalouette II open-air site in southwestern France and its relevance to the origins of figurative art in Europe

Iluminada Ortega [a], Joseba Rios-Garaizar [b,*], Diego Garate Maidagan [c], Juan Arizaga [d], Laurence Bourguignon [a]

[a] Institut National des Recherches en Archéologie Préventives (Inrap), Centre de Recherches Archéologiques, Domaine de Campagne, 24260 Campagne, France
[b] Centro Nacional de Investigación sobre la Evolución Humana (CENIEH), Paseo Sierra de Atapuerca s/n, 09002 Burgos, Spain
[c] Archaeological Museum of Bizkaia (Basque Country) — Arkeologi Museoa, Calzadas de Mallona 2, 48006 Bilbao, Spain
[d] Sociedad de Ciencias Aranzadi, Zorroagagaina 11, 20014 Donostia-S. Sebastián, Spain

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ABSTRACT

The origins of figurative art have been widely discussed over the past several decades. First, researchers spoke about a linear evolution of artistic expression from simple to more complex. This idea has been discussed recently in light of new discoveries in the Rhone valley and the Swabian Jura. There is also the hypothesis that artistic expression developed during the Aurignacian to strengthen the social networks of the first modern human groups entering Europe. Here we present a unique piece of portable art found at an Aurignacian open-air site, Cantalouette II (Dordogne, France). The particular context of the finding, a flint workshop, the use of an up-to-now unknown engraving technique, the sunken relief, and the uncommon subject, a naturalistic and detailed bird, are evidence of the uniqueness of this piece of artwork, which sets it apart from the already-known Aurignacian artistic manifestations known from Western Europe. We take this uniqueness to represent an argument against the idea of a linear evolution of art. Also the particular context of this piece, immediately discarded after its production, shows that it was a sort of ephemeral artistic expression, a behavior as yet unknown for the Aurignacian. Moreover, the very fact that the context, technique, and subject of this art piece are previously unknown for the Aurignacian indicate that there was a higher degree of variability in Aurignacian artistic expressions than has been previously argued. This suggests that the search for a single explanation for the 'artistic explosion' observed in the Early Upper Paleolithic may be unfounded.

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1. Introduction

The origin(s) of art is a question yet to be answered. Some authors claim that artistic/symbolic expression dates back to the Lower Paleolithic (Bednarik, 2003), but the earliest indisputable evidence of this kind of behavior has been dated to ≈70 kyr at Blombos Cave site in South Africa (Henshilwood, 2012). Recently the dating of rock art in Sulawesi suggests that first evidence of figurative art in SE Asia is similar in age to that in Europe (Aubert et al., 2014). In Europe all evidence of artistic expression dated prior to ≈40 kyr BP is elusive, with the first clear evidence of artistic representations always linked to the presence of modern humans. Recent dates obtained from a circular sign from Castillo cave in Spain (Pike et al., 2012) and the discovery of a schematic engraving at Gorham Cave in Gibraltar (Rodríguez-Vidal et al., 2014) have reopened the debate on the existence of artistic representations made by Neanderthals, but the matter is far from being settled.

The earliest unquestionable expressions of preserved figurative art in Europe do not appear until *ca.* 40,000 cal BP, and are always linked to the first clear modern human technocomplex (*i.e.* the Aurignacian). Moreover, this earliest evidence of figurative art seems to emerge fully developed in both its technical and expressive capabilities, as have been noted for portable art pieces from southern Germany (Conard, 2009) and cave art in France (Clottes, 2001) and northern Spain (González-Sainz et al., 2013). These discoveries contradicted the idea of a progressive evolution of artistic expression and raised a number of questions on the significance of this kind of symbolic expression among Anatomically Modern Humans (AMH) from an evolutionary (as a human species) and historic (as concrete populations in time and space) perspectives. Several authors have linked the origin(s) of art to the development of cognitive capabilities mastered by AMH entering Europe from *ca.* 40,000 BP onwards (*e.g.* Mithen, 1996; Lorblanchet, 1999; Mellars, 2009). Others see it as a more complex phenomenon involving, of course, the necessary cognitive capabilities, but also the use of artistic expression as a 'tool' to face specific social

* Corresponding author.
E-mail addresses: iluminada.ortega@inrap.fr (I. Ortega), joseba.rios@cenieh.es (J. Rios-Garaizar), garatemaidagandiego@gmail.com (D. Garate Maidagan), jarizaga@aranzadi-zientziak.org (J. Arizaga), laurence.bourguignon@inrap.fr (L. Bourguignon).

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conflicts which materialize in a variety of forms across Europe (Lorblanchet, 2007; Porr, 2010).

2. Objectives and justification

In this work we present a unique portable art piece excavated at the Aurignacian site of Cantalouette II (Dordogne, France). It is made on a flint flake and presents a naturalistic bird engraving (Fig. 1). The piece was found in a poorly structured settlement that functioned as a flint workshop (Fig. 2), mixed in with other flakes and knapping debris. Other engraved flakes with non-figurative representations were also found scattered throughout the site and were also present in nearby contexts (Ortega et al., 2006). The nature of the archeological context and the exceptional artistic nature of this depiction prompted us to discuss the role of artistic images for the first AMH in Europe and the origins of artistic behavior.

3. Material and methods

The engraved bird depiction was analyzed using a number of techniques. Firstly, a technological description of the blank and the engravings was undertaken at the microscopy laboratory at the CENIEH. The tracing of the engravings was analyzed using an Olympus SZX Binocular (0.63× to 80× magnifications) with direct and parallel illumination. A 5MP Olympus digital microscope camera was used to micro-image the piece. A 3D model was obtained using a NexEngine 3D scanner. This model was used to measure the tracings, and to create a detailed representation of the piece (Fig. 1, Fig. 3, Supplementary Figs. 7–9). A similar methodology has been recently applied to the study of the engraved slabs of Gonnersdorf and La Marche (Güth, 2012; Méllard, 2010). In addition, other flakes with non-figurative tracings in cortical surfaces were analyzed in order to compare them with the decorated flake (Supplementary information 3).

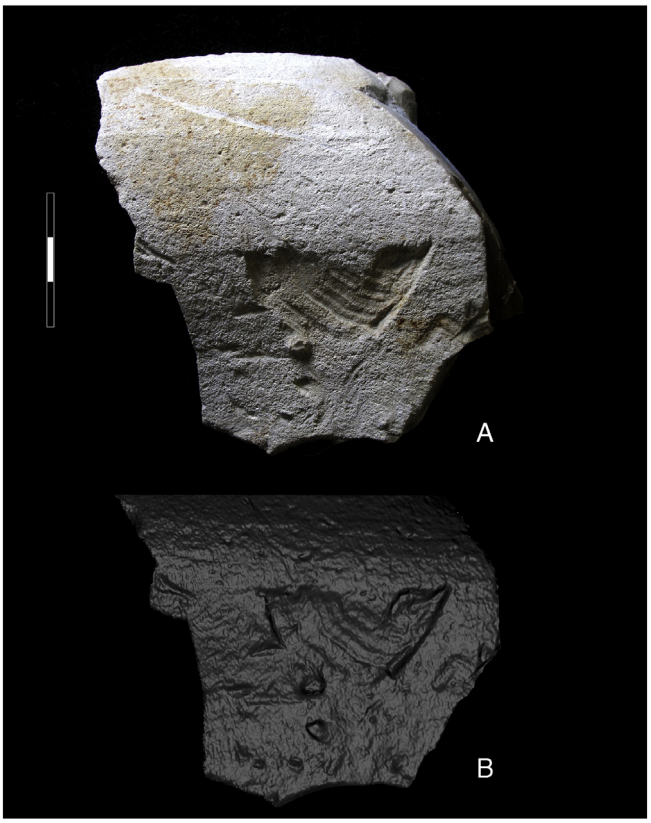

Fig. 1. a: Original photo of the piece. b: High resolution 3D model.

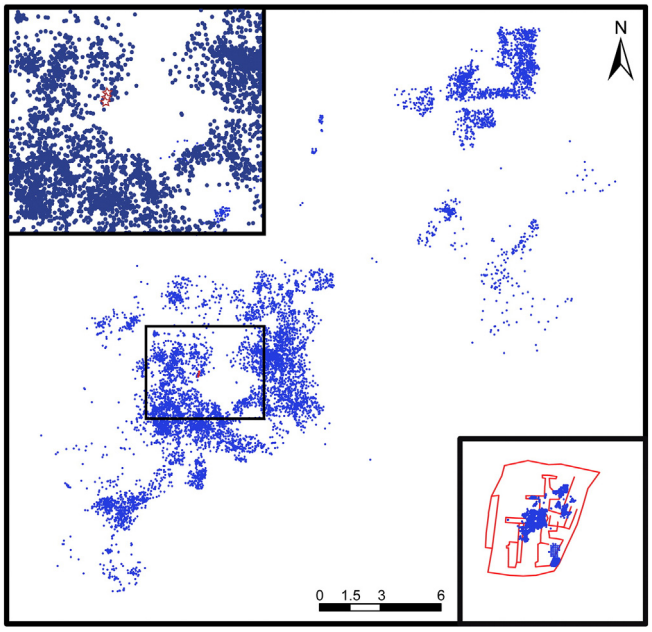

Fig. 2. Plan of the distribution of the lithic material in the Aurignacian level at Cantalouette II. The positions of the engraved flake fragments are highlighted in red. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

The technical procedures identified on the depiction were replicated in order to understand the technical process and to rule out the possibility of a fortuitous association of traces (Supplementary information 4).

The stylistic description of the piece was undertaken in order to compare it with the formal conventions of birds depicted in European Paleolithic art (Groupe de Reflexion sur l'Art Parietal Paleolithique (G.R.A.P.P.), 1993). Our compilation of publications discussing more than 100 different examples of bird representations in portable and cave art is the first of its kind (Supplementary Table II).

The taxonomic analysis of the bird was done by comparing the depicted features (beak, wing position, tail, legs, *etc.*) with those of actual bird species. Potential candidates were established for the paleontoarcheological record of SW France Upper Paleolithic by reading paleornithological literature.

Fig. 3. Excavation surface. The sterile layer situated between the Solutrean floor and the Aurignacian can be easily observed.

4. The Cantalouette II archeological site

The site of La Doline de Cantalouette II was discovered in 2003 during a salvage excavation initiated by the Institut National de Recherches Archéologiques Préventives (INRAP) prior to the start of the RN21 (Bergerac deviation East, Dordogne, France) roadworks (Bourguignon et al., 2004). 10 sites in total (including Cantalouette II) were excavated in an area smaller than 5km^2.

The periods represented at these sites are the Acheulean, Mousterian, Chatelperronian, Aurignacian, Solutrean, Magdalenian and Neolithic. Cantalouette II, situated in the southern margin of the Pecharmant Plateau, is one of the largest sites excavated in the region. It is located within a complex karstic environment characterized by the presence of dolines, which were still forming during the different phases of human occupation.

The stratigraphic sequence of the site, though not fully exposed due to the safety and administrative restrictions which guided the rescue excavations, was 5 m deep with a *ca.* 2000 m^2 upper opening. Seven stratigraphic units, ranging from the Middle Pleistocene to the Holocene, were uncovered during the salvage excavation (Supplementary information 1). The Aurignacian occupation, where the engraved bird depiction was found, was located at the base of Unit 3, just above the Unit 5 Mousterian occupation which was TL dated between 165,000 ± 13,000 and 61,400 ± 4800 BP (heated flint, Bdx 8842–8843) (Guibert et al., 2008; Bourguignon et al., 2008). A Solutrean occupation that functioned as a foliate point workshop was noted at the top of Unit 3, separated from the Aurignacian occupation by a sterile layer (Fig. 3, Supplementary Fig. 1). No direct dating for the Aurignacian occupation is available due to the absence of preserved organic remains or burnt stone remains. The cultural attribution of the assemblage was assigned based on the techno-typological composition of its lithic industry and its stratigraphic position between the Mousterian and Solutrean levels.

Fig. 4. Large and medium blade production refits.

4.1. Aurignacian lithic assemblage

The lithic assemblage is well preserved with no indication of post-depositional transport. Raw material composition is clearly dominated by Bergeracois type flint (99.53%), which is very abundant inside the altered Maestrichtien age limestone that forms the geological substrate of the Pécharmant Plateau. The assemblage was formed by several more or less simultaneous knapping episodes.

Two main laminar reduction sequences have been identified (Fig. 4), one aimed at the production of very large blades (L: 20 cm; W: 3–4 cm; H: 1–1.5 cm) whereas the other aimed at producing smaller, slightly curved blades (L: 9–16 cm; W: 0.5–1 cm; H: 1 cm). Both production strategies were differentiated from the very beginning by the selection of differently-sized blocks. The reduction sequences in themselves were quite similar. Knapping was initiated through the creation of a unique striking platform. After that, a cortical blade was extracted following the longest axis of the block. Following that, blades were extracted by soft-hammer percussion along the same edge. Half-crested blades and opposed platforms were used to recover convexity or to erase earlier knapping accidents. The flanks of the core were left cortical unless some correction was needed; in this particular case, partial crests were created. The platform was usually repaired by extracting thick tablets, while minor corrections included the configuration of *éperon*-type percussion points. This kind of blade production is well represented at other Aurignacian sites within the Bergerac region like Barbas III, Vieux Coutets and Garris 2 (Bourguignon et al., 2004, Ortega et al., 2006; Rios-Garaizar et al., 2003) and is similar to that noted at other Aurignacian sites in the broader region where a progressive reduction of blade size during the knapping process has also been observed (Chadelle, 1990, 2000; Tixier, 1991; Bon, 2002; Bordes and Tixier, 2002). One of the most characteristic features of the Aurignacian within the Bergerac region is the production of very large blades, which has been observed at Cantalouette II, Barbas II, Corbiac Vignoble 2, Champ-Parel and Vieux Coutets (Tixier, 1991; Chadelle, 1990; Ortega et al., 2006; Ortega et al., 2005). Fragments of these large blades have been recovered from classic Aurignacian sites in the Vèzere valley (Chiotti, 2005).

Bladelet production is poorly represented at Cantalouette II. The bladelets produced are long (up to 4 cm), thin, and straight. Small and medium flakes or block fragments were selected as cores for this kind of production. Bladelet cores on blocks were usually heavily exploited, which complicates the technological reading of the reduction process. Cores on flakes were exploited along one of the flake edges creating burin-like morphologies; this kind of production entails almost no previous preparation. Flake production is even less represented at the site and shows little or no standardization.

Retouched tools are scarce (<5%), which is often the case at Aurignacian open-air sites around Bergerac. The most represented retouched tools seem to be quite opportunistic types (denticulates, slightly retouched blades and flakes); others are more typically Aurignacian, such as endscrapers, burins, splintered pieces, borers or Dufour-type bladelets (Supplementary Table I). Few of these tools were made on preferential blades. Typical early Aurignacian tools such as Aurignacian and strangled blades or carinated endscrapers are absent.

4.2. Site function

Production management was characterized by the export of preferential blade products, which appear in small numbers in relation to knapping intensity and the *in situ* use of by-products. A use-wear test conducted on 19 pieces showed that 13 of them were used in knapping-related activities, *e.g.* to eliminate clay from the surface of

flint blocks or for organic-hammer repair (Rios-Garaizar & Ortega, 2014). This kind of management plus the evidence of *in situ* production and structuring of the space around knapping areas (Fig. 2) supports the interpretation of the site as a specialized flint workshop. Similar interpretations have been put forward for other open-air sites in the region such as Champ-Parel and Corbiac Vignoble 2, while others, such as Barbas III, La Graulet VI, Vieux Coutets or Garris II, have been interpreted as representing mixed occupations (Ortega et al., 2006; Rios-Garaizar and Ortega, 2014).

4.3. Cantalouette II cultural attribution

Due to the absence of direct dating, other proxies must be used to ascertain the cultural attribution of Cantalouette II and place it within a chronological framework. The stratigraphic position between the Mousterian (Unit 5) and Solutrean (Unit 3 top) layers strengthens the ascription of the Unit 3 base to the Early Upper Paleolithic (Aurignacian or Gravettian). The nature of this Unit's lithic assemblage (technological traits and typology) links this level to the known Aurignacian occupations in the same region and abroad (Bon, 2002; Ortega et al., 2005). Moreover, some elements, such as the production of large blades or the presence of *Dufour* bladelets, are characteristic of the early phases of the Aurignacian in the region (Ortega Cordellat, 2005) . Nevertheless, an attribution to more recent phases of the Aurignacian cannot be totally ruled out, although the absence of typical elements such as *vachons* bladelet cores or *busqué* burins makes this rather unlikely. Furthermore, the absence of typical Gravettian tools such as Gravette points, backed bladelets or Noailles burins, and the unique technological traits of this technocomplex in this particular region (*e.g.* bipolar blade production, Raysse burin-like cores — Klaric, 2007) rule out the possibility of an attribution to the Gravettian.

The chronology of the Early Aurignacian in SW France has been improved in the past several years. The only Early Aurignacian site dated directly in the Bergerac region is that of La Graulet VI where a fireplace was TL-dated to 39,500 ± 2550 and 36,000 ± 1900 BP (Viellevigne et al., 2008). In the Dordogne region, the classic site of Abri Pataud has been extensively re-dated by ^{14}C AMS using a ultra-filtration pretreatment and the modeled calibrated results for the Early Aurignacian range between 40,000 and 37,000 cal BP, which refine previous chronologies (Higham et al., 2011). Also at Abri Castanet (Dordogne) the Early Aurignacian levels associated with vulvar engravings are slightly more recent, *ca.* 37,800–35,700 cal BP (White et al., 2012). In the neighboring regions of Charente or the Western Pyrenees, similar results have been obtained from Early Aurignacian sites such as Les Cottes (Talamo et al., 2012) or Gatzarria (Barshay-Szmidt et al., 2012). With these results a reliable chronological range for the Early Aurignacian in SW France can be established between *ca.* 40–35 kyr cal BP, which could also include the dates for the oldest Aurignacian portable art from Swabia (Germany) (Conard, 2009) and the oldest dates obtained from the Chauvet Cave (Ardeche) paintings (White et al., 2012). For the end of the Aurignacian, the dates obtained with ultra-filtration pretreatment at Abri Pataud suggest a chronology between *ca.* 36,500 to 34,500 cal BP (Higham et al., 2011), but conventional AMS dates suggest that Late Aurignacian ends *ca.* 32,000 cal BP with some possible late occurrences until 30,000 cal BP (Djindjian et al., 2003, Michel, 2010; Rios-Garaizar et al., 2013).

5. Description of the engraved bird depiction

5.1. Blank

The blank for the engraving is a large cortical flake fragment that broke during knapping (Fig. 5). The resulting three flake fragments were found very close together. The raw material is Bergeracois-type flint probably extracted from the clays formed by the alteration of the Maestrichtien age limestone. The cortex is fine-grained, has a creamy appearance and is relatively thick (4 mm). The depiction has a rather central position on the flake fragment, but is clearly positioned towards one of its sides if we consider its position with regard to the complete fragment. The absence of tracings in the other two fragments suggests that the piece was engraved after it broke, thus we can say that the figurative representation's blank is the flake fragment.

5.2. Description

The representation of the bird is very clear (Figs. 1, 5, Supplementary Figs. 7–9). The engraving occupies a 3.45 × 2.9 cm of the total surface area, the depth of the tracings ranges between 1 and 3 mm (Fig. 6). The bird has its head up, with the beak and one eye carefully represented. The beak is short (<1/2 head length), thin and pointed. The eye is small-to-medium sized and a possible subciliar feature is represented with a small tracing below the eye. The chest is represented by an almost rectilinear tracing; the wings appear fully deployed and are represented from a planar perspective with parallel tracings representing the plumage; finally, a small tracing projected from the left side of the figure could be representing the legs or the tail. The nature of the depiction suggests a sitting position similar to those adopted by different bird species when drinking, courting or about to take off.

5.3. Technical process

The figure is depicted in a sort of sunken relief. This technique entails extracting the material to define the figure which has an outlined contour and does not rise above the original surface. This engraving process has been defined in six different phases, which have been replicated experimentally to better understand them and to rule out other possible explanations to the accumulation of different kind of traces found on the piece:

1. Firstly, the figure was outlined with a simple engraved incision. This initial tracing left isolated traces beside the wing on the left part of the figure, and above it.
2. Then cortex inside the outlined area was lowered by scraping with a lithic tool, probably with a microdenticulated dihedral, resulting in a wavy surface (Fig. 5:c; Fig. 6:D–D').
3. The next phase focused on detailing the head and the beak (Fig. 5:a). The contour of the head and the beak was precisely defined by a neat L-shaped bevel between the lowered area and the cortical surface (Fig. 6:A–A', B–B'). This bevel continues towards the chest area (Fig. 5:b, Fig. 6:C–C'), where it almost reaches the non-cortical flint.
4. A similar bevel was also created to define the upper left side of the wings (Fig. 6:E–E').
5. The inner part of the head was worked by micro-pecking, creating a rough surface, the intention of which was to represent a kind of plumage different from that of the wings.
6. Then a small tracing was made to represent the bird's eye, and another thinner tracing was made below the eye, possibly to represent a subciliar feature (Fig. 5:a).

5.4. Taxonomic identification

The represented anatomical features point in the direction of three possible bird family candidates. The thin and small beak may correspond to an insectivore, probably a passerine. Several species (*Anthus spinoletta*, *Turdus merula*, *Motacilla* sp., *Turdus torquatus* and *Garrulus glandarius*) of this family are present in the Aurignacian fossil record of Castanet (Bouchud, 1952a) and Abri Pataud (Bouchud, 1975), both in the Dordogne; they appear also at Isturitz (Bouchud, 1952b) and Ekain (Eastham, 1984), both in the Western Pyrenean region. Nevertheless, passerines usually have longer tails and legs than those represented in the engraving. The habitat of these species is quite variable,

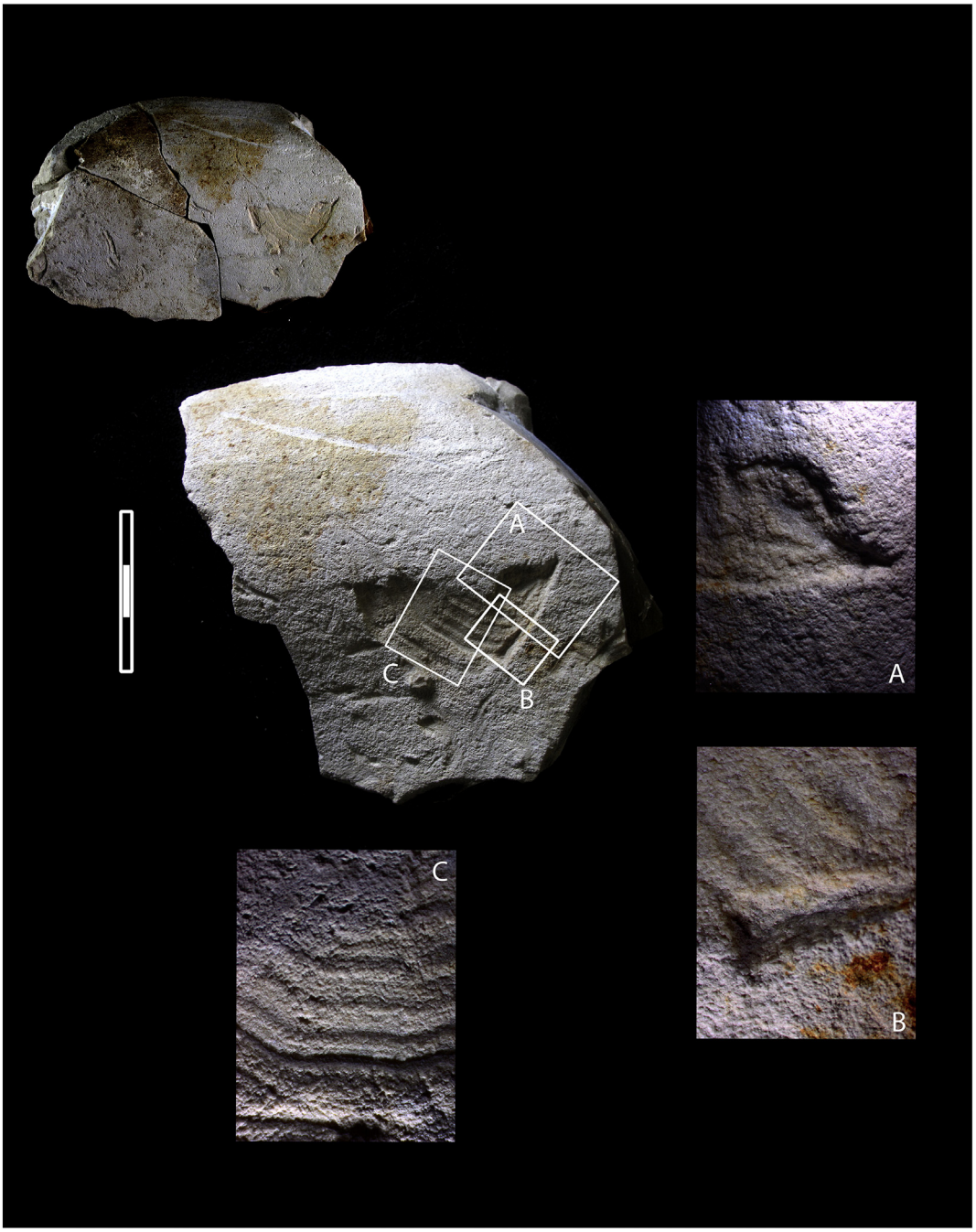

Fig. 5. Technical features of the engraved piece. A: detail of the bird's head; B: chest outline; C: detail of the wings. Compare with Supplementary Fig. 4:a–b.

ranging from woodland (*e.g.*, *Turdus* spp.) to alpine meadows (*e.g.*, *Anthus spinoletta* and *Turdus torquatus*).

Another possible candidate is the wryneck (*Jynx torquilla*), a small woodpecker of the *Picidae* family (Cramp, 1985). This bird also has a thin and small beak, and an anatomy quite similar to passerines. When disturbed it has a peculiar behavior where it twists its head and hisses, imitating a snake. It is possible that this particular behavior drew the attention of the artist and s/he tried to represent it with its head in this particular position. The presence of this bird during the Aurignacian has not been documented, but its presence has been noted at several Lower and Middle Paleolithic sites in SE France (Roger, 2004), and in the Cantabrian region during the Magdalenian (Eastham, 1985). This species has a preference for woody environments.

A final alternative could be the *Phasianidae* (like *Perdix perdix* or *Coturnix coturnix*) captured in a drinking position. These species have shorter tails and legs, but have downward-curving, not straight beaks, as depicted in the figure. Gray partridge (*Perdix perdix*) is present in the Evolved Aurignacian from Castanet, Abri Pataud and Aitzbitarte III (Bouchud, 1952a, 1975; Sánchez-Marco, 2011). At the latter site the common quail has been also identified. These species are usually linked to open landscapes and were consumed for their meat, at least since the beginning of the Upper Paleolithic (*e.g.* Riparo Mocchi — Stiner et al. (2000)).

5.5. Other engraved remains

Other pieces recovered at Cantalouette II display engraved traces or modifications which can be also linked to artistic expression (Supplementary information 3). All are schematic and were made using more conventional techniques (*e.g.* linear engravings, scraping). The most

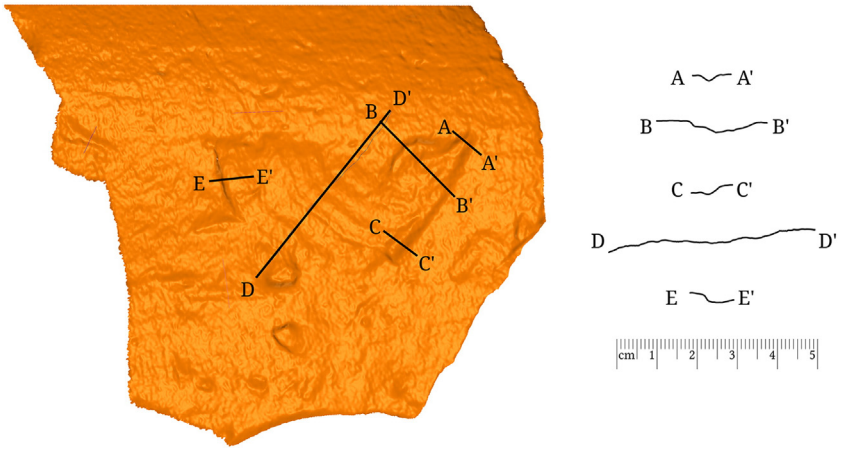

Fig. 6. 3D capture with the main tracing profiles represented.

representative piece is a flake fragment displaying a thick line, created through scraping, with some other scraped areas and incisions that intersect it obliquely (Supplementary Fig. 2).

6. Discussion

6.1. Technique, blank and motive

The bird representation found at Cantalouette II can be interpreted as the result of a conscious artistic activity made by Aurignacians at the site. The combination of different kinds of techniques to define the figure (outline, scraping, tracing) rules out the possibility of a fortuitous combination of traces creating an apparent figure. Moreover, the experimental replication of these techniques supports this interpretation, and suggests that some time and effort were put into making this figure. The particular technique used to produce this representation, sunken relief, is not mentioned in any of the literature on European Paleolithic art, where the most typical engraving techniques described are tracing, picketing and sculpting (G.R.A.P.P., 1993).

The use of flint cortex as a blank for artistic expression is not very widespread. Although some examples could date back to the Middle Paleolithic (Peresani et al., 2014), the first clear figurative engravings have an Upper Paleolithic age, appearing at sites such as Paglicci, Roc-aux-Sociers, Pincevent or Frétigney (Arrighi et al., 2008; Baffier, 1992; Antoine and Thevenin, 1961). The Bergerac region has several examples of engravings made on cortex. One comes from the Early Aurignacian site of Barbas III; it is a flint block with engraved parallel lines that follow the long axis of the nodule (Ortega et al., 2006). The other is a snake engraved on a large flake found at the Magdalenian site of Graulet 4 (Samra-Inrap, 2007). In all these cases, the technique used was simple tracing.

Also, birds are not frequently represented in Eurasian Paleolithic art; most of these kinds of representations date to the Magdalenian (Supplementary Table II). From a chronological point of view, only two other bird representations can be attributed to the Aurignacian: the ivory sculpture of a water bird (diver, cormorant or duck) found at Hohle Fels' level AHIV (*ca.* 39–34 kyr cal BP) (Conard, 2003), and the engraved owl found at Chauvet cave, where rock art has been dated to the Aurignacian (Clottes, 2001). With some exceptions, bird compositions tend to be very simple and depictions very schematic, rarely reaching the degree of naturalism exhibited by the Cantalouette II bird.

Summing up, the technical procedures, which include mixing different techniques, the degree of detail, and the naturalism of the bird depiction are proof of a fully developed artistic expression and a high level of craftsmanship. The choice of a bird, an animal rarely depicted in Early Paleolithic art, also suggests that the artist was not following a concrete thematic tradition. Furthermore, the use of technical procedures such as sunken relief, which is hitherto unknown in Paleolithic art, also suggests that the artist was not following a fixed technical tradition.

6.2. The place of the Cantalouette II bird depiction within the Aurignacian artistic expression

The stratigraphic position and techno-typological interpretation of the lithic assemblage recovered from the base of Unit 3 at the Cantalouette II open-air site strengthens the hypothesis of an Aurignacian attribution. Aurignacian occupations in the Bergerac region, which can be dated back to at least 39,000 cal BP, show a complex occupation pattern with flint workshops and mixed occupations (Rios-Garaizar and Ortega, 2014; Ortega et al., 2006).

After a period in which Aurignacian art was viewed as marginal or even non-existent within the evolutionary paradigm for artistic development, it has risen in 'value' over the past two decades. The radiocarbon dating of the Chauvet cave paintings and context (Clottes et al., 1995), the dates obtained for the Aldène cave context (Ambert et al., 2005; Azéma et al., 2012), the painted slabs of Fumane (Broglio et al., 2006), the new evidence from Abri Blanchard (White et al., 2012) and the dating revision of the upper Dordogne rockshelters (Chiotti et al., 2007; Lorblanchet, 2007), the definition of a stratigraphic context for the Rhineland portable art (Conard, 2003, 2009), the recent publication of U/Th dates for the Cantabrian region's Paleolithic art (Pike et al., 2012) or the recently obtained dates from Altxerri B (González-Sainz et al., 2013) certify the existence of a complex, varied and fully developed art during the Aurignacian that does not fit with the classic evolutionary chrono-stylistic framework (Moro Abadía and Garate Maidagan, 2010).

These Aurignacian artistic expressions, which appear across Europe (Fig. 7), are remarkably also present in the upper Dordogne region in rockshelters such as Blanchard, Castanet, Pataud, La Ferrasie, Belcayre or Cellier (Delluc and Delluc, 2003). These sites, situated less than 50 km westwards from Cantalouette II, always have variable quantities of Bergeracois flint within their lithic assemblages (Chiotti, 2005), which is evidence of contact between the Bergerac and the Vézère Valley. In these rockshelters artistic manifestations share some common characteristics. Most of them were made on the rockshelter walls, beside occupation areas, and appear, fallen and broken, within the sediments of these occupations. Figurative representations depict animals and vulvar schematizations, with horses being the most represented species among the animal depictions. Non-figurative representations are scarcer and include cupules. The techniques used to represent these images include black, red and bichrome (black/red) paintings, deep engravings, and percussion. In these caves the presence of other

Fig. 7. Map of Central and Western Europe showing the main Aurignacian sites containing art. 1: Bergerac Region: Cantalouette II, Barbas III; 2: Vezère Valley: Castanet, Blanchard, Ferrassie; 3: Aldène; 4: Baume Latrone; 5: Chauvet; 6: Aach Valley: Hohle Fels, Geißenklösterle; 7: Lone Valley: Hohlenstein, Vogelherd; 8: Fumane.

symbolic expressions such as ornaments or decorated bone tools is quite important.

On the contrary, the open-air Aurignacian sites in the Bergerac region rarely have any kind of evidence of symbolic expression; the mixed-activity occupation of Barbas III has an engraved flint block and two soft-stone made pendants, similar to a number of known Aurignacian ornaments (Ortega et al., 2006; Vanhaeren and d'Errico, 2006).

As noted above, the Cantalouette II bird depiction, given its originality, does not follow a specific technique or theme that can be described as typical of the Aurignacian. Only the degree of naturalism observed on the Cantalouette II bird has also been observed on some renown images from Chauvet or on some animal figurines from Swabian Jura, being this one of the most striking features of the first examples of European figurative art.

Despite this, one of the most striking features of Aurignacian art across Europe is the absence of a common pattern which would hold the existence of an Aurignacian artistic tradition. It is true that there are some common traits, such as the aforementioned naturalism or the special incidence of certain representations such as those of dangerous animals, but the differences between regional traditions (Jura Swabia, in Dordogne, in Chauvet and in northern Italy) are very significant (Sauvet et al., 2007).

6.3. Artistic expression in context

Cantalouette II can be interpreted as a flint workshop, a place where a limited range of activities, related with flint production, were carried out. The engraved depiction is a bird, made on a fragment of cortical flake, and was found inside a flint knapping scatter with no particular disposition. This suggests that it was not an artistic representation made to last or to be transported elsewhere, but rather was an ephemeral expression of artistic and symbolic behavior. Large variability in art contexts during the Aurignacian can be observed. There is portable art used for long periods of time, as in the case of the Jura Swabia figurines (Conard, 2009); cave art found in deep caves with no associated occupations, as in Chauvet (Clottes, 2001) or Altxerri B (González-Sainz et al., 2013); and artistic representations made on the rock walls of inhabited rock shelters and caves, as in Castanet, Blanchard or Fumane (White et al., 2012; Broglio et al., 2006). The pattern of immediate abandonment of a portable art piece documented at Cantalouette II is unknown in Aurignacian art, but has been widely documented in later Paleolithic art (de Beaune, 1996; Corchón Rodríguez, 1998, Tosello, 2003, 2004; Rivero, 2012; Ontañón and Arias, 2012). The meaning of this kind of artistic expression remains unclear, but it seems that its symbolic value did not last long after it was produced/created.

7. Conclusions

The bird depiction engraved on a flint flake recovered in the knapping workshop of Cantalouette II (Dordogne) is the first example of figurative art in an Aurignacian open-air site. The finding of such a piece of portable art in a flint workshop, made on an *in situ* knapped flake which was found mixed in with other knapping by-products, reveals that the function and context of this artistic and symbolic expression was fundamentally different from that of other Aurignacian artistic expressions found in the Dordogne and Rhone valleys or in the Swabia-Jura mountains. This piece was not made to be transported, shown, or even to last long after its creation. This suggests that artistic and symbolic objects were also ephemeral expressions of creativity during the Aurignacian.

The selection of the blank, the technique used and theme depicted in this piece is almost unique in Aurignacian art. Nevertheless, some aspects, such as the image's naturalism, link this depiction to some of the Aurignacian artistic traditions, specially Swabian Jura portable art.

The nature of the Cantalouette II bird depiction not only contradicts the idea of an evolution of artistic expression from simple to more complex during the European Upper Paleolithic (Leroi-Gourhan, 1965), but it also opens up a new dimension to our understanding of the origins of artistic expression. Surprisingly, it seems that this first kind of figurative art is very complex, thematically diverse and highly variable in terms of its techniques and functions. The interpretation of the origin of figurative art as an element of social cohesion for the first European populations of Anatomically Modern Humans is perhaps not the sole

explanation or, at least, it seems that early art played many different roles, as the piece described here has shown.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at http://dx.doi.org/10.1016/j.jasrep.2015.09.009.

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