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A Magdalenian decorated *baguette demi-ronde* from Grotte de l'Abbé (Charente, France)*Une baguette demi-ronde décorée magdalénienne de la Grotte de l'Abbé (Charente, France)*Michelle C. Langley^{a,b,*}, Dominique Augier^c,
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ABSTRACT

During a recent study of osseous Middle to Late Magdalenian projectile technology housed in the *Musée d'Angoulême* (Angoulême, Charente), a small but insightful collection of newly recovered Magdalenian technologies from a site known as Grotte de l'Abbé was examined. In this box, the most significant items were two matched *baguettes demi-rondes* components. As the recovery of both halves of one of these composite projectile points is exceedingly rare, this find alone is exceptional. What makes this find truly extraordinary, however, is the fact that this implement also displays a complex engraved design. This paper describes this rare find along with other projectile point and ornament components found alongside this artefact.

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R É S U M É

Lors d'une récente étude sur la technologie de projectiles osseux du Magdalénien moyen-supérieur, déposés au musée d'Angoulême (Charente), une collection réduite, mais significative d'objets de technologie magdalénienne, en provenance d'un site connu sous le nom de grotte de l'Abbé et récupérés récemment, a été examinée. Les objets les plus intéressants sont constitués de baguettes demi-rondes appariées. Comme la récupération des deux moitiés de l'une de ces pointes est extrêmement rare, la découverte en elle-même est

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exceptionnelle. Ce qui est réellement extraordinaire, cependant, est le fait que cet objet révèle un dessin complexe gravé. Cet article décrit cette trouvaille rare, de même que d'autres constituants, projectiles ou éléments ornementaux, également découverts.

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1. Introduction

During the last few years, the Museum of Fine Arts in Angoulême (Angoulême, Charente, France) has been conducting a detailed inventory of its collections, including its wealth of prehistoric materials. As part of this work, one of us (D.A.) “re-discovered” a small box with various categories of artefacts, labelled “Grotte de l'Abbé”, without any further information attached. While the artefacts included in this collection conform to the known osseous projectile and ornamental technologies belonging to the Middle to Late Magdalenian, what stands this small collection apart from numerous similar others, is the inclusion of an extremely rare matched pair of decorated *baguettes demi-rondes* components. Thus, while little is known about the excavation history of these particular artefacts, the recovery of such an exceptionally rare near complete and intricately decorated *baguette demi-ronde* necessitates that it be reported to the archaeological community.

Baguettes demi-rondes, known as ‘half-round rods’ (HRRs for short) in English, are a two-part composite projectile point technology usually manufactured from antler, though the occasional example made from bone or ivory has also been identified. In general, the HRR is made up of a pair of elongated plano-convex pieces which when fixed together (presumably in conjunction with a fixing agent) form a single whole with an oval section (Fig. 3). While the distal (tip) end of the complete HRR point is cylindrical in section and piercing, the proximal (hafted) extremity may be of a number of different morphologies, including conical, bevelled, or fork-based (Feruglio, 1987). This method of point construction allowed the Magdalenian toolmaker to construct a projectile point of much larger proportions than the physical constraints imposed by the raw material (that is, antler beams) usually allowed. Having been reported since the early 20th century, this weapon type has long been considered as a *fossile directeur* for the Middle Magdalenian (18,700 to 15,800 cal. BP), though these artefacts are also known to appear (though in far less numbers) in Early and early Late Magdalenian contexts (Feruglio, 1987, 1992). Recently, a number of HRRs from Isturitz were dated radiometrically (Szmids et al., 2009, Table 1), with the dates falling between 17,100–15,800 cal. BP, confirming a late Middle Magdalenian attribution of this technology.

While some debate still surrounds the functionality of *baguettes demi-rondes* as a whole, it has been pointed out that not only is the proximal end of the implement consistent with having been hafted as a spear point, but the way in which they are manufactured (minimization of the spongiosa section through the fixing together of two parts constructed from the cortical section of antler; See Fig. 3) provides great resistance and elasticity – perfect for a projectile weapon (Feruglio, 1987; Rigaud, 2006). Additionally, the use wear (e.g. impact fractures, crushing, rounding, and

chipping of both extremities) found on these particular GdA artefacts are consistent with having been used as projectile points (see Langley, 2013 and Pétilion, 2006 for examples of these wear patterns on Magdalenian osseous projectile technologies). However, Feruglio (1987) maintains that not all *Baguettes demi-rondes* may have functioned as projectile points, and other researchers have found comparisons with ethnographic implements, including bag handles and fishing rod components (Breuil and Robert, 1951; Leroi-Gourhan, 1965).

While fragments of this technology are commonly recovered from Magdalenian sites, near complete examples (where both halves of a single weapon are identified) are exceedingly rare, previous examples only coming from several sites including, Isturitz (Feruglio, 1987; Passemard, 1916), Mas d'Azil (Péquart, 1960), Freudenthal (Boskinski, 1978), Gazel (Sacchi, 1986) and Le Roc-aux-Sorciers (Pinçon, 2009) (cf. Feruglio and Buisson, 1999). Heavily decorated paired examples, even more so (Feruglio, 1987). Consequently, the Grotte de l'Abbé point, being both near complete and intricately decorated, is worthy of detailed description, and in conjunction with the associated artefacts found alongside (also to be described herein) provides a small insight into the osseous toolkit of Magdalenian hunter-gatherers.

2. The site: Grotte de l'Abbé (Vilhonneur, Charente)

Grotte de l'Abbé is located on the left bank of the Tardoire river, on the townland of Vilhonneur, department of Charente, France (Fig. 1). In this area, the geology consists of Bajocian (Jurassic) age limestone, and yields unique features in the form of a complex karstic system (i.e. the “Karst of La Rochefoucauld”). Along the Tardoire river, between the towns of Montbron and La Rochefoucauld (a length of about ten miles), this karstic system contains a large concentration of caves and deep underground galleries. At about the center of this particular geological feature, the town of Vilhonneur is punctuated by several “mounds” where numerous caves are located. Some of these mounds hold meaningful names for prehistorians, such as Rochebertier, Le Bois-du-Roc, and Les Garennes (Airvaux et al., 1999; Balout, 1959; Debénath, 2006, 2014).

Indeed, archaeological pioneers (e.g., Jean-Louis Fermond, Arthur de Maret), followed by more experienced researchers (e.g. Gustave Chauvet, Henri Breuil), have invested in this region since the 1850s and this interest continued into the early 20th century. These researchers are thus responsible for revealing the prehistoric wealth of this region by carrying out more or less systematic explorations of the landscape and thus discovering numerous Palaeolithic sites (see Breuil, 1912; Chauvet, 1910; Fermond, 1873; de Maret, 1879). Notable sites discovered include, at

Table 1

Inventory of the Grotte de l'Abbé artefacts.

Tableau 1

Inventaire des objets de la grotte de l'Abbé.

Museum No.	Fig. 5 Reference no.	Artefact type	Major observations
GdA 01	1	Unbarbed Point (Sagaie)	Distal-mesial fragment; impact (splinter) fracture on proximal extremity
GdA 02	2	Unbarbed Point (Sagaie)	Distal-mesial fragment; bifacially worked fracture on proximal extremity
GdA 03	3	Half-round rod (<i>Baguette demi-ronde</i>)	Mesial fragment; impact (bevel) fractures on both extremities; no incised decoration on superior face; oblique striations on inferior face; may match GdA 09
GdA 04	4	Burnisher (Lissoir)	Distal-mesial fragment; splinter/bevel fracture on proximal extremity; rounding and polish on distal extremity
GdA 05	5	Unbarbed Point (Sagaie)	Mesial fragment; impact (bevel) fracture on proximal extremity; impact (splinter) fracture on distal extremity
GdA 06	6	Unbarbed Point (Sagaie)	Mesial fragment; impact (bevel) fracture on x extremity; impact (splinter) fracture on x extremity.
GdA 07	7	Blank	Blank fragment; groove-and-splinter method evident
GdA 08	8	Unbarbed Point (Sagaie)	Distal-mesial fragment
GdA 09	9	Half-round rod (<i>Baguette demi-ronde</i>)	Mesial-proximal fragment; impact (bevel) fracture on proximal extremity; post-depositional fracture distal extremity; no incised decoration on superior face; oblique striations on inferior face; may match GdA 03
GdA 10	10	Unbarbed Point (Sagaie)	Distal-mesial fragment
GdA 11	11	Burnisher (Lissoir)	Distal-mesial fragment; splinter fracture on proximal extremity; rounding and polish on distal extremity
GdA 12	12	Unbarbed Point (Sagaie)	Mesial fragment; impact (bevel) fracture on x extremity; impact (splinter) fracture on x extremity.
GdA 13	13	Blank	'Intact' blank; groove-and-splinter method evident; total length: 198 mm
GdA 14	14	Blank	Blank fragment; groove-and-splinter method evident
GdA 15	15	Blank	Blank fragment; groove-and-splinter method evident
GdA 16	16	Single Bevelled Unbarbed Point (Sagaie)	'Intact' point; impact (bevel) fracture on distal extremity; total length: 260 mm; incised line decoration on superior face
GdA 17	17	Single Bevelled Unbarbed Point (Sagaie)	'Intact' point; post-depositional fracture on distal extremity; total length: 255 mm
GdA 18	18	Unbarbed Point (Sagaie)	Mesial fragment; post-depositional fractures on both extremities; total length: 217 mm; incised line decoration on superior face
GdA 19	19	Half-round rod (<i>Baguette demi-ronde</i>)	Mesial fragment; post-depositional fracture on distal extremity; triangular/sub-circular proximal section; oblique striations on inferior face; incised decoration on superior face
GdA 20	20	Half-round rod (<i>Baguette demi-ronde</i>)	Mesial-proximal fragment; impact (splinter) fracture on proximal extremity; post-depositional fracture on distal extremity; oblique striations on inferior face; incised decoration on superior face
GdA 21	21	Pendant/Bead (Parure)	Red deer canine; perforated; bifacially drilled; incised oblique lines on one face and side; evidence of red ochre
GdA 22	22	Lithic	Shouldered point; Magdalenian type (?)

one location of the karstic system known as Rochebertier: Grotte de l'Ammonite, Grotte du Sureau, and most notably the famous cave of Le Placard (see Clottes et al., 2010). Another, known as Bois-du-Roc, yielded – among others – the two caves of Les Fadets, Abri André Ragout, and Abri du Chasseur (Balout, 1957, 1958, 1959).

The hill of Les Garennes, wherein Grotte de l'Abbé is located, was little known until recently. The site of Grotte de l'Abbé is currently inventoried as “Grotte des Laurines” in the Regional Archaeological Services database, though both these names correspond to a single and same site: a complex network of galleries, with various areas of contact with the open air, two of which bear the names in use (Fig. 2). Unfortunately, while this site was discovered and explored quite early, no information regarding the excavators and their investigations during the 19th century and early 20th century is available.

For the past ten years, however, a group of spelunkers has extensively explored Les Garennes, and it was, in fact, their efforts which lead to the December 2005 discovery of the Aven du Charnier, a Gravettian painted cave (Boulestin et al., 2006; Debénath, 2014: 266–267; Henry-Gambier et al., 2007). Their activities also allowed them to re-locate Grotte de l'Abbé in 2009 and, by some extraordinary luck, to also identify the supposed test pit of the old “excavations”. A preliminary observation of this heavily eroded “hole” revealed sediments in place rather brecciated along the cave walls but quite loose in the middle of the gallery with a slight slope toward the south-east, and disturbed by burrows dug by badgers or rodents. At this initial stage of exploration it was difficult to identify a clear stratigraphy, or differentiate distinct litho-sedimentological layers. Numerous bones and teeth (mandibles, scapulas, ribs, long bones) of hyena, bear, bison, (etc.), as well as several spear points fragments were observed scattered in the cut. These



Fig. 1. (Color online) Location of Grotte de l'Abbé.

Fig. 1. (Couleur en ligne) Localisation de la grotte de l'Abbé.

various lines of evidence gave us the feeling of a sporadic presence of humans associated with a carnivore den, on top of which the carcass of a brown bear was naturally “dragged” down. Since this excavation area is no larger than a few square feet, there appears to be quite a bit of sediment left untouched. Thus, there is undoubtedly the potential to conduct new excavations within this same area of the cave in the future.

3. The Grotte de l'Abbé HRR

Both HRR halves were present in the form of several fragments and splinters, covered with compacted sediments. It was therefore necessary to first conduct (by one of us, D.A.) the long and delicate work of artefact cleaning and preparation of these pieces before they could be glued back together to form these quite remarkable

artefacts. During cleaning, we realized with surprise that these two HRR components shared very similar morphologies and engraved patterns. It quickly became obvious that the two pieces perfectly matched with each other in terms of their width at several places along the shaft, the character of the oblique lines engraved on the inferior surfaces, and the intricate incised pattern on the superior surfaces. These consistencies suggest that they once made up the two halves of a single composite tool, in this case, a projectile point.

The Grotte de l'Abbé HRR consists of a mesial and a mesial-proximal fragment, which when matched together (by matching shaft width and the engravings on the superior surface; see Fig. 4) measure 262 mm in total length – around 100 mm shorter than the near complete example recovered from Isturitz by Passemard in 1913 (Passemard, 1916) and 100 mm short of the La Vache

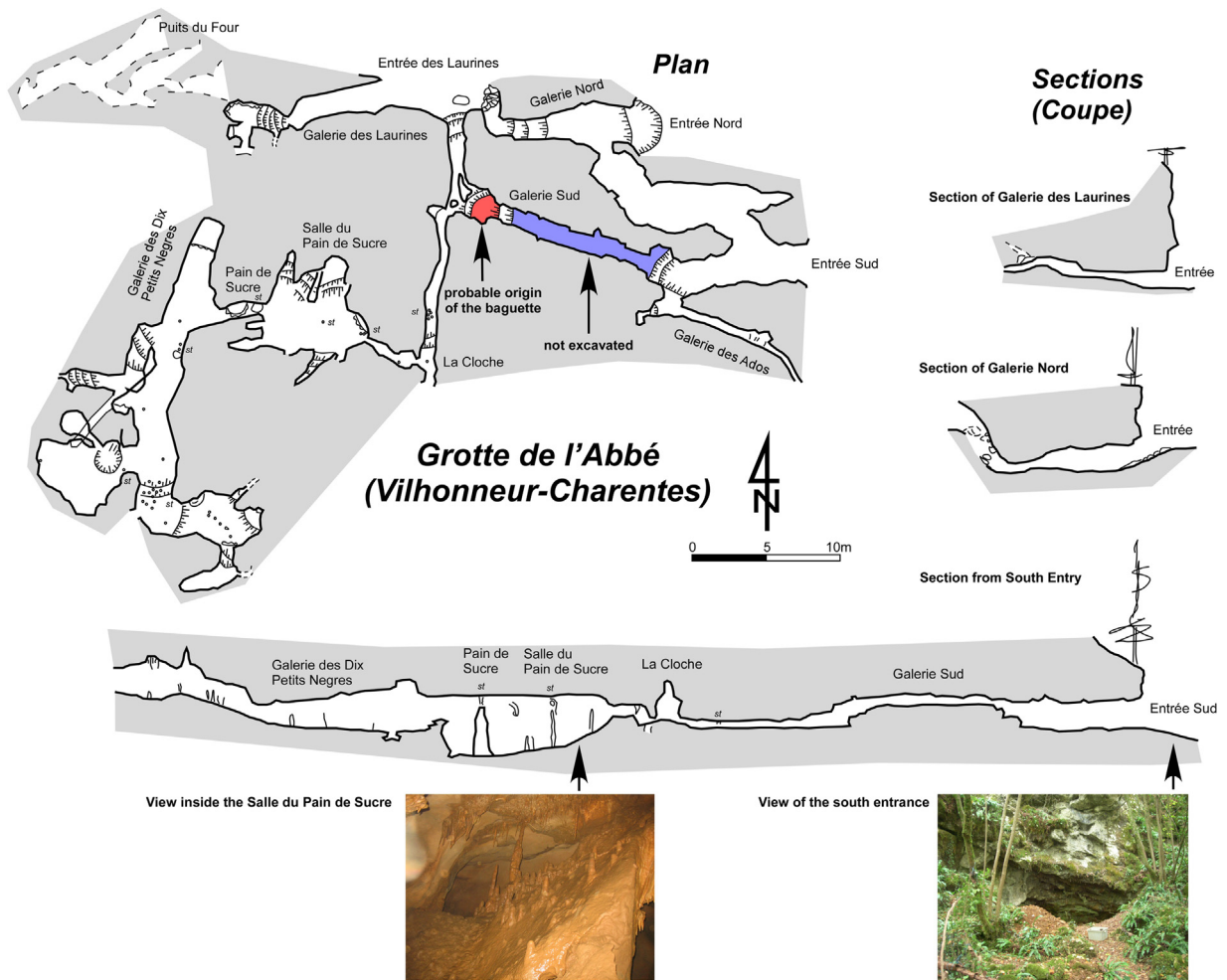


Fig. 2. (Color online) Map of Grotte de l'Abbé with probable provenance of the HRR indicated in red.
Fig. 2. (Couleur en ligne) Plan de la grotte de l'Abbé; la provenance probable de la HRR est indiquée en rouge.

example (which measures some 360 mm) (Feruglio and Welté, 2003). While the proximal extremity of the mesial fragment (GdA 19) exhibits a clear splinter fracture caused by impact, the distal extremities of both this piece and the mesial-proximal fragment (GdA 20) appear to have fractured post-depositionally. The proximal (base) extremity of GdA 20 is formed by two wide facets on its superior surface, creating a roughly triangular (or sub-circular) section. This type of conical base form is that most commonly identified on HRR proximal fragments (Feruglio, 1987).

The superior surface of each of the two halves is covered with a carefully executed engraved design. This design begins (as seen on GdA 20) at the proximal end with what might be described as a pair of schematic projectile points or even (perhaps) people: a vertical line/s with a shorter oblique line off each of its left and right sides, topped with a rounded area formed by multiple closely incised oblique lines (Figs. 3 and 4). These hatched circles are also seen at the proximal end of GdA 19 (Fig. 4). The next (mesial) section of decoration is delineated by two parallel horizontal lines which run transversally across the shaft. What follows

is a interwoven line formed by small chevrons. While the distal extremity of GdA 20 terminates in the second of the oval shapes formed by these marks, it can be seen on GdA 19 that the second oval terminates in what appears to be a stylized 'fish' (eel?) with gaping mouth (Fig. 4). Within these ovals are several short, oblique lines. The following section of decoration is less clear, though another oval/fish seems likely. The decoration then continues with three deep parallel curved lines before terminating at a post-depositional fracture. It is these decorations which allow us to confidently match the two halves as belonging to the same implement.

HRRs are the most highly decorated of all the Magdalenian osseous projectile points, with a range of figurative (primarily horse and reindeer motifs) and geometric designs (parallel lines, curved lines, chevrons, zig-zags, circles) observed (Feruglio, 1987). For example, analysis of the extensive La Vache (Ariège) collection of HRRs found that 68% exhibited engraved designs of one type or another (located on the superior face of the implements), though almost half (29%) of these displayed only one or two

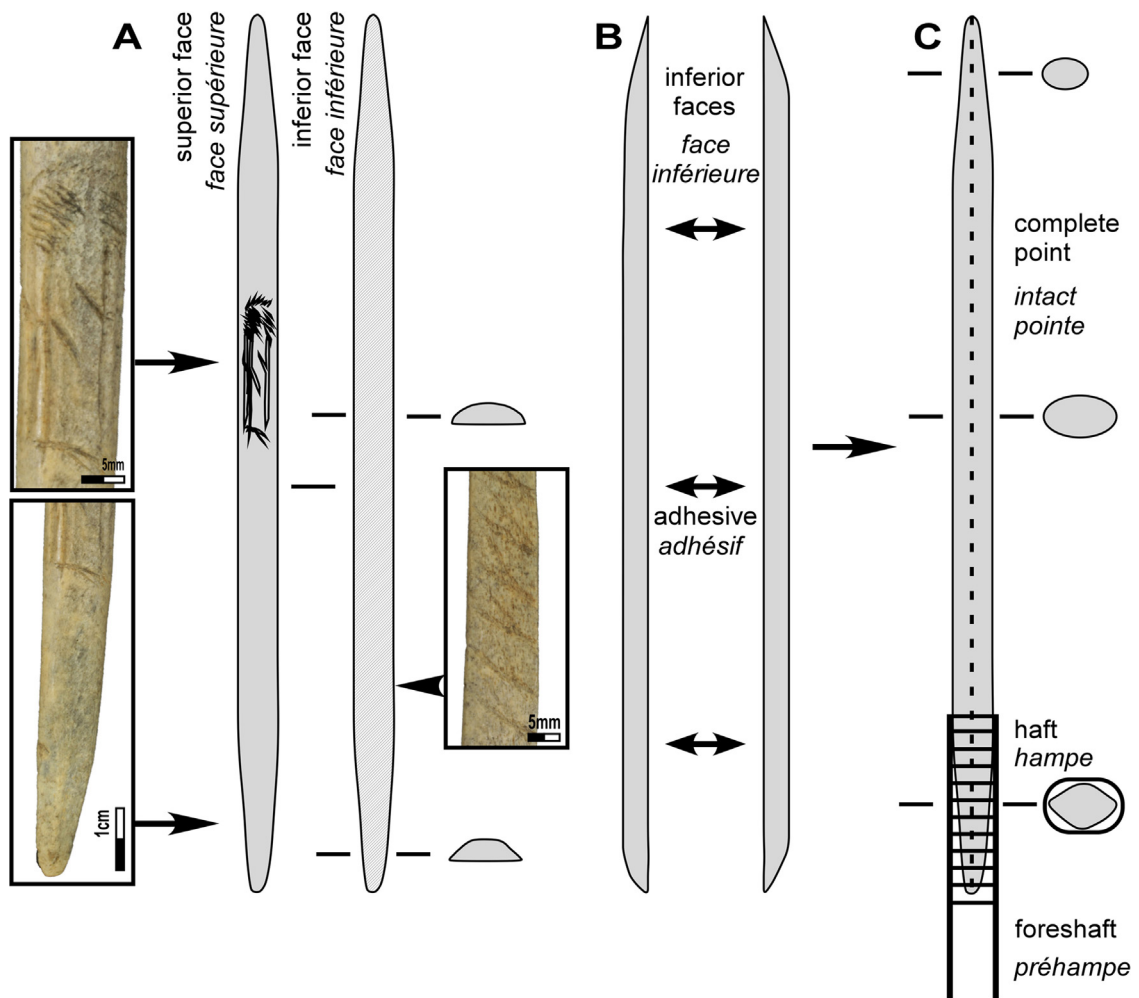


Fig. 3. (Color online) *Baguettes demi-rondes* composition with examples from the GdA artefacts: A. Details of the superior and inferior face of a HRR component. B. Fixing of the two halves. C. Morphology of a complete HRR point.

Fig. 3. (Couleur en ligne) *Baguettes demi-rondes*, avec exemples d'objets de la GdA: A. Détails de la face supérieure et inférieure d'un constituant de HRR. B. Fixation des deux moitiés. C. Morphologie d'une pointe HRR complète.

grooves running parallel to the point axis (Feruglio, 2003). In this dataset, 18% were found to display a unique geometric motif, 11% a figurative motif, and 9% a twisting pattern motif similar to that found on the Grotte de l'Abbé point (Feruglio, 2003). Further similarities of the Grotte de l'Abbé point with HRRs found elsewhere include the oval motifs constructed out chevrons and surrounding several oblique lines (seen at Mas d'Azil; Feruglio, 1987), while the use of two parallel horizontal lines to separate the motifs was found on 7% of the La Vache examples.

Previously, the most outstanding examples of engravings found on HRRs include the series of spiral designs recovered from Isturitz (Pyrénées-Atlantiques), while Mas d'Azil (Ariège) produced several excellent examples of reindeer motifs. These artefacts, however, are singular pieces lacking their complementary half, while the more complete points (where both halves were recovered) have featured less complex designs (such as the Isturitz example which exhibits paired curved lines). The Grotte de l'Abbé HRR with its extensive decorations is thus unique.

4. Also (re)discovered

Also recovered were three bevel-based unbarbed points (*sagaies*) of exceptional length, distal, mesial, and proximal point fragments from additional HRRs and (likely) bevel-based points, blanks for point (or other antler tool) manufacture, burnisher (*lissoir*) fragments, and a single, perforated red deer tooth ornament.

Two fragments of additional HRRs (GdA 03 and GdA 09) were recovered alongside the matched and decorated pair, though in each of these cases no decoration was identified on the superior surfaces (Fig. 5B). These pieces include a mesial and mesial-proximal fragment respectively which may have belonged to a single implement as the same type of parallel oblique striations are present on each of the inferior faces and the pieces are of similar shaft dimensions (GdA 03: max. length: 74 mm, max. width: 11.1 mm; GdA 09: max. length: 55.4 mm, max. width: 10.2 mm). While GdA 03 displays a bevel fracture at both extremities, the mesial-proximal GdA 09 fragment has been broken

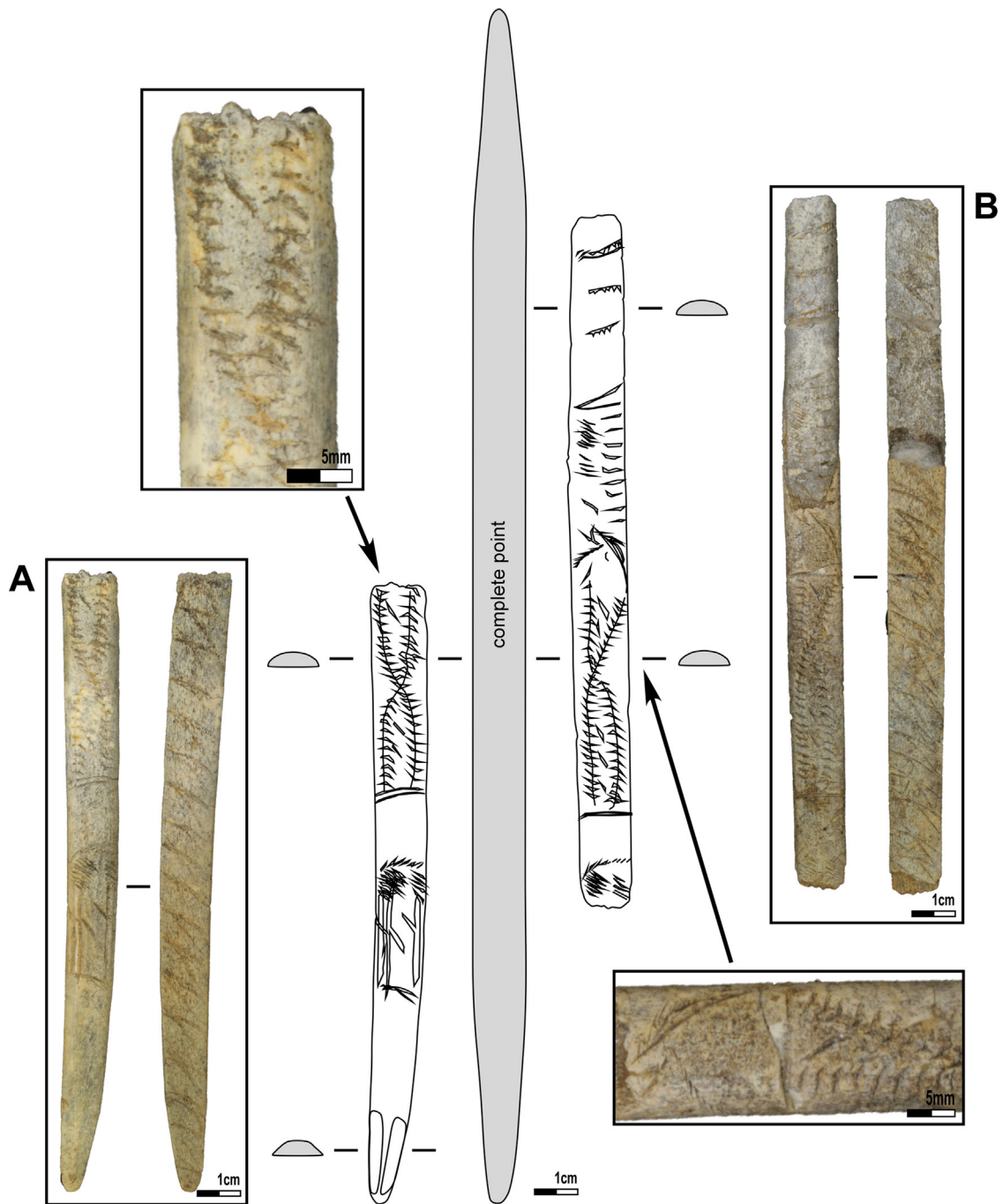


Fig. 4. (Color online) The paired *Baguettes demi-rondes* pieces. A. Mesial-proximal fragment (GdA 20). B. Mesial fragment (GdA 19). Detail of engraved decorations in inset boxes.

Fig. 4. (Couleur en ligne) Paires de baguettes demi-rondes. A. Fragment mésio-proximal (GdA 20). B. Fragment mésial (GdA 19). Détail de décorations gravées en encart.

post-depositionally at its distal end. Some crushing and rounding is visible on its curved proximal edge, however, indicating that it had seen use before discard.

Other antler-based projectiles recovered from this site included three near complete unbarbed points (*sagaies*) (GdA 17–18), four distal-mesial fragments probably from

these same weaponry types (GdA 01, 02, 08, 10), and four mesial fragments with textbook impact (splinter and bevel) fractures (GdA 05, 06, 12) (Fig. 5A). While three of the distal-mesial fragments exhibit impact fractures on their distal and proximal extremities (crushing, chipping and rounding on the distal tip and splinter fractures on the proximal



Fig. 5. (Color online) Technology found alongside the decorated HRRs: A. Unbarbed point fragments including three near complete bevel-based points. B. Additional HRR fragments. C. Burnisher fragments. D. Tool blanks. E. Lithics.

Fig. 5. (Couleur en ligne) Technologie associée aux baguettes demi-rondes décorées. A. fragments de pointes de sagaie dont trois pointes à base obliquement pratiquement complètes. B. Autres fragments de baguettes demi-rondes. C. Fragments de lissoir. D. Supports d'outils. E. Silex taillés.

extremities), the fourth (GdA 02) terminates in what is known as 'sectionnée par rupture après raclage' (Chauvière and Rigaud, 2005) or 'sectionnement par raclage en diabolito et détachement par flexion' (Pétillon, 2006), an intentionally worked fracture. On this particular piece, both the superior and inferior faces have been cut and scraped (bifacially worked) in order to make the shaft thin enough to be snapped by flexion. The intentional removal of a point's distal tip was likely the result of either the weapon having been embedded in a carcass (to remove the weapon from the target) or to remove a damaged tip as part of maintenance activities. As this artefact also exhibits an uneven

section along its distal half, resulting from the reshaping of the tip, either of these scenarios is plausible.

The three most complete points (GdA 16–18) are bevel-based points. The first (GdA 16) is a near complete single bevel-based point with an intact base and small bevel fracture at its distal tip (resulting from impact with a target). This weapon tip measures 260 mm in total length. The second artefact is a post-depositionally fractured mesial-proximal fragment of a double bevel-based point (GdA 17), measuring 255.3 mm in total length. The third artefact (GdA 18) measures 217.5 mm in total length and is a post-depositionally fractured mesial fragment which may



Fig. 6. Perforated red deer canine. Inset boxes highlight the short lines engraved into its surface with possible traces of ochre.

Fig. 6. Canine de cerf élaphe perforée. Les encarts mettent en lumière les lignes courtes gravées dans sa surface, avec d'éventuelles traces d'ocre.

have originally belonged to either a single or double bevel-based point. Interestingly, both GdA 16 and 18 have a series of closely knit slightly parallel and almost vertical lines engraved down their superior face. The fact that these artefacts exhibit the same decoration and were recovered together from this site suggests that they belonged to the same local technical tradition and perhaps even the same toolkit.

In that same box, were four pieces of tool blanks, including one complete example (Fig. 5: GdA 07, 13–15). These pieces display manufacturing stigmata in the form of grooves and cut marks resulting from the use of the groove-and-splinter technique to extract them from the antler beam. The groove-and-splinter technique was the most commonly used blank extraction method utilized during the Middle to Late Magdalenian (Pétillon and Ducasse, 2012). The complete example (GdA 13) appears long enough to be a projectile point blank at 198.6 mm in total length and 19 mm in maximum width.

Also identified were two distal fragments of burnishers (*lissoirs*), identifiable from their worn, smooth and rounded distal extremity: typical use wear for these leather working tools (Fig. 5: GdA 11 and 04). Measuring 67.7 mm (GdA 11) and 91.4 mm (GdA 04) respectively, each terminates in a splinter fracture at their proximal extremity indicating that they broke during use.

Finally, a heavily patinated fragment of a shouldered lithic point, which seems closer to the Magdalenian than Solutrean type (Fig. 5) along with a single perforated and engraved red deer canine was found (Fig. 6). This pendant (18.6 × 13.2 mm) exhibits a single perforation which has been drilled from both sides along with oblique lines engraved into its side and edge. There is a slight reddish tinge to the lines found on the side which may be traces of ochre, however, analysis to confirm this suggestion is yet to be undertaken. This bead is consistent with the many similar pieces of red deer teeth ornamentation found in Magdalenian contexts throughout Western Europe (e.g. Vanhaeren and d'Errico, 2005).

5. Discussion and conclusion

Owing to the circumstances surrounding the recovery of these artefacts, we cannot be sure of their direct association with one another, and thus, our interpretative capabilities are rather limited. Despite this setback, however, the fact that a matching pair of HRR components was recovered lends a little weight towards this small assemblage having been deposited over a restricted period of time. Moreover, and as mentioned earlier, there appears to be only one archaeological horizon recognizable in the stratigraphic cut left by the old investigations.

The material culture discovered at the museum may hold some clues regarding its age. As mentioned earlier, HRRs are considered as a *fossile directeur* for the Middle Magdalenian, even though they may appear in Early Magdalenian and early Late Magdalenian assemblages. The absence of barbed points (*harpons*) (present at the nearby Grotte de l'Ammonite) or other characteristic elements precludes a chrono-cultural attribution to the Late Magdalenian phase. By contrast, the strong similarity of

features in this collection with other supposedly contemporaneous sites (e.g. Le Placard: Chauvet, 1910; Grotte de la Mairie at Teyjat: Capitan et al., 1908) supports an attribution to the later part of the Middle Magdalenian (Breuil's 'Magdalenian IV').

At Grotte de l'Abbé, the presence of the shouldered point is a bit ambiguous. With a very patinated appearance, such a tool, characteristic of either the earliest sub-phase of the Middle Magdalenian or the Late Magdalenian (see Demars and Laurent, 1989; Lenoir, 2003) may be intrusive and reflect a more disturbed archaeo-stratigraphic context than initially expected. Nevertheless, in order to ultimately clarify the chronological position of these artefacts, some of them will need to be directly dated.

Overall, Grotte de l'Abbé and the finds presented here, are a welcome addition to an already impressive list of sites dating to the Magdalenian in this region. Indeed the area of Vilhonneur witnessed a dense human occupation during this period, with no less than nine sites already recorded: La Robinière, Grotte de l'Ammonite, Grotte du Bronze, Abri André Ragout, Grotte des Fadets n° 1, Abri du Chasseur, Grotte du Loup, Grotte du Sureau, and Grotte du Placard (see Balout, 1959; Debénath, 2006, 2014; Dujardin and Gomez de Soto, 2001; Patte, 1941). Most of these sites are ill-known owing to the nature of early investigations which are usually associated with a lack of field notes and the loss of collections. Among these sites, Le Placard stands out as an exceptional site owing to its wealth and diversity of past human activities represented there along with the volume of artefacts exhumed by numerous generations of scholars. At this site, several chrono-cultural entities are documented, including the Upper Solutrean and Badegoulian, as well as the Lower and Middle Magdalenian. As noted above, Grotte de l'Abbé could also date to this latter phase. Thus, at the moment, these two sites may be perceived as contemporary. Additionally, it should be noted that about 15 miles away toward the south-east, Grotte de la Mairie in Teyjat (lowest layer, dated roughly to ca. 17,100–15,800 cal. BP) may constitute a third site in the region of this (still poorly known) cultural entity of the late Middle Magdalenian.

Clearly, additional work at Grotte de l'Abbé is justified with not only extraordinary artefacts having been already recovered, but also the potential of this site having functioned contemporaneously with nearby Le Placard and other sites.

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References

- Airvaux, J., Duport, L., Lévêque, F., 1999. Un siècle de recherches préhistoriques en Charente. La Charente paléolithique dans son contexte régional, Angoulême, France.

- Balout, L., 1957. L'abri du Chasseur au Bois-du-Roc, commune de Vilhonneur (Charente). Note préliminaire. In: Congrès préhistorique de France. Comptes rendus de la XV^e session, Poitiers-Angoulême, 15–22 juillet. Bureaux de la Société préhistorique française, Paris, pp. 199–205 (1 pl.).
- Balout, L., 1958. L'abri André-Ragout au Bois-du-Roc (Vilhonneur-Charente). Fouilles de 1957. Bull. Soc. Préhist. Fr. LV, 599–627 (12 fig., 1 pl.).
- Balout, L., 1959. Grottes et abris sous roche de Vilhonneur. In: Actes du 87^e Congrès national des Sociétés savantes, Bordeaux 1957, pp. 13–25 (2 pl. ht.).
- Boskinski, G., 1978. Eine zusammengesetzte Magdalénien-Geschoßspitze aus der Höhle im Freudenthal, Kanton Schaffhausen. Archäol. Korresponden. 8 (2), 87–89.
- Boulestin, B., Debénath, A., Gomez de Soto, J., Tournepiche, J.-F., 2006. Une nouvelle grotte ornée en Charente: l'aven du Charnier à Vilhonneur. Historique d'une découverte. Bull. Soc. Préhist. Fr. 103 (1), 172–174.
- Breuil, H., 1912. Les subdivisions du Paléolithique supérieur et leur signification. In: 14^{ème} congrès international d'anthropologie et d'archéologie préhistorique, Genève 1912, Tome 1. Ed. CIAAP, Genève.
- Breuil, H., Robert, R., 1951. Les baguettes demi-rondes de La Vache. Bull. Soc. Préhist. Fr. 9–10, 453–457.
- Capitan, L., Breuil, H., Peyrony, D., Bourrinet, P., 1908. La grotte de la Mairie à Teyjat (Dordogne). Fouilles d'un gisement magdalénien. Rev. Ec. Anth. Par. 18, 153–173.
- Chauvet, G., 1910. Os, ivoires et bois de renne ouverts de la Charente. In: Hypothèses paléthnographiques (Collection G. Chauvet). Constantin Ed, Angoulême.
- Chauvière, F.-X., Rigaud, A., 2005. Les sagaies à base raccourcie ou les avatars de la typologie: du technique au non-fonctionnel dans le Magdalénien à navettes de La Garenne. In: Dujardin, V. (Ed.), Industrie osseuse et parures du Solutrén au Magdalénien en Europe. Table ronde sur le Paléolithique supérieur récent d'Angoulême (2003). Mémoire de la Société préhistorique française, XXXIX. Société préhistorique française, Paris, pp. 233–242.
- Clottes, J., Duport, L., Feruglio, V., Le Guillou, Y., 2010. La Grotte du Placard à Vilhonneur (Charente) (fouilles 1990–1995). In: Buisson-Catil, J., Primault, J. (Eds.), Préhistoire entre Vienne et Charente. Hommes et sociétés du Paléolithique. Mémoire XXXVIII. Association des Publications Chauvinoises, Chauvigny, pp. 345–358.
- Debénath, A., 2006. Néandertaliens et Cro-Magnons, les temps glaciaires dans le bassin de la Charente. Le Croît Vif, Paris.
- Debénath, A., 2014. Histoire de la préhistoire en Charentes. Le Croît Vif, Saintes.
- Demars, P.-Y., Laurent, P., 1989. Types d'outils lithiques du Paléolithique supérieur en Europe. Cahiers du Quaternaire, 14. Editions du CNRS, Paris.
- Dujardin, V., Gomez de Soto, J., 2001. Pendeloques magdaléniennes méconnues du Bois-du-Roc à Vilhonneur (Charente, France). Archäol. Korresponden. 31 (1), 1–11.
- Fermond, J., 1873. Stations humaines préhistoriques. Notice sur les différents âges de la pierre et sur l'âge du bronze dans la vallée de la Tardoire. Imprimerie de la Charente, Angoulême.
- Feruglio, V., 1987. Les baguettes demi-rondes dans le bassin de la Charente. Le Cro Magdalin Fund, and The Boise Trust Fund, Oxford.
- Feruglio, V., 1992. Baguettes demi-rondes. In: Camps-Fabrer, H. (Ed.), Fiches typologiques de l'industrie osseuse préhistorique. Cahier V : Bâtons percés, baguettes. Publications de l'Université de Provence, Aix-en-Provence.
- Feruglio, V., 2003. Les baguettes demi-rondes. In: Clottes, J., Delporte, H. (Eds.), La Grotte de La Vache (Ariège). Cths, Paris, pp. 275–284.
- Feruglio, V., Buisson, D., 1999. Accolements de pièces à section demi-ronde. In: Julien, M., Averbough, A., Ramseyer, D. (Eds.), Préhistoire d'Os. Publications de l'Université de Provence, Aix-en-Provence, pp. 143–149.
- Feruglio, V., Welté, A.-C., 2003. Baguettes demi-rondes. In: Clottes, J., Delporte, H. (Eds.), La grotte de la Vache (Ariège). Cths, Paris, pp. 209–251.
- Henry-Gambier, D., Beauval, C., Airvaux, J., Aujoulat, N., Baratin, J.-F., Buisson-Catil, J., 2007. New hominid remains associated with Gravettian parietal art (Les Garennes, Vilhonneur, France). J. Hum. Evol. 53, 747–750.
- Langley, M.C., 2013. Investigating Maintenance and Discard Patterns for Middle to Late Magdalenian Antler Projectile Points: Inter-Site and Inter-Regional Comparisons. Institute of Archaeology, University of Oxford, Oxford (Unpublished PhD (D. Phil.) thesis).
- Lenoir, M., 2003. Le Magdalénien à pointes à cran de Gironde. In: Ladier, E. (Ed.), Les pointes à cran dans les industries lithiques du Paléolithique supérieur récent de l'oscillation de Lascaux à l'oscillation de Bölling. Actes de la table ronde de Montauban (Tarn-et-Garonne), 26–27 avril 2002. Supplément 6. Association Préhistoire du Sud-Ouest, Cressensac, pp. 73–83.
- Leroi-Gourhan, A., 1965. Préhistoire de l'art occidental. Mazenod, Paris.
- de Maret, A., 1879. Fouilles de la grotte du Placard, près de Rochebertier (Charente). In: Comptes-rendus du congrès de Vienne, sept. 1879. Société française d'archéologie, pp. 3–19.
- Passemard, E., 1916. Sur les baguettes demi-rondes. Bull. Soc. Préhist. Fr. 13 (6), 301–307.
- Patte, E., 1941. Le Paléolithique dans le Centre-Ouest de la France. Charente, Charente-Inférieure, Deux-Sèvres, Haute-Vienne, Indre, Indre-et-Loire, Vendée, Vienne. Masson et Cie, Paris.
- Péquart, M.J., 1960. La grotte du Mas d'Azil (Ariège). Une nouvelle galerie magdalénienne. Ann. Paléontol. (Vert.) 46, 125–194.
- Pétillon, J.-M., 2006. Des Magdaléniens en armes : technologie des armatures de projectile en bois de cervidé du Magdalénien supérieur de la grotte d'Isturitz (Pyrénées-atlantiques). Centre d'études et de documentation archéologiques, Treignes.
- Pétillon, J.-M., Ducasse, S., 2012. From flakes to grooves: a technical shift in antlerworking during the last glacial maximum in southwest France. J. Hum. Evol. 62, 435–465.
- Pinçon, G., 2009. Le Roc-aux-Sorciers: Art et Parure du Magdalénien. RMN, Paris.
- Rigaud, A., 2006. Étude technologique des baguettes demi-rondes de Labastide (Hautes-Pyrénées). Archéologie des Pyrénées occidentales et des Landes, 25., pp. 229–246.
- Sacchi, D., 1986. Le Paléolithique supérieur du Languedoc occidental et du Roussillon. XXI^e Supplément à Gallia Préhistoire. Editions du CNRS, Paris.
- Szmidt, C., Pétillon, J.-M., Cattelain, P., Normand, C., Schwab, C., 2009. Premières dates radiocarbone pour le Magdalénien d'Isturitz (Pyrénées-Atlantiques). Bull. Soc. Préhist. Fr. 106 (3), 583–601.
- Vanhaeren, M., d'Errico, F., 2005. Grave goods from the Saint-Germain-la-Rivière burial: evidence for social inequality in the Upper Palaeolithic. J. Anthropol. Archaeol. 24 (2), 117–134.