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**Les sociétés gravettiennes du Nord-Ouest européen :
nouveaux sites, nouvelles données, nouvelles lectures**

**Gravettian societies in North-western Europe:
new sites, new data, new readings**

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Amiens-Renancourt 1: An Exception in the Northwest European Gravettian?

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Résumé

Le Paléolithique supérieur ancien du nord de la France est resté longtemps très mal documenté. Depuis quelques années, les découvertes de sites attribuables à cette période se sont cependant multipliées, insufflant une nouvelle dynamique de recherche, en particulier en ce qui concerne le Gravettien.

Parmi ces nouveaux gisements, Amiens-Renancourt 1 est le plus remarquable. Actuellement en cours de fouille, l'unique niveau archéologique est daté de 23 ka BP (non cal.). Il est préservé à quatre mètres de profondeur au sein d'une séquence lœssique couvrant l'ensemble du Pléniglaciaire supérieur (≈ 30-15 ka). Le mobilier est riche et varié, avec notamment la découverte exceptionnelle d'une dizaine de statuettes féminines en craie, totalement inédites pour le Nord-Ouest de l'Europe.

Les études en cours permettent aujourd'hui d'établir les principales caractéristiques du mobilier. Celles-ci peuvent paraître relativement singulières dans le paysage du Nord-Ouest européen tel que nous le connaissons actuellement, avec par exemple la production de grandes lames arquées avec des talons en éperon, des parures spécifiques et de nombreuses représentations féminines en ronde-bosse. Néanmoins, un retour sur d'anciennes découvertes régionales et un tour d'horizon bibliographique montrent qu'Amiens-Renancourt 1 n'est pas un cas isolé dans le Nord-Ouest européen. Il se rapproche d'un faciès évoqué dans le sud du Bassin parisien par L. Klaric sous le terme de Gravettien « récent-final », ou « récent-évolué ». Amiens-Renancourt 1 constitue un jalon bien calé chronologiquement et un site de référence pour discuter de la place et des spécificités de ce faciès chrono-culturel dans la mosaïque gravettienne.

Mots-clés : Gravettien, nord de la France, attribution chrono-culturelle, statuettes féminines, lœss.

Abstract

Until recently, Early Upper Palaeolithic sites in the North of France remained poorly known or documented. However, the multiplication of new discoveries over the past few years has added new impetus to research on this period, in particular for the Gravettian.

Amiens-Renancourt 1 is the most remarkable of these new sites. Excavations are still in progress and the sole archaeological level, at a depth of four metres, is dated to 23 ka BP (uncal.). It is particularly well-preserved in a loessic sequence encompassing the whole Upper Pleniglacial. The material in this level is rich and varied, and includes the exceptional discovery of ten female statuettes in chalk, totally unprecedented in north-western Europe.

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The characteristics of the material define the main cultural traits of the Gravettian of Amiens-Renancourt 1. These traits may appear to be relatively singular in the Northwest European Gravettian, with for example, the production of large arched blades with spurred butts, specific ornaments and numerous female statuettes sculpted in the round. Nonetheless, an overview of early regional discoveries and a bibliographic review show that Amiens-Renancourt 1 is not an isolated case in north-western Europe. It is similar to a facies described in the south of the Paris Basin by L. Klaric as the “recent-final”, or “recent-evolved” Gravettian (Klaric, 2013). Amiens-Renancourt 1 is a well-defined chronological marker for discussing the position and the characteristics of this chrono-cultural facies in the Gravettian mosaic.

Keywords: Gravettian, Northern France, chronocultural attribution, female statuettes, loess.

Introduction

Until the beginning of the twenty-first century, studies of the Early Upper Palaeolithic in the North of France (Hauts-de-France region) were faced with scarce or insufficient data. Until recently, few sites could be attributed to this period and documentation was often limited from a quantitative viewpoint, and lacked an explicit context. The scientific contribution of assemblages from surface collections or early excavations thus remained limited (Fagnart *et al.*, 2013).

Over the past few years, new sites in major loessic sequences have been discovered as part of preventive archaeological operations (Paris *et al.*, 2017; Goval and Hérissin, 2018). The preservation of these assemblages in particularly auspicious contexts has resulted in the definition of the chronostratigraphic framework of the archaeological occupations, substantiated by a corpus of absolute dates and paleoenvironmental data. In addition, the intra-site organization of these remains opens new avenues of research, such as a paleoethnological approach to occupations, and paves the way to an enhanced understanding of regional settlement patterns.

Amiens-Renancourt 1 is the best documented of these sites, and the study of the site has fully integrated these new research dynamics (Paris *et al.*, 2017). It was discovered in 2011 during an INRAP operation and has since still ongoing annual excavation campaigns. The Gravettian level currently extends over a surface of about 80 m² (fig. 1). The exceptional character of the site lies in the discoveries of several female statuettes. The first observation and contextual data (stratigraphy, dating, taphonomy) have been recently published (Paris *et al.*, 2017).

As the excavation is still ongoing, data from the site are still preliminary. However, studies in progress have brought to light the main characteristics of the lithic material. At first glance, these appear to be rather exceptional for the Northwest European Gravettian. The laminar debitage, for example, is characterized by large blades with spurred butt preparation. In the same way, the types of ornaments and the presence of female statuettes are also very specific elements of the site.

In the framework of a PhD thesis (C. Paris, 2020) and the Projet Collectif de Recherches (PCR) “PaléHauts” directed by É. Goval, a review of the data from poorly defined regional sites has shown that Amiens-Renancourt 1 is not an isolated site. Comparisons are also possible with several sites in north-western Europe.

This article presents the main cultural traits of Amiens-Renancourt 1 and compares the site with the Gravettian in Western Europe.

Presentation of Amiens-Renancourt 1

Location

The site is located in the Renancourt area west of Amiens (Northern France), in the lower part of a silty promontory delimited by the Selle valley in the southwest and by a small very encased dry valley in the north, the “Vallée de Grâce”, hereafter named the Grace valley. The complex overlooks the Selle valley several hundred metres from the confluence with the Somme river. More specifically, the site of Amiens-Renancourt 1 is situated at the base of the northern slope of this promontory oriented towards the Grace valley (fig. 1). A second earlier Gravettian site, called “Amiens-Renancourt 2”, was identified and partly excavated nearby south-eastward (Paris *et al.*, 2019).

This sector has been known since the beginning of the twentieth century as a result of excavations carried out by V. Commont in the “Devalois brickyard”, over a surface of 7 by 3 metres, which yielded a lithic assemblage characterized by well-made blades, as well as bone remains from a possible hearth (Commont, 1913). The collection was dispersed after the death of V. Commont, which has prevented any reanalysis of the material, but the stratigraphic position of this level in calcareous loess clearly shows that it can be attributed to the Early Upper Palaeolithic (Fagnart, 1988). In spite of the fact that the material is now lost, this site represented, before the discoveries of new sites, the only quantitatively significant evidence of the Early Upper Palaeolithic (several hundred elements) from a reliable stratigraphic context in Northern France.

In 2011, as part of a diagnostic archaeological operation on the whole slope, a deep test pit revealed a new concentration of the same type as that excavated by V. Commont (Paris *et al.*, 2013; 2017). It is situated immediately beside the “Devalois brickyard” (fig. 1), in a similar stratigraphic context and at a similar depth to the data published by V. Commont. In the same way, the lithic assemblage is comparable to the assemblage brought to light at the beginning of the twentieth century.

Installation of the site

The mapping of the top of the chalky substratum, interpolated as a result of the numerous deep test pits made over the whole slope, shows that the site of Amiens-Renancourt 1 is installed at the base of the slope, at the foot of a chalky talus which forms a spur in this sector running down towards the Grace valley (fig. 2b). This spur forms a natural, semi-circularly shaped protection propitious to the conservation of the occupation. By favouring the development of plants and maintaining humidity in places, this spur favoured the accumulation of loess (nearly eight metres in this sector) and limited sedimentary reworking by deflation. The chalky talus also plays an important role in the choice of Gravettian site implantation. It provides protection from the wind and offers a zone for the potential acquisition of siliceous and chalky raw materials. Indeed, this formation is rich in high-quality flint from the Cretaceous stages of the Upper Turonian / basal Coniacian and the Coniacian, as are the nearby abrupt slopes of the Grace valley. The alluvions and deposits at the base of the neighbouring slope also contain abundant blocks of flint in secondary position.

Stratigraphic position of the archaeological level

A new survey carried out in optimal conditions now enables us to define the location of the archaeological occupation in the 8m-thick stratigraphic sequence (fig. 2a).

The sequence of Renancourt fits perfectly into the pedosedimentary pattern described for the Weichselian Upper Pleniglacial in Northern France, characterized by an acceleration of loessic sedimentation rates (Antoine *et al.*, 2016). It should be noted that at Renancourt, there are no large ice wedges characteristic of the stratigraphic sequences that developed on the plateau. The reference horizon of the upper part of the stratigraphic sequence (unit 3) is considered as the equivalent of the

Nagelbeek Tongue Horizon, which usually separates typical homogeneous calcareous loess (unit 2) from laminated calcareous loess with micro-cracks (units 4 and 5). The lower part of the sequence is composed of homogeneous calcareous loess alternating with a thin tundra gley (unit 8) and a brown loess horizon / tundra gley (unit 10). Gravettian occupation is in the upper tundra gley (unit 8).

Up to now, this succession of homogeneous calcareous loess had never been observed in the region of Amiens. The two intercalated pedogenetic horizons (units 8 and 10) can be correlated from a chronostratigraphic point of view to the Santerre Cryoturbated Horizon identified in the eastern Somme (Antoine, 1991) and to the successive tundra gleys from the top of the Havrincourt sequence in the Pas-de-Calais (units 3a and 3c; Antoine *et al.*, 2014). In the Nussloch reference sequence located in the Rhine Valley towards Heidelberg (Germany), the equivalent tundra gley doublet (G3 and G4; Antoine *et al.*, 2009) is dated between around 29 and 27 ka cal. BP (23 to 25 ka BP) (Moine *et al.*, 2017).

Tundra gley (unit 8) containing the Palaeolithic industry was therefore clearly deposited prior to the laminated loess with micro-cracks, which corresponds to the thickest sedimentation episode in the region. Preliminary malacological data indicate that this tundra gley is associated with milder interstadial conditions generally associated with the gradual melting of permafrost and the waterlogging of the active layer during each seasonal thaw. According to the ice core records of Greenland (Rasmussen *et al.*, 2014), it would be contemporaneous with the Greenland interstadial (GI) 3 interstadial. The occupation occurs in the first part of this phase, during a stadial-interstadial transition, characterized by a largely open steppe environment (Moine *et al.*, 2021).

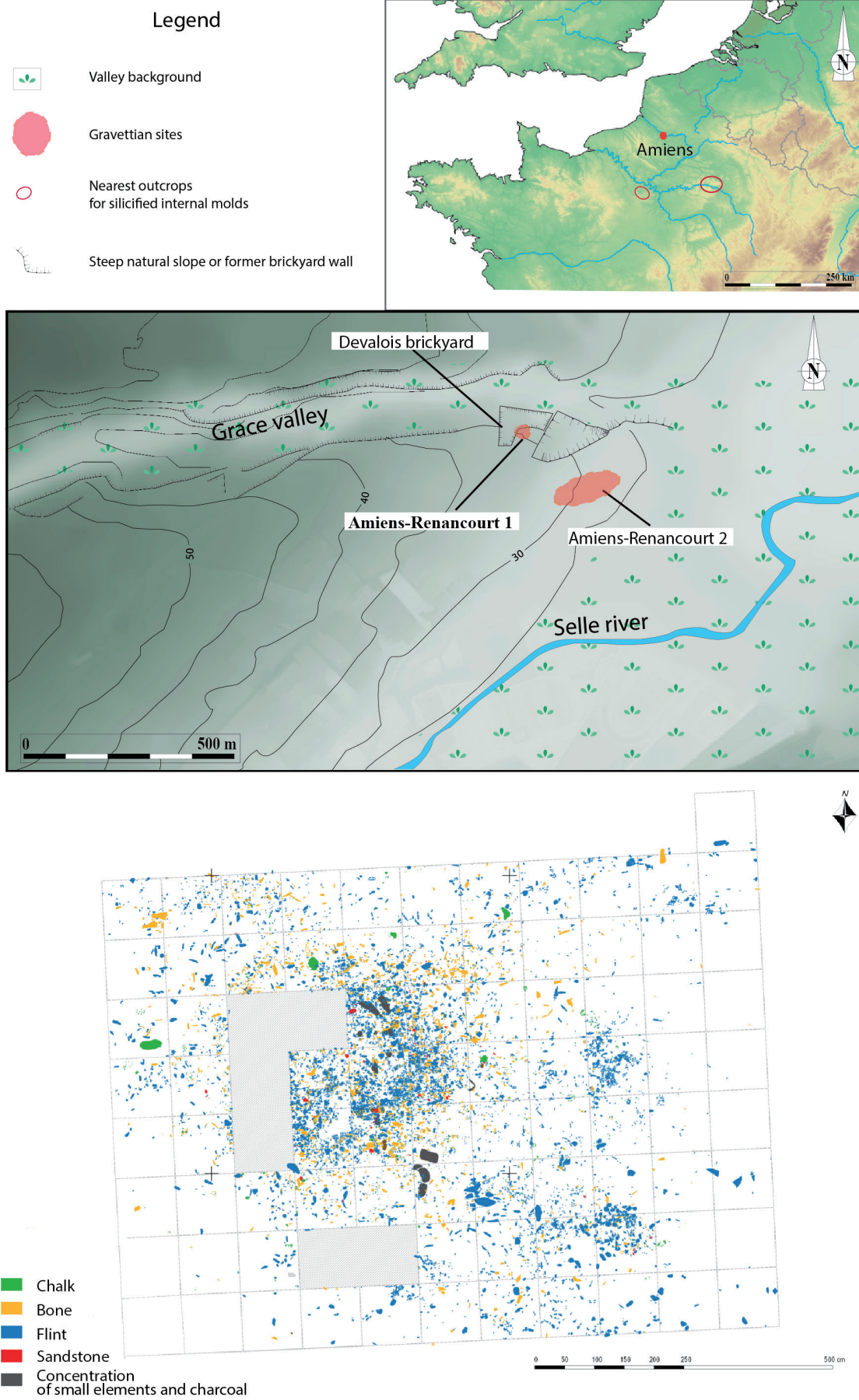


Fig. 1 – Geographic and topographic location of the Amiens-Renancourt 1 site (top) and current plan of the concentration (bottom).

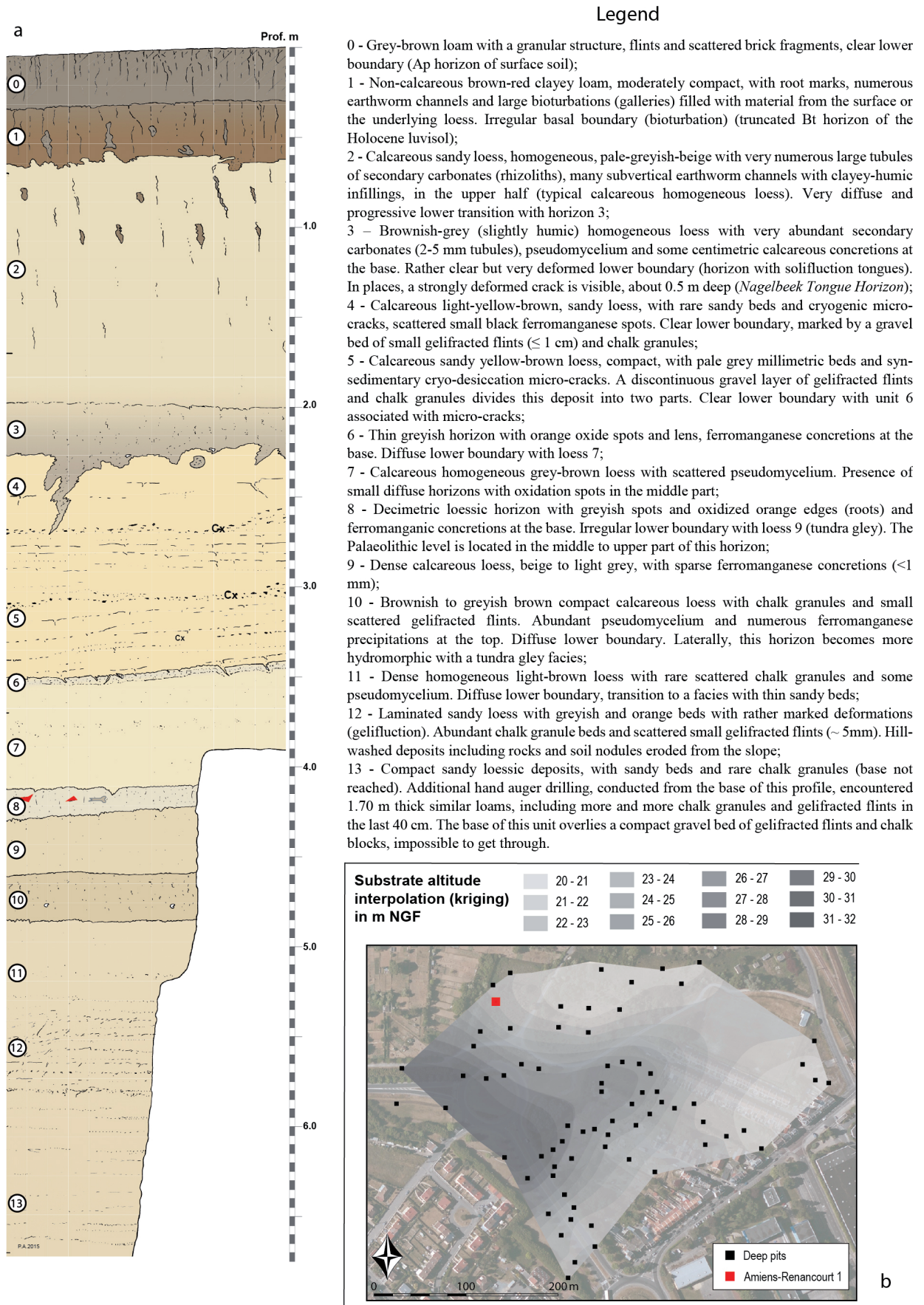


Fig. 2 – Stratigraphic profile of the Amiens-Renancourt 1 site (a) and modelling of the altitude of the chalk substratum (b) based on data from deep test pits excavated on the slopes since 1996 (interpolation by kriging, CAD: C. Font, Inrap).

Preservation conditions of the site

Until recently, observations made during the excavation pointed towards the existence of an occupation level that had undergone little or no displacement, owing to rapid burial by wind deposits. Preservation conditions for archaeological evidence appeared relatively good, although the slope can reach 10% over X m / cm in some places. However, the first fabric measurements carried out by P. Bertran showed that the archaeological level was affected in some places by displacements in a periglacial environment (frost creeping, solifluction). Nevertheless, the deformations of the archaeological level remain limited. They suggest that the initial organization of human occupation was only partially altered by natural processes after the abandonment of the site. It is highly probable that the identification of activity zones based on the distribution of the remains is still quite legible,

which confirms archaeological observations with the differential distribution of certain categories of vestiges (ornaments, tools for example). In general, this site, which is a little older than the Last Glacial Maximum, appears well preserved in comparison to other sites known for this period, probably due to rapid burial by the deposition of powdery loess.

Dating of the Gravettian occupation

Four radiocarbon dates were performed on bone, heated bone and charcoal (tabl. 1). Two others were conducted on horse bones discovered in 1997 (Fagnart *et al.*, 2013), near the site. These six dates are very coherent and place the archaeological level between 22 and 23 ka BP, *i.e.* around 27 ka cal. BP.

Sample ref.	Nature	Radiocarbon age BP	Calibrated age (yr cal. BP) (2 σ ; IntCal 13)	References
Lyon-9943 (SacA 32189)	Bone	22 600 \pm 170	26 473-27 336	Paris <i>et al.</i> , 2017
Lyon-9942 (SacA 32188)	Heated bone	23 580 \pm 180	27 423-28 008	Paris <i>et al.</i> , 2017
Beta-306063	Bone	21 890 \pm 90	25 899-26 345	Paris <i>et al.</i> , 2013
Lyon-11659 (SacA 39279)	Charcoal	23 250 \pm 210	27 805-27 165	Paris <i>et al.</i> , 2017
Lyon-632	Bone	23 040 \pm 220	26 894-27 730	Fagnart <i>et al.</i> , 2013
Lyon-633	Bone	22 360 \pm 240	26 096-27 217	Fagnart <i>et al.</i> , 2013

Table 1 – Radiocarbon dates of Amiens-Renancourt 1.

Characteristics of the material from Amiens-Renancourt 1

Spatial organization and activities

Although the extent of the site has not yet been detected, the excavated concentration appears particularly dense with numerous lithic and faunal remains, bone and horn implements, ornamental elements and figurines. Currently, nearly 10,000 listed objects and 80,000 small elements (<1cm; lithics, bones, chinks...) have been collected over 82m².

The occupation is organized around a very dense area of about ten square metres (fig. 1). The source of this dense accumulation (almost 1,000 listed remains and up to 3,000 small elements of less than one centimetre per square metre) will only be known when the whole surface is fully excavated. However,

large quantities of different types of materials, including several thousands of burnt fragments, point to a zone of intense activities and/or waste discharge. Most of the domestic tools (end scrapers, burins, retouched blades; fig. 3) and chalk objects were found in the immediate periphery of this dense area, also evoking several varied and intense activity spots. This point will have to be clarified by the mean of functional and spatial analysis. Finally, the fringes of the concentration are characterized by clumps of debitage and the rejection of bulky objects (large bones and laminar cores).

The bone remains are fairly well preserved as evidenced by at least three horse fetal bones (a sub-complete tibia and two cranial bones).

However, we note a deterioration of bone surfaces due to the open-air context (dissolution, traces of rootlets, significant impact of weathering).

The faunal spectrum is widely dominated by horse (NISP = 202 or 97.6% of the determined remains) together with a hare's mandible and two teeth remains of young woolly rhinoceros (*Coelondonta antiquitatis*). This latter species could also be represented by a tool with a blunt end manufactured in a large mammal rib section (the size of a rhinoceros or possibly mammoth, rib). Two other species are also identified, but this time exclusively in the form of remains transformed into a tool and an ornamental element. These two artefacts: a large tool with a blunt head—'burnisher' type, made of mammoth ivory (*Mammuthus primigenius*)—and a perforated deer canine (*Cervus elaphus*) might have been brought to the site.

Finally, about ten bones (diaphyses and ribs) attributed to a smaller size category than the full adult horse could belong to either a foal or a deer type (reindeer or deer). The state of the bone surfaces does not allow to determine whether they are mature or juvenile individuals.

The first indications concerning seasonality rely on the combined presence of horse foetus bones and the remains of at least two young individuals of the same species. These elements suggest an occupation of the site taking place at the end of the warm season, around autumn.

From its location, the site appears to be a highly strategic hunting spot. The herds of animals may

have been naturally channelled between the steep slopes of the nearby Grace valley.

The lithic assemblage

The lithic industry is the most represented category with nearly 7,000 remains and 30,000 chips (tabl. 2). It's characterized by the production of large blades. The blocks of raw material come from Upper Turonian or basal Coniacian chalks that outcrop locally in Grace valley, several decametres from the concentration. This black flint with a pale beige, or more often, pink coloured cortex is an excellent raw material for knapping and blades more than 20cm long can be produced with large nodules (fig. 3 and 4). The blocks were carefully shaped, with the setting up of a median anterior crest and one or two posterior crests. The preparation of spurs by elevated removals on the striking platform for blade removal is often particularly careful. In addition to other marks (lip, diffuse bulb, curvature of the products), these marks denote the use of an organic soft hammer (Pelegrin, 2000). This production is devoted to the manufacture of the common toolkit (fig. 3 and tabl. 2), on medium or large-sized blades (between 8 and 20cm). The abandonment of cores issued from the reduction of voluminous blocks (fig. 4b), or medium-sized blocks illustrates this minimum blade size threshold of around eight centimetres.

Lithic industry

Determination	Nb	Percent
Flake	4800	69,99
Core tablet	125	1,82
Cortex cupula	26	0,38
Blade	757	11,04
Bladelet	209	3,05
Laminar-flake	484	7,06
Blade core	22	0,32
Preform	10	0,15
Bladelet core	43	0,63
Preform	11	0,16
Hammerstone	9	0,13
Tool and microlith	362	5,28
Total	6858	100%
Small elements (<1cm)	+ de 30000	

Tools

	Nb	Percent
End-scraper	72	24,32
End-scraper on flake	6	2,03
Double end-scraper	7	2,36
End-scraper/burin	1	0,34
Burin	39	13,18
Burin spall	127	42,91
Retouched blade	25	8,45
Appointed blade	4	1,35
Truncated blade	8	2,70
Piercer	2	0,68
Retouched flake	5	1,69
Total	296	100

Microliths

	Nb	Percent
Backed bladelet	24	35,29
Mesial fragment backed piece	21	30,88
Microgravette	11	16,18
Gravette point	4	5,88
Various backed piece	6	8,82
Total	68	100

Table 2 – Techno-typological account of the lithic industry of Amiens-Renancourt 1.

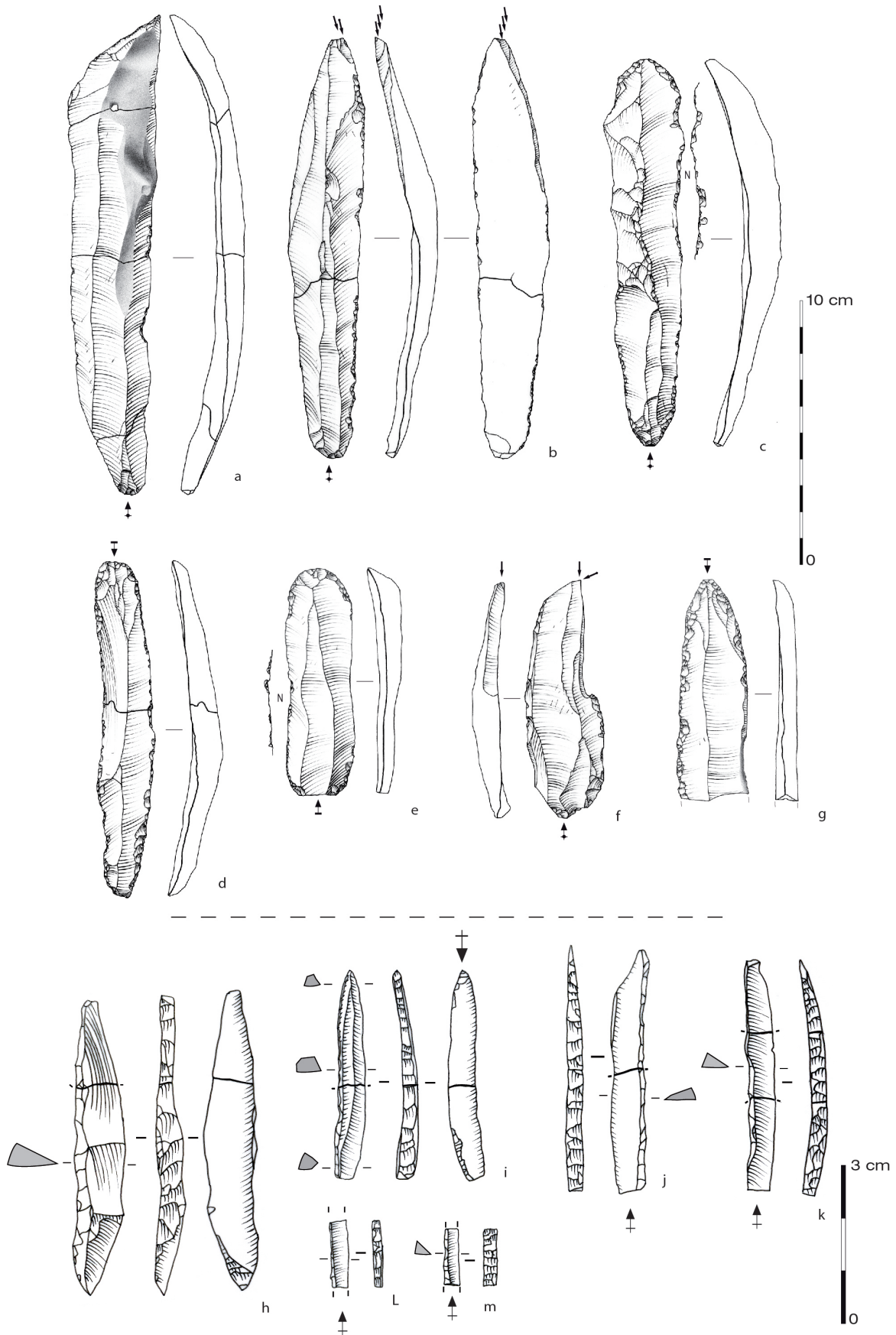


Fig. 3 – Lithic artefacts from Amiens-Renancourt 1. a: non-retouched blade, b: dihedral burin, c to e: end scrapers on blades, f: dihedral angled burin, g: pointed blade, h: Gravette point, i: microgravette, j and k: backed bladelets, l and m: fragments of backed pieces (drawings: a to g: S. Lancelot, Inrap; h to m: C. Paris, Inrap).

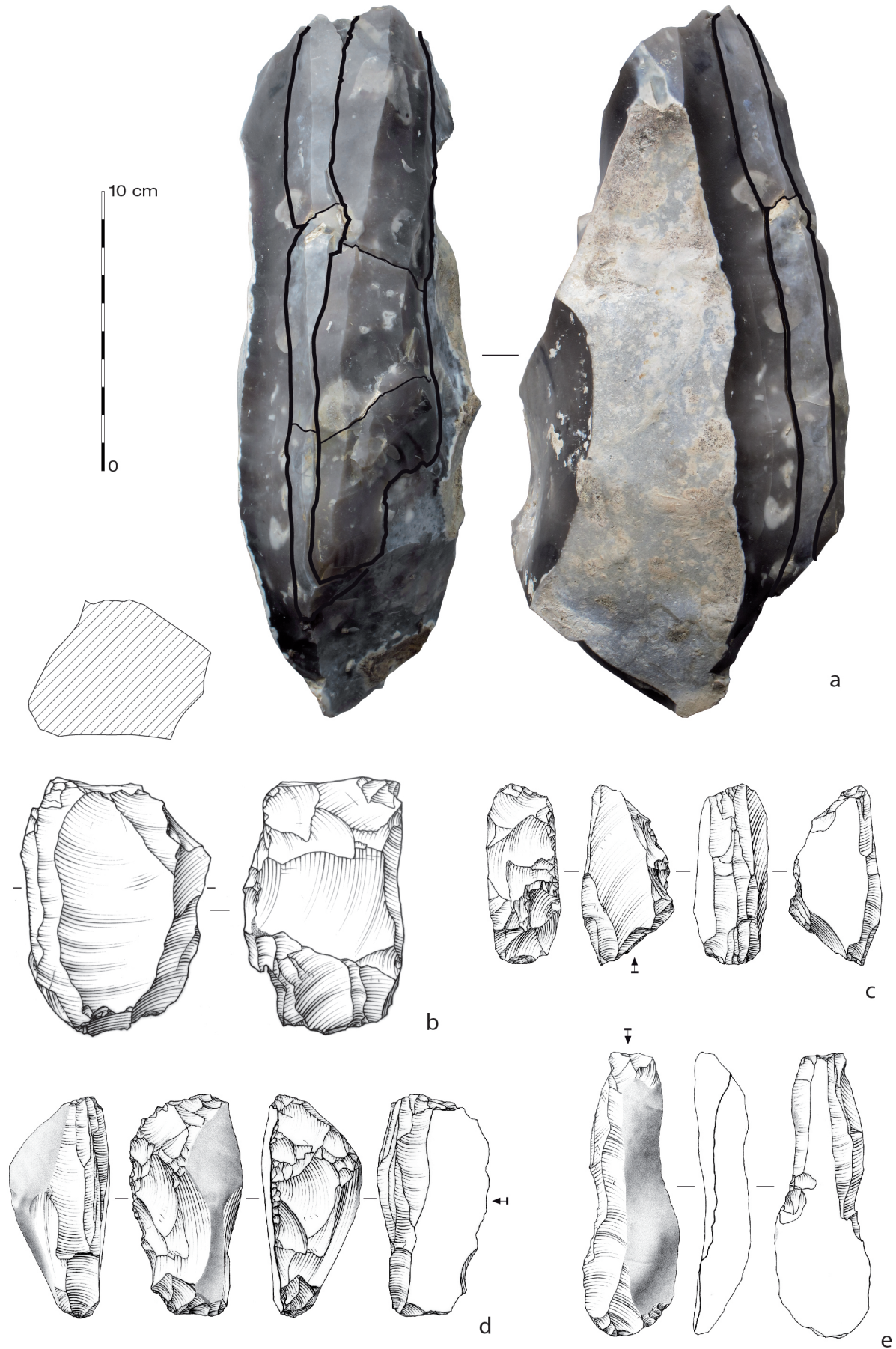


Fig. 4 – Lithic artefacts from Amiens-Renancourt 1. a and b: laminar core, c and d: bladelet core on flake, e: bladelet core on the proximal part of an end scraper (drawings: S. Lancelot, Inrap).

In parallel, autonomous bladelet production is carried out on the side of flakes, or more rarely on thick blades (fig. 4). The morphology of the flake-blanks appears to be very diversified but have in common to offer narrow tables. They derive from the shaping phase of laminar cores, with frequent cortical zones. However, in spite of this apparent diversity, the selection of average-sized flakes is preferred, with an average thickness of 2 to 3 centimetres. The distal end, or one of the edges of the flake-blank are generally used for bladelet production, or more rarely, the proximal part. The striking platform is prepared by small abrupt or inverse removals. In the same way as for blades, bladelets are then extracted after the preparation of spurs with a tender organic hammer. Note that bladelet production on the upper face of the blade (Klaric *et al.*, 2015) is also attested ($n = 3$), but this method remains marginal.

The aim of this bladelet production is the manufacture of three types of armatures: microgravettes (fig. 3i), backed bladelets (fig. 3j and 3k) and several larger elements who can also be compared to Gravette points (fig. 3h). Finally, abundant mesial fragments of backed pieces cannot be attributed to a specific type due to the absence of extremities (fig. 3l and 3m). All these armatures, whether or not they are pointed, are characterized by an abrupt rectilinear back made by direct retouch ($n = 34$), or crossed retouch ($n = 31$) when the back attains the central ridge. The Gravette points and microgravettes also present flat inverse retouch on one or both ends.

Ornamental elements

Forty ornamental elements were discovered (fig. 5). They can be divided into three groups: roundels made in local chalk ($n = 23$; fig. 5a to c), fossils and shells of exogenous origin ($n = 16$; fig. 5d and f), and a perforated tooth (deer vestigial canine, fig. 5e). Some elements (in particular, the internal moulds of *Turritella*) show no anthropogenic modifications but they are nonetheless clearly ornaments, on account of their aesthetic characteristics and their dimensions, as well as their distant provenance (Paris *et al.*, 2017, fig. 1).

For further details on ornaments, we refer to the article by C. Peschaux in this volume.

However, two types of ornaments are very specific to the site.

First of all, roundels are well-known Magdalenian objects (Taborin, 2004), but are practically absent during the Gravettian. Level VII of Cotu Miculinti in Romania, dated to $20,140 \pm 410$ BP (GrN-12671), yielded a perforated roundel in reindeer antler with

a diameter of 20mm (Beldiman and Sztanacs, 2007). Another bone specimen, from the site La Gravette at Bayac, is mentioned by Y. Taborin (2004). The Brno II grave in the Czech Republic, dated to 23 ka uncal BP (Oliva, 2000), also yielded several, often non-perforated specimens, some of which are in stone.

Internal *Turritella* moulds are also relatively rare Palaeolithic ornaments. The only currently known specimens are from Belgian cave sites, which are generally considered to be Magdalenian (Otte, 1979; Dewez 1987; Moreau, 2003). However, the third cave of Goyet yielded 180 specimens in a level where possible mixing occurred, and thus an attribution to the Gravettian cannot be ruled out (Paris *et al.*, 2017).

Female statuette

Eleven sculpted in the round chalk figurines, representing bodies or portions of bodies were discovered between 2014 and 2018 at the site of Amiens-Renancourt 1. In five cases, they are almost whole female bodies from the knees to the head or shoulders (fig. 5 and 6). Four represent breasts, and two represent the lower part of the body (thighs, pubis and stomach for one of them – fig. 6).

Most of the figurines display the same peculiarities: the feminine characters are pronounced with an opulent chest and buttocks projecting exaggeratedly backwards. Two of them may evoke pregnancy. In contrast, the limbs (arms in particular) are sketchy and the heads (often missing but possibly represented among the spherical—but still undetermined—fragments) are only represented by simple spheres, without any anatomical details. Finally, the figures are portrayed in a realistic or a schematic manner.

These stylistic features are common for the Gravettian, and are known over a wide area, extending from the southwest of France to Siberia (Delporte, 1979). Although Gravettian art shows wide stylistic variety, the sculptures discovered in Amiens-Renancourt 1 are part of this tradition for several reasons, such as the theme of female human representation or sculpture in the round. Moreover, the use of chalk—which is not the most common material for Gravettian sculpture—is not unique; it was also used at Kostienki 1-I (Abramova, 1995; Dupuy, 2007), Khotylevo 2 in Russia, (Gavrilov, 2012) and Willendorf in Austria (Neugebauer-Maresh, 1999). The often fragmentary state of these limestone statuettes and the presence of manufacturing waste are also a link/reference to the Kostienki 1, 4, 11 and 13 or Avdevo sites in Russia (Abramova, 1995; Gvozdover, 1995), with very similar ages to Amiens-Renancourt 1.

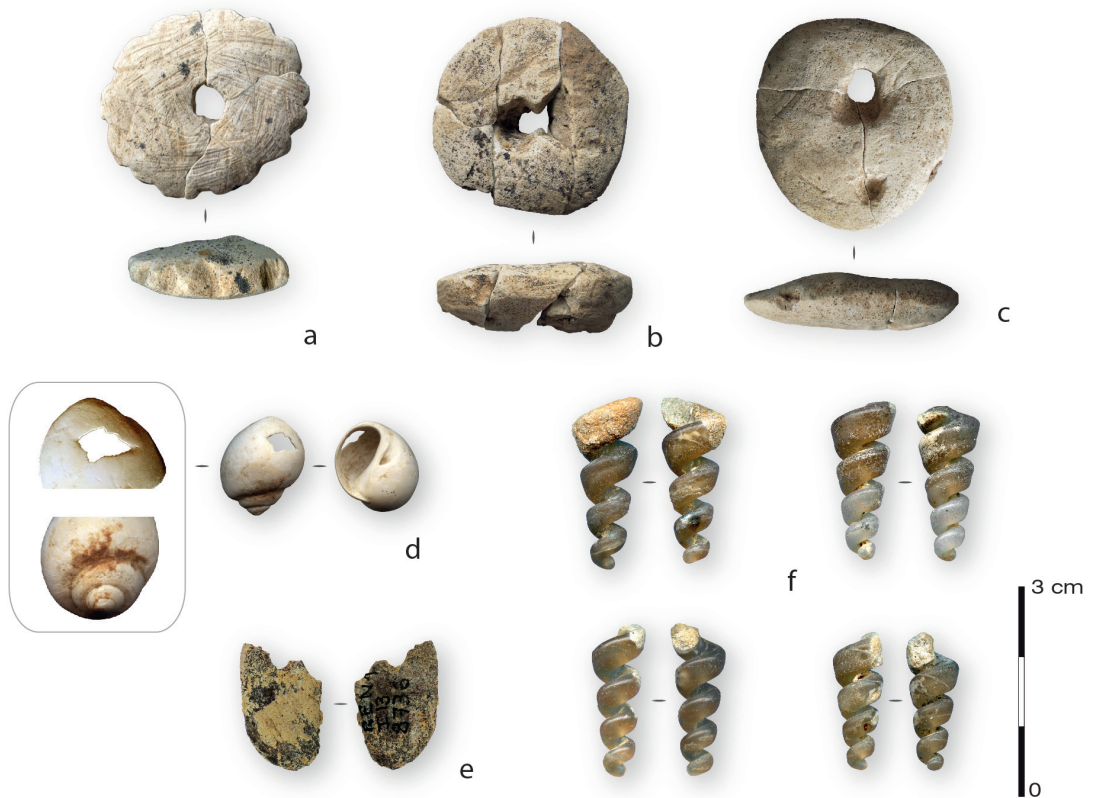


Fig. 5 – Ornaments and female statuette from Amiens-Renancourt 1. a to c: perforated chalk roundels, d: *Ampullina depressa parisiensis* with anthropogenic perforation type modifications, e: perforated red deer vestigial canine, f: silicified internal *Turritella* moulds (photos: a to c and f: S. Lancelot, Inrap; d and e: C. Peschaux). Bottom: female statuette in chalk (photos: S. Lancelot, Inrap).



Fig. 6 – Female statuettes from Amiens-Renancourt 1. a: fragments of lower parts, b: whole or nearly whole statuettes, c: non-determined in the round sculptures, d: probable fragments of heads, e: fragments of busts (photos: S. Lancelot, Inrap).

The features of feminine body representations are also identical to those found on feminine representations in portable and parietal art, that is, highlighted, even hypertrophied female anatomical details, as opposed to sketchy, shortened or absent limbs, as described above.

These statuettes are very fragmented and fragmentary. In addition, a large number of fragments of undetermined spherical fragments and chalky clusters were discovered on the site. The numerous fragments may belong to the fragmented sculptures, but also to manufacturing waste. However, no other figurative form apart from female bodies seems to have been carved onsite. In total, 2,800 limestone fragments were inventoried, excluding splinters.

The number of objects and their good state of conservation allowed us to envisage important research perspectives; first of all, the study of the fracturing phenomena on chalk artefacts and then the technology applied at this site. One of the challenges of the study of these chalk objects is to identify manufacturing techniques (scraping, grooving, polishing, etc.), despite the strong fragmentation of the material. These questions prompted us to organize a specific research program financed by the French ministry of culture (DRAC Hauts-de-France) between 2016 and 2018.

This work is still in progress, but has begun to yield the first significant results.

First, the chalk used in Renancourt 1 is the same as the chalk found on the steep slopes of the Grace valley. Indeed, the micropalaeontologic study of nanofossils conducted by S. Gardin (CNRS) shows that the chalk comes from the Coniacian layer a (Upper Turonian /basal Coniacian) or b/c (Lower and Mid Coniacian). This shows that the raw material used for the figurines undoubtedly comes from local outcrops, although this geological layer can be found throughout the northern fringe of the Paris Basin and especially in the entire sector of Renancourt.

Subsequently, a first analysis of these macro- and microscopic marks is underway to characterize and determine the different processes at work on this material. Indeed, the marks are diverse and appear to reflect different shaping stages. This analysis has been coupled with an experimental approach producing a comparative corpus of traces.

However, this technological study is complicated as a result of intense fragmentation. Gelifraction test fragments can be compared to the archaeological collection: the shattering phenomenon is particularly intense in the loessic low slope where water can stagnate, and can thus be partially explained by taphonomical factors.

But fragmentation can also be explained by several—and not exclusive—reasons, such as (accidental) fragmentation while carving, voluntary segmentation (partially conceived figures) or voluntary fragmentation (symbolic behaviour). These hypotheses are advanced in our technological and experimental study.

Nonetheless, these first data present multiple arguments in favour of an *in situ* production of chalk figurines at Amiens-Renancourt 1, and may be compared to those known in chronologically similar Russia sites, such as Avdeevo or Kostienki, at the other end of the Gravettian territory (Dupuy, 2007; Iakovleva, 2012).

Amiens-Renancourt 1 in its regional context

During the renewed study of data from formerly discovered sites, the sites of Elnes (Boutry, 1963; Baudet, 1960; Fagnart, 1988; Fagnart *et al.*, 2013) and Hallines (Fagnart, 1988; 1997), both in the Aa valley, revealed very similar technical characteristics to those observed in the lithic series from Amiens-Renancourt 1 (fig. 7). The first studies of these sites brought to light the debitage of large blades with spurred butts (Fagnart, 1988; 1997; Fagnart *et al.*, 2013). However, the chronocultural attribution remained unclear, due to the absence of armatures and bladelet debitage. At Elnes, the stratigraphic position of the lithic assemblage beneath a thick silt deposit pointed to a Gravettian age, but no further data were available to confirm this attribution (Fagnart *et al.*, 2013). At Hallines, a first date obtained in the 1970s on a mammoth vertebra yielded an age of 16,000 ± 300 BP (Gif 1712; Agache, 1971; Fagnart, 1997). However, the typological composition of the series, which comprises numerous borers and no backed bladelets raised problems for the chronocultural attribution. Indeed, this date would place the assemblage at the end of the Last Glacial Maximum (LGM), but no north-western European series of borers has yet been identified in this chronological range. In the first publications of the site, J.-P. Fagnart (1997) thus remained cautious as to the significance of this result. Two hypotheses were proposed:

- an Upper Magdalenian attribution, evoking the possibility that the bone remains, dominated by the mammoth, were not strictly associated with the lithic assemblage,
- a first phase of resettlement in the North of France by Magdalenians after the LGM, presuming that the lithic and faunal series are associated, as the excavation data seem to show.

More recently, J.-P. Fagnart and collaborators reconsidered the attribution of this site (Fagnart *et al.*, 2013). They underlined, in particular, the necessity to re-evaluate the series in the light of recent discoveries of Gravettian series with borers, such as Chamvres (Connet and Lhomme, 1992) or Balme Cave at Cuiseaux (Fornage-Bontemps, 2011). Technological analogies with the site of Elnes, located several kilometres away, have also been highlighted. The position of the level beneath stratified silts at this latter site confirms a Gravettian attribution.

Nonetheless, the question remains unresolved after several unsuccessful attempts of AMS dating on a mammoth humerus, due to the lack of collagen.

A new attempt was undertaken on a fragment of an indeterminate bone, discovered during a rescue excavation carried out by A. Tuffreau in 1968. The result obtained confirms parallels with the Gravettian, and in particular with the radiocarbon dates from Amiens-Renancourt 1 (table 3).

Finally, a small lithic assemblage discovered recently at Catigny in Oise (Paris *et al.*, 2018) yielded finely made blades with similar technological characteristics to those from Amiens-Renancourt 1. The remains were found in a ravine, in a secondary, reworked context, but the stratigraphy and the optically stimulated luminescence (OSL) ages are compatible with the Gravettian chronological range.

Three other sites thus present the same technological characteristics as those described at Amiens-Renancourt 1. The debitage is geared towards the production of large blades with an organic hammer. The presence of spur-shaped butts denotes particularly careful preparation. These common elements constitute a marked feature of these sites. They were also selectively implanted in sectors where very good quality raw materials are available in the form of large blocks. The shaping phase is very elaborate and often very costly in terms of raw materials. It involves

the creation of convexities suitable for obtaining products that are often over 15cm long. These blades are then transformed into everyday domestic tools.

Nonetheless, Amiens-Renancourt 1 is the only site where bladelet debitage is associated with large blade production. The absence of bladelet production at Elnes and Catigny could be explained either by the status of the site (knapping workshops for blade production at Elnes), or by the small size of the corpus (59 remains at Catigny, in reworked position). At Hallines, on the other hand, this absence is more enigmatic, as the sediments were sieved during the excavation. The presence of very specific plane oblique burins and large axial borers also raises questions, as these tools are not represented at Amiens-Renancourt 1. The use of these tools for specific activities processing could be suggested. A micro-wear study could clarify the specific status of the site, but the chronology and laminar production are nonetheless similar to the three other sites.

The radiocarbon dates from Amiens-Renancourt 1 and Hallines yield an age of about 23,5 ka uncal. BP, or 27,5 ka cal. BP, for this large blade facies. At Amiens-Renancourt 1, this chronology is coherent with the stratigraphic position in the upper gley of a double gleyed horizon, interpreted as the Santerre Cryoturbated Horizon, which is exceptionally split in this location (Antoine *et al.*, 2016). The position of the lithic assemblage described at Elnes is also compatible with that of Amiens-Renancourt 1 (gley below the laminated loess; Boutry, 1963; Baudet, 1971). On the other hand, no stratigraphic correlations can be made for Hallines and Catigny due to the type of sediments and their deposition mode (slope deposits for Hallines and ravine at Catigny).

Therefore, the site of Amiens-Renancourt 1 does not seem to be regionally isolated. This large blade facies is part of a recent-evolved phase of the Gravettian.

Sample ref.	Material	Radiocarbone age BP	Calibrated age (yr cal. BP) (2 σ ; IntCal 13)	Reference
Lyon-15338 (GrM)	Bone	23840 \pm 120	28179–27660	Paris (2020)

Table 3 – New radiocarbon age of Hallines *Maison Levert*.

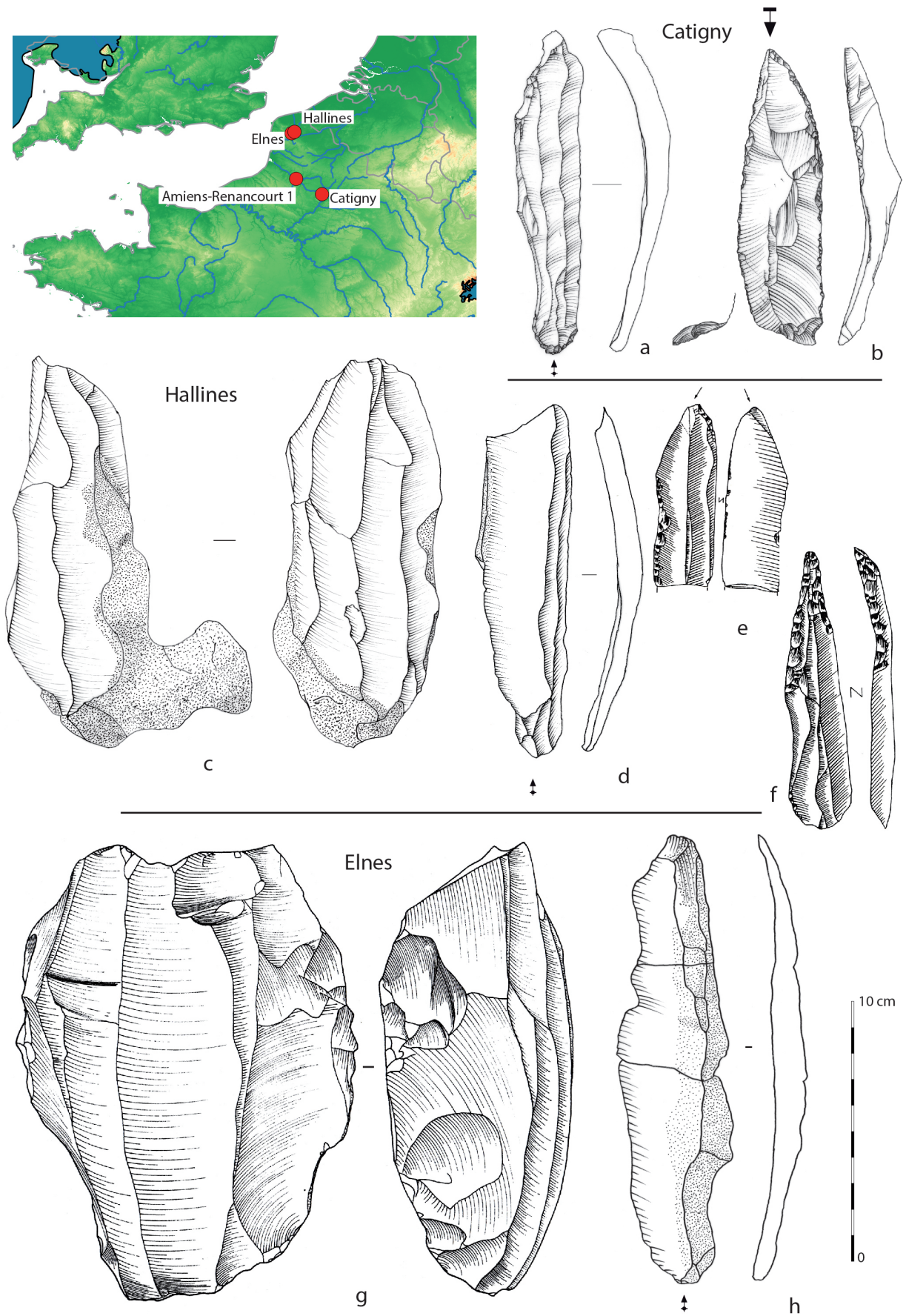


Fig. 7 – Sites similar to Amiens-Renancourt 1. Catigny, a: non-retouched blade, b: backed knife; Hallines, c: laminar core, d: non-retouched blade, e: transversal burin, f: borer; Elnes, g: laminar core, h: non-retouched blade; (drawings: a and b, S. Lancelot, Inrap; c, d and h, C. Paris; e and f, J.-P. Fagnart; g, L. Vallin).

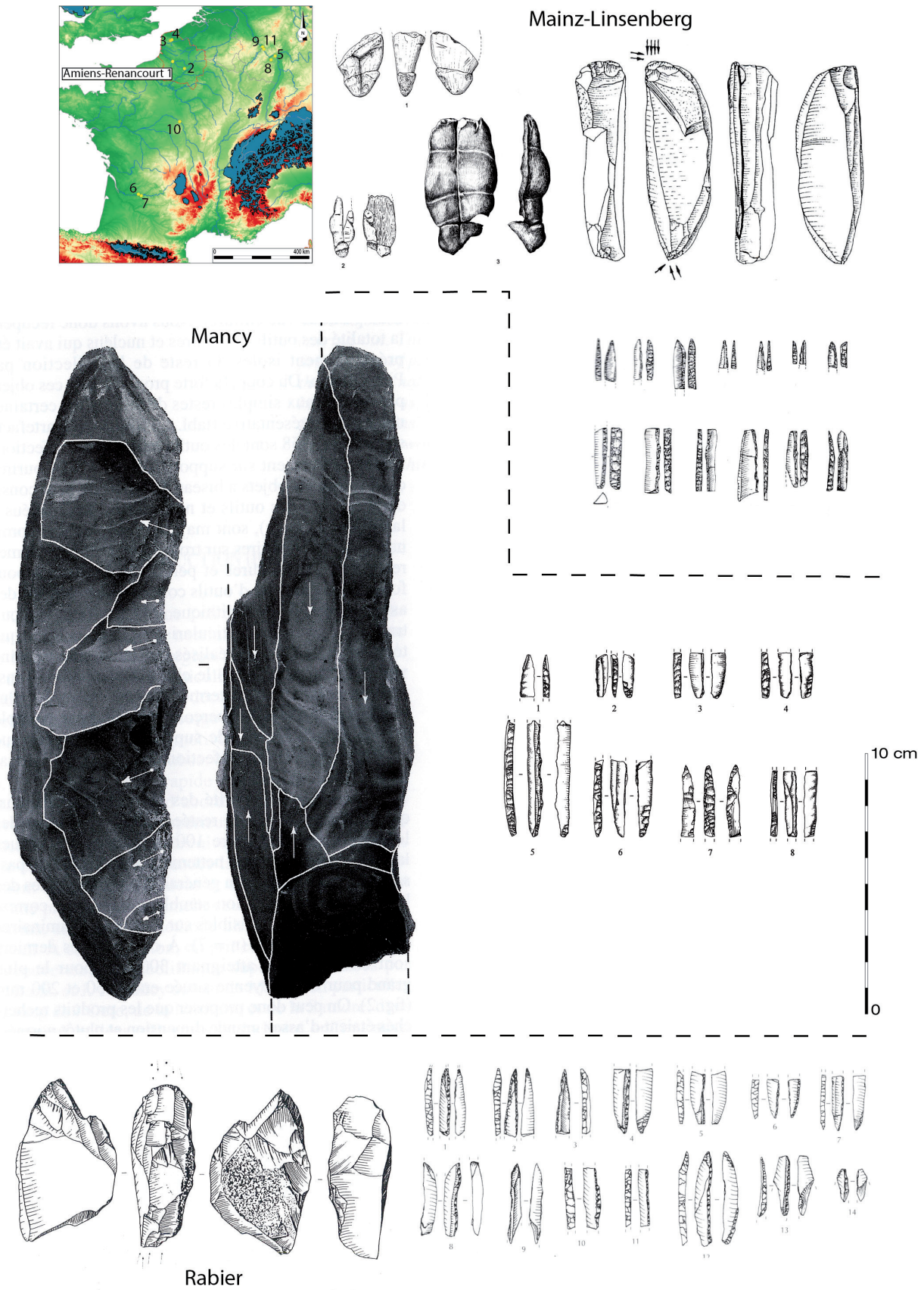


Fig. 8 – Sites presenting similarities with Amiens-Renancourt 1: Mainz-Linsenberg after Bosinski (2008); Mancy after Chehmana *et al.* (2008); Rabier after Lorin (2000). Sites shown on the map: 1: Amiens-Renancourt 1; 2: Catigny; 3: Elnes; 4: Hallines; 5: Mainz-Linsenberg (Hahn, 1969); 6: Corbiac (Bordes, 1970); 7: Rabier (Lorin, 2000); 8: Sprendlingen (Bosinski *et al.*, 1985); 9: Rhens (Bosinski, 2008); 10: Mancy (Chehmana *et al.*, 2008); 11: Koblenz-Metternich (Bosinski, 2008).

Discussion on the position of this facies in the Northwest European Gravettian

The first studies incited us to compare the lithic assemblage from the site of Amiens-Renancourt 1 (Paris *et al.*, 2013) with the final Gravettian of the southwest of France and Auvergne, formerly called the “Protomagdalenian” or “Perigordian VII” (Guillermin, 2011). This very specific facies, defined at Abri Pataud, layer 2, at the Abri des Peyrugues, layer 18, layer 23 to 34 of Blot, and finally at Laugerie-Haute Est, layers 36 and 38, is characterized namely by large blades with spurred butts (Guillermin, 2011; Surmely and Hay, 2011; Surmely and Alix, 2005). Initially, the attribution of the lithic assemblage from Amiens-Renancourt 1 to the final Gravettian was based on the laminar technique with an organic hammer and on a first radiocarbon result ($21,890 \pm 90$ BP; Paris *et al.*, 2013), which was similar to the date from the four other sites from the South of France (Guillermin, 2011).

Since then, several techno-typological and radio-chronological elements modify this comparison. First of all, the corpus of armatures has expanded, with the discovery of microgravettes, which are absent or almost absent from final Gravettian sites, and non-truncated backed bladelets, which are frequent in Southwest France. The types of ornaments discovered at Amiens-Renancourt 1, in particular roundels, are also different to “Protomagdalenian” ornaments, which are characterized by rectangular beads with central perforation and thinning (Allard *et al.*, 1997). The absence of female statuettes in this facies is also noteworthy.¹ Finally, the new dates from Amiens-Renancourt 1 position this occupation around 23,5 ka BP. They are thus slightly earlier than dates from the final Gravettian, which are between 22,5 and 21 ka uncal. BP (Guillermin, 2011). Furthermore, the Amiens-Renancourt 1 level (and probably Elnes) is in a sedimentary horizon contemporaneous with a phase of climatic amelioration (GI 3), whereas sedimentary studies for the final Gravettian sites show that they are linked to the ensuing climatic deterioration (Les Peyrugues: Bertran, 2005; Abri Pataud: Lenoble and Agsous, 2013; Le Blot: Surmely and Hays, 2011).

On account of these divergences, we consider the facies represented at Amiens-Renancourt 1 as earlier, *i.e.* as belonging to the evolved phase of the recent Gravettian, which was recently redefined by L. Klaric and collaborators (Klaric, 2003; Klaric *et al.*, 2009). They identified several phases in the corpus of micro-lithic armatures and bladelet debitage.

A first facies was defined for the lithic material from Cirque de la Patrie, among others (Klaric, 2003). It is characterized by blade production, sometimes with very large products, on cores with two opposed very arched rectilinear debitage surfaces. The debitage is frontal, with, in some cases, a progressive reduction in blade size. A soft stone hammer is used for percussion.

Several burin-cores may have been used for the production of bladelets, but most of the armature blanks derive from laminar production on blocks. Gravette points are predominant, but the corpus also includes several microgravettes and backed bladelets (including some with a truncated base). The operating mode of this facies is thus rather different from that of the sites of the north of France. Some sites from this facies are dated from around 24 ka BP uncal., such as layer 3 from Abri Pataud, for example (Bricker, 1995), while others are dated to the same chronological range as Amiens-Renancourt 1: Mareuil-sur-Cher, locus 11-14 is for example dated to $23,280 \pm 220$ uncal. BP (ETH-30299, Kildea and Lang, 2011), or again Arcy-sur-Cure, layer 5, dated to around 23 ka uncal. BP (Higham *et al.*, 2010). These sites could be attributed to this same facies, or to the middle Gravettian Raysse burin facies, in which case, they would be significantly more recent (Klaric, 2013).

In the recent Gravettian, a second facies is suggested on the basis of a relatively varied bladelet production on thick burin-core type blanks (Klaric, 2003; Klaric *et al.*, 2009). On the other hand, the laminar production is rather poorly documented. More recently, some sites in the Paris Basin, such as Mancy (Chehmana *et al.*, 2008), were compared by L. Klaric (2013) to a “recent-final” facies, on the basis of analogies with allegedly evolved series from the southwest of France, such as Rabier (Lorin, 2000), or again Corbiac (Bordes, 1970).

However, the incorporation of the site of Amiens-Renancourt 1 into a wider Northwest European framework enables us to better position the archaeological occupation in the north-western Gravettian sphere.

In Germany, the Rhineland sites of Mainz-Linsenberg (Hahn, 1969) and Sprendlingen (Bosinski *et al.*, 1985) present close typo-technological affinities. The corpus of armatures, the differentiated laminar and bladelet productions and the presence of blanks with significantly arched profiles—evoking the use of organic percussion—represent strong similarities with Amiens-Renancourt 1. In addition, the site of Mainz-Linsenberg also yielded two fragmentary

female statuettes, which are very similar to those from Amiens-Renancourt 1 (fig. 8). In the same region, the sites of Koblenz-Metternich and Rhens have been compared to the two preceding sites, even though the absence of armatures limits this comparison (Bosinski, 2008). Finally a recent radiocarbon date for the site of Mainz-Linsenberg provides chronological data to back up this convergence (Street and Terberger, 2011).

In the Paris Basin, only the site of Mancy at Saint-Brisson-sur-Loire (Loiret) shows analogies with the laminar debitage and the corpus of microlithic armatures (fig. 8). The production of large blades with spur preparation and bladelets on thick burins devoted to the manufacture of microgravettes is well attested. However, a date on bison teeth did not clarify the chronological position of the occupation (Chehmana *et al.*, 2008). The site of La Pente des Brosses at Montigny-sur-Loing, which was at one stage attributed to the final Gravettian on account of two dates situated around 22 ka uncal. BP (Schmider, 1986), has recently yielded earlier ages (P. Bodu, pers. comm.). These new results tend to converge more with the characteristics of a Cirque de la Patrie type lithic facies (soft mineral percussion, arched debitage surface).

For the southwest of France, several sites also present some analogies and have been compared to Mancy by L. Klaric (2013). The abovementioned sites of Rabier and Corbiac are characterized by large blades with spur-shaped butts (Surmely et Alix, 2005). At Rabier, the bladelet production and the armature corpus are also very similar to those observed at Amiens-Renancourt 1 (Soriano, 1998; Lorin, 2000). These two examples are probably not isolated and future comparisons should pay close attention to assemblages with large blades with spur preparation associated with bladelet production on burin-cores—the discriminating elements of these facies—, in the same way as the example of the lithic series from layer 20 of Peyrugues (Allard, 2009).

Conclusions

This overview shows that the site of Amiens-Renancourt 1 is not an isolated site in the region. Its main typo-technological characteristics are also found at other sites in the north of France, which have been difficult to categorize up to now. At the scale of Western Europe, some sites also present strong analogies, in often similar chronological contexts (as at Mainz-Linsenberg).

Owing to the quality of the documentation from Amiens-Renancourt 1 and its accurate chronostratigraphic position, we can validate L. Klaric's proposal on the existence of a different facies from the recent Gravettian type Cirque de la Patrie. The latter author proposes the term “recent-final” to define a series of sites with close similarities to Amiens-Renancourt 1. This facies is thus characterized by the debitage of large blades with a soft organic hammer, associated with an independent bladelet production on varied blanks devoted to the manufacture of very specific armatures (microgravettes and backed bladelets). The chronological data appear to be coherent, with dates of 23,5 ka uncal. BP for Amiens-Renancourt 1, Mainz-Linsenberg and Hallines.

Amiens-Renancourt 1 could thus be considered as a major reference in the characterization of this facies in north-western Europe, in the same way as the sites of Maisières-Canal (Haesaerts and de Heinzelin, 1979; Jacobi *et al.*, 2010) or Ormesson (Bodu *et al.* 2011, Klaric 2013) for the early phases of the Gravettian.

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Endnote

1. Only one object from layer 2 of Abri Pataud, initially interpreted as an animal statuette, has been very cautiously reconsidered as a possible female statuette (White, 2002; Chiotti *et al.*, 2009).

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