

ANTHROPOLOGICA ET PRAEHISTORICA

Bulletin de la
Société royale belge d'Anthropologie
et de Préhistoire

Bulletin van de
Koninklijke Belgische Vereniging
voor Antropologie en Prehistorie

123/2012

2013



*Ce volume a été publié
grâce à l'appui de*

*Deze bundel werd gepubliceerd
met de steun van*

l'Institut royal des Sciences naturelles de Belgique • het Koninklijk Belgisch Instituut voor Natuurwetenschappen

et grâce au soutien financier de en met de financiële steun van

*la Fondation universitaire de Belgique • de Universitaire Stichting van België
la Politique scientifique fédérale • het Federal Wetenschapsbeleid
et du en het*

*Ministère de la Communauté Française de Belgique
(Direction de la Recherche scientifique & Service général du Patrimoine culturel)
Ministère de la Région Wallonne (Division du Patrimoine)
Fonds National de la Recherche Scientifique – FNRS*



Comité de Rédaction / Redactieraad

Rédactrice en chef / Hoofredactrice : Anne Hauzeur

Membres / Leden : Nicolas Cauwe, Stéphane Louryan, Rosine Orban,
Caroline Polet, Marc Vander Linden

Comité de lecture

Leescomité

Damien Flas (Département de Préhistoire de l'Université de Liège), Mietje Germonpré (Koninklijk Belgisch Instituut voor Natuurwetenschappen), Anne Hauzeur (SARL Paléotime, France), Cécile Jungels (Musée de la Préhistoire en Wallonie, Flémalle), Stéphane Pirson (Service public de Wallonie), Hélène Rougier (California State University, Northridge), Patrick Semal (Institut royal des Sciences naturelles de Belgique).

Instructions aux auteurs / Richtlijnen voor auteurs / Guide for authors

<http://srbap.naturalsciences.be/>

Le Bulletin de la Société royale belge d'Anthropologie et de Préhistoire a une vocation strictement scientifique et se veut ouvert à toutes les thèses scientifiques, sans parti pris idéologique ou dogmatique.

Aussi le contenu du Bulletin de la Société royale belge d'Anthropologie et de Préhistoire est-il contrôlé par un comité de rédaction permanent et des comités de lecture internationaux, établis en fonction du thème de chaque contribution. Ces différents comités n'ont aucun droit d'établir une censure, sinon en l'absence d'une démarche scientifique manifeste. Dans tous les cas, les auteurs sont responsables du contenu de leurs articles.

Het tijdschrift van de Koninklijke Belgische Vereniging voor Antropologie en Prehistorie heeft enkel een wetenschappelijk doel. Het staat open voor alle wetenschappelijke bijdragen zonder ideologisch of dogmatisch streven.

De wetenschappelijke inhoud van het tijdschrift wordt bewaakt door een permanente redactieraad en een internationaal leescomité dat is samengesteld in functie van het thema van de individuele bijdrage. Deze raad en comité hebben in geen geval het recht om de manuscripten te censureren, behalve bij manifest gebrek aan wetenschappelijke ernst. De auteurs zijn steeds de enige verantwoordelijken voor de inhoud van hun bijdrage.

Société royale belge d'Anthropologie et de Préhistoire a.s.b.l.

Rue Vautier, 29
B-1000 Bruxelles

Fondée en 1882, la Société d'Anthropologie de Bruxelles est devenue la Société royale belge d'Anthropologie et de Préhistoire à partir de 1931. Elle réunit des chercheurs professionnels ou non, belges et étrangers, spécialistes en archéologie préhistorique, en anthropologie physique, en anthropologie génétique ou en paléontologie humaine.

Koninklijke Belgische Vereniging voor Antropologie en Prehistorie v.z.w.

Vautierstraat, 29
B-1000 Brussel

De Vereniging voor Antropologie van Brussel, gesticht in 1882, kreeg vanaf 1931 de benaming van Koninklijke Belgische Vereniging voor Antropologie en Prehistorie. Ze verenigt al dan niet professionele onderzoekers, zowel Belgische en buitenlandse, gespecialiseerd in de prehistorische archeologie, in de fysische antropologie, in de genetische antropologie of in de menselijke paleontologie.

Bureau 2012-2013

Présidente
Vice-présidents
Secrétaire générale
Trésorier
Bibliothécaire

Nathalie VANMUYLDER
Rosine ORBAN, Bart VANMONFORT, Damien FLAS
Caroline POLET
Denise VANDEMEULEBROUCKE
Ivan JADIN

Voorzitster
Ondervoorzitters
Secretaris-generaal
Schatbewaarder
Bibliothecaris

☎ +32 2 627 41 45

✉ srbap@naturalsciences.be

Compte bancaire
Bankrekening
BE46 0000 3074 2936

ISSN 1377-5723

SPY CAVE

125 years of multidisciplinary research
at the Betché aux Rotches
(Jemeppe-sur-Sambre, Province of Namur, Belgium)

Edited by Hélène ROUGIER & Patrick SEMAL

Volume 1

2013

TABLE OF CONTENTS

Camille PISANI, Foreword	5
INTRODUCTION	
I. Patrick SEMAL, Hélène ROUGIER, Isabelle CREVECOEUR, Damien FLAS, Anne HAUZEUR & Cécile JUNGELS, Prologue	9
II. Patrick SEMAL, Anne HAUZEUR, Michel TOUSSAINT, Cécile JUNGELS, Stéphane PIRSON, Laurence CAMMAERT & Philippe PIRSON, History of excavations, discoveries and collections	13
III. Philippe PIRSON, Spy cave: which name?	41
IV. Laurence CAMMAERT, Through the correspondence: the little story of the “Spy bones”	55
THE SPY CAVE CONTEXT	
V. Stéphane PIRSON, Bernard DELCAMBRE & Éric GOEMAERE, Geological context	73
VI. Stéphane PIRSON, Kévin DI MODICA, Cécile JUNGELS, Damien FLAS, Anne HAUZEUR, Michel TOUSSAINT & Patrick SEMAL, The stratigraphy of Spy cave. A review of the available lithostratigraphic and archaeostratigraphic information	91
ARCHAEOLOGICAL MATERIAL	
VII. Anne HAUZEUR, Cécile JUNGELS, Éric GOEMAERE & Stéphane PIRSON, Non-flint raw materials	135
VIII. Éric GOEMAERE, Cécile JUNGELS & Anne HAUZEUR, Oolithic ironstones from Spy cave	151
IX. Kévin DI MODICA, Cécile JUNGELS & Anne HAUZEUR, What do we know today about the Middle Palaeolithic of Spy?	167
X. Cécile JUNGELS, Aude COUDENNEAU, Anne HAUZEUR & Philippe PIRSON, Typological, technological and functional analyses of Mousterian points	201
XI. Damien FLAS, Jerzmanowice points from Spy and the issue of the Lincombian-Ranisian-Jerzmanowician	217
XII. Damien FLAS, Elise TARTAR, Jean-Guillaume BORDES, Foni LE BRUN-RICALENS & Nicolas ZWYNS, New perspectives on the Aurignacian from Spy: lithic assemblage, osseous artefacts and chronocultural sequence	231
XIII. Damien PESESSE & Damien FLAS, Which Gravettians at Spy?	257
XIV. Gennady A. KHLOPACHEV, Cultural and chronological attribution of the objects of mammoth ivory from Spy cave: a look from Eastern Europe	269
FAUNAL REMAINS	
XV. Mietje GERMONPRÉ, Mircea UDRESCU & Evelyne FIERES, The fossil mammals of Spy	289
BIOGEOCHEMISTRY	
XVI. Patrick SEMAL, Anne HAUZEUR, Hélène ROUGIER, Isabelle CREVECOEUR, Mietje GERMONPRÉ, Stéphane PIRSON, Paul HAESAERTS, Cécile JUNGELS, Damien FLAS, Michel TOUSSAINT, Bruno MAUREILLE, Hervé BOCHERENS, Thomas HIGHAM & Johannes VAN DER PLICHT, Radiocarbon dating of human remains and associated archaeological material	331
XVII. Hervé BOCHERENS, Mietje GERMONPRÉ, Michel TOUSSAINT & Patrick SEMAL, Stable isotopes	357
XVIII. Eva-Maria GEIGL, Sophie CHAMPLLOT, Silvia DE LIMA GUIMARAES, E. Andrew BENNETT & Thierry GRANGE, Molecular taphonomy of Spy: DNA preservation in bone remains	371
Guide for authors	381



ARCHAEOLOGICAL MATERIAL

Cécile JUNGELS, Anne HAUZEUR & Damien FLAS
(Coordinators)

CHAPTER VII

HAUZEUR A., JUNGELS C., GOEMAERE É. & PIRSON S., 2013.
Non-flint raw materials: 135-150.

CHAPTER VIII

GOEMAERE É., JUNGELS C. & HAUZEUR A., 2013.
Oolithic ironstones from Spy cave: 151-166.

CHAPTER IX

DI MODICA K., JUNGELS C. & HAUZEUR A., 2013.
What do we know today about the Middle Palaeolithic of Spy?: 167-200.

CHAPTER X

JUNGELS C., COUDENNEAU A., HAUZEUR A. & PIRSON P., 2013.
Typological, technological and functional analyses of Mousterian points: 201-215.

CHAPTER XI

FLAS D., 2013.
Jerzmanowice points from Spy and the issue of the Lincombian-Ranisian-Jerzmanowician: 217-230.

CHAPTER XII

FLAS D., TARTAR E., BORDES J.-G., LE BRUN-RICALES F. & ZWYNS N., 2013.
New perspectives on the Aurignacian from Spy: lithic assemblage, osseous artefacts and chronocultural sequence: 231-255.

CHAPTER XIII

PESESSE D. & FLAS D., 2013.
Which Gravettians at Spy?: 257-267.

CHAPTER XIV

KHLOPACHEV G. A., 2013.
Cultural and chronological attribution of the objects of mammoth ivory from Spy cave: a look from Eastern Europe: 269-285.

In: H. ROUGIER & P. SEMAL (ed.), Spy cave. 125 years of multidisciplinary research at the Betche aux Rotches (Jemeppe-sur-Sambre, Province of Namur, Belgium), Volume I. Anthropologica et Præhistorica, 123/2012. Brussels, Royal Belgian Institute of Natural Sciences, Royal Belgian Society of Anthropology and Prehistory & NESPOS Society.

Supporting information available at:
<http://mars.naturalsciences.be/bibliop4plone/rbins-publications/spy-cave-volume-1/supporting-information/>

CHAPTER XIII

WHICH GRAVETTIANS AT SPY?

Damien PESESSE & Damien FLAS

Abstract

Like the other industries from Spy, the Gravettian assemblage is a collection of artefacts lacking reliable and precise stratigraphic context, sometimes recovered from mixed layers. This of course limits the value and the relevance of the information that can be drawn from this collection. However, given its richness and variability, the Gravettian lithic artefacts from Spy cave remain an interesting assemblage that has not been re-examined in many years (Otte, 1979). The presence of three striking typological elements (tanged points and points with dorsal flat retouch, Gravette points, and truncated backed pieces) contributes to clarification of the different phases of the Belgian Gravettian and their possible connections with neighbouring regions.

INTRODUCTION

Much has been said about the Gravettian assemblage from Spy cave. De Puydt and Lohest directly recognised the uniqueness of the Gravettian toolkits, particularly the “*pointes taillées sur une seule face et paraissant destinées à être emmanchées*”¹ (De Puydt & Lohest, 1887: 212). Indeed, these points were discovered ten years before the publication of the eponymous cave at La Font-Robert (Bardon & Bouyssonie, 1907). Spy cave also played an important part in determining the chronological sequence of Palaeolithic industries and understanding of the Pre-Solutrean age of the Aurignacian (Breuil, 1905, 1907a, 1907b, 1912).

While the quality of the early excavations at Spy prevents economic, technical and functional studies of the different assemblages, their richness, particularly the presence of diagnostic artefacts, necessitates, for historiographic, scientific and deontological reasons, reappraisal given recent developments in methodology.

Many of the observations presented here corroborate the various descriptions and interpretations proposed by Marcel Otte (1977, 1979) and Michel Dewez (1989). However, the classifica-

tion proposed here questions the number of Gravettian occupation phases at Spy and opens new issues at a regional scale.

Several different collections have been analysed: the Twiesselmann collection, conserved at the Royal Belgian Institute of Natural Sciences, the de Loë and Hamal-Nandrin collections at the Royal Museums of Art and History and the De Puydt collection at the *Grand Curtius* Museum in Liège (Semal *et al.*, this volume: chapter II). Due to the heterogeneous nature of these collections, Gravettian artefacts have been selected based on their typology. While some cores (SF1: 6; SF2) and unretouched blanks were examined, the technological data come mainly from the study of the blanks used for chronologically and typologically meaningful tools. The resulting selection thus includes 192 artefacts and includes 50 Font-Robert points, 39 Maisières points and 98 backed pieces. Each tool type will be presented separately, being *a priori* considered as coherent (an aspect that will be discussed below).

Other collections (Beaufays collection at Spy², Brams collection in Floreffe, Éloy collection in Ramioul) that have not been studied for this paper include similar artefacts, but their absence in this study does not significantly modify our conclusions.

¹ Translation: “points retouched on one face and seemingly intended to have a handle”, expression used by De Puydt and Lohest to describe Font-Robert points.

² The Beaufays collection was still a private collection when we performed this study. It joined the RBINS collections in 2009 (Semal *et al.*, 2009).

THE TYPOLOGICAL GROUPS

Font-Robert points

This group of points shows some variability, both in general diversity and in variability of unique morphological and technological features of each artefact.

The fragmentation rate of this tool type is high. Of the 50 points, only three are complete and two nearly complete (Figure 1: 1-6). The most common fragments are the tangs (SF1: 1-4; N = 19) and the distal ends (N = 11). Breaks are located on different parts of the tools: tip, beginning of the limb, end of the tang, beginning of the tang. The tang breakages, for the most part, re-

flect axial or lateral bending.

Length difference varies greatly between the smallest specimen, 66 mm, and the longest, 103 mm. Width varies from 13 to 30 mm and thickness from 2 to 10 mm. A single artefact can show different thicknesses (a few millimetres) between the tang and the limb.

Besides the general shape of the artefacts, the retouch does not show a clear homogeneity. The tang retouch is always steep and dorsal, being alternate in only one example. The limb retouch is also dorsal, and can be very invasive or limited, very flat or steep. The rare inverse retouch of the distal part can possibly be related to the rejuvenation of the tool.

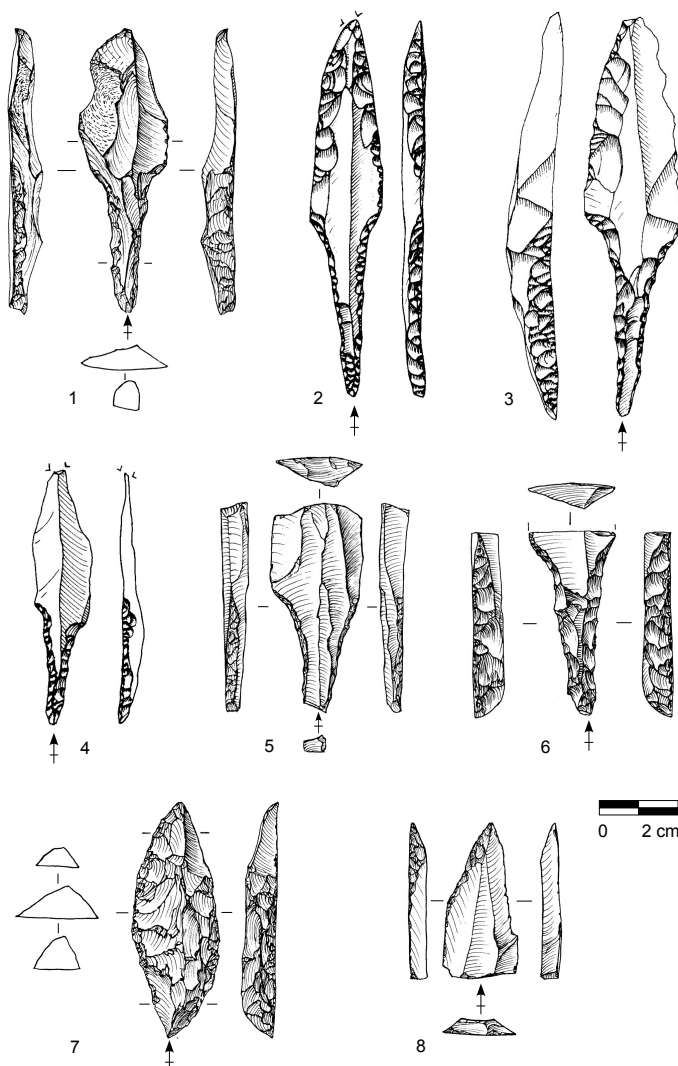


Figure 1. 1-6: Font-Robert points; 7-8: Maisières points (1, 5-8 by A.-M. Wittek, ADIA; 2-4 from Otte, 1979).

Such variability in artefact size and re-touch can be in part explained by the nature of the used blanks. Fragmentation of this tool type obscures considerably the technical features of the selected blanks. Based principally on a morphological approach, 14 blanks show a strong regularity. From a technological point of view, eight blanks are under-crest and two are cortical. The typological variability can be explained in part by a fairly broad range in blank selection: lateral blanks (coming from the side of the *débitage* surface), by-products (under-crest, cortical blank, etc.) or very regular blank. Morphological variations are then corrected by different shaping (retouch importance and location). However, it cannot completely explain the morphological and technical diversity of the blanks. Some artefacts show a strong regularity: straightness, symmetrical section, regular dorsal ridges, constant thickness (Figure 1: 2).

Blade production appears to be unipolar or bipolar. Among the 19 specimens sufficiently preserved to observe this feature, six show a bipolar dorsal scar pattern. This presence does not seem to be related to the size of the blank. These opposite removals are not limited to only the distal part of the blank and invade more largely the *débitage* surface. Some of these blanks thus were produced during true bipolar *débitage*, with two opposed platforms providing blades at the same time. The width of this kind of blanks suggests that they were knapped from blade cores with a broad *débitage* surface. On the other hand, some by-products have a platform with a relatively acute angle. These Font-Robert points thus were not all produced from a single *débitage* schema.

Maisières points

Maisières points (Figure 1: 7-8; Figure 2: 1-3) show some similarities with Font-Robert points. The length of the complete specimens ranges from 56 to 102 mm, width from 16 to 31 mm, and thickness from 5 to 15 mm. Of the 39 Maisières points, 20 are complete.

The development of retouch is quite varied. The less retouched specimens have only minor retouch at the tip and on the adjoining edge. By contrast, other artefacts possess complete dorsal retouch. Between these two extremes, all of

the intermediate possibilities can be found. The re-touch modifies or strengthens the cutting edge. Several generations of retouch can sometimes be observed, showing significant reduction in initial blank width. When discarded, these artefacts show a strong irregularity, resulting from long use. The life duration of this tool is related to the blank's original sizes: some artefacts being relatively heavy, others light and regular.

A particular point: sharpening of Maisières points

Otte (1976) recognised the uniqueness in the sharpening of Maisières points. This consists in a removal, similar to that observed on the prondnik, struck from the tip and creating a lateral cutting edge adjacent to the tip. This kind of retouch has also been called “*enlèvement plan sommital*” (“plane (or flat) removal at the tip”; Le Mené, 1999). The word “*plan*” generally referring to a removal on the ventral face, we will use here only the expression “removal at the tip”. This kind of removal modifies 30 of these tools, including four double (Figure 1: 7; thus 34 sharpened points).

The laterality of these removals is interesting. Of 25 pieces, there are 16 on the right edge versus 9 on the left. When both extremities are sharpened, the removals are alternate (3 out of 4), so the sharpened edge is almost always on the right side of the tool. Up to four removals can be observed on the same edge. In some cases (5), the tool may be retouched once more after these removals.

Among the studied artefacts, only one Font-Robert point showed such sharpening, but was atypical. Otte (1979) illustrates another point, typologically between a Font-Robert and a shouldered point, showing a clear removal of this kind at the tip. This sharpening technique thus seems to be most of the time correlated with Maisières points. It is thus highly likely that the three sharpening spalls (SF1: 5) and the sharpened distal fragments come from Maisières points.

The goals of this sharpening are not easy to define. Such sharpening gives the tool a new unretouched cutting edge with a mean length of 13 mm. This removal gradient varies according to the reduction and the thickness of the tool. The cutting edge angle is thus variable. This

sharpening is not only found on heavily retouched blanks. Additionally, the existence of five Maisières points without sharpening indicates that this removal is not always necessary for use of this tool type. Besides the cutting edge, the tip of the tool is acute and sturdy. The sharpening, likely made using an organic soft hammer (no percussion traces being visible on the 34 removals and the three sharpening spalls), does not leave any clear bulb negative that would modify the regularity of the tool. The combination of an acute and robust tip with a sharp cutting edge likely constitutes the goal of this particular retouch.

Otherwise, some Font-Robert and Maisières points share a common feature: an overshot transverse distal retouch (similar to a lateral “*coup de tranche*”). The intentional nature of this removal, found on four Maisières points and two Font-Robert points, cannot be confirmed.

Backed pieces

Several backed tool types are also present: Gravette points, microgravettes, truncated backed points, truncated backed pieces, and diverse backed pieces.

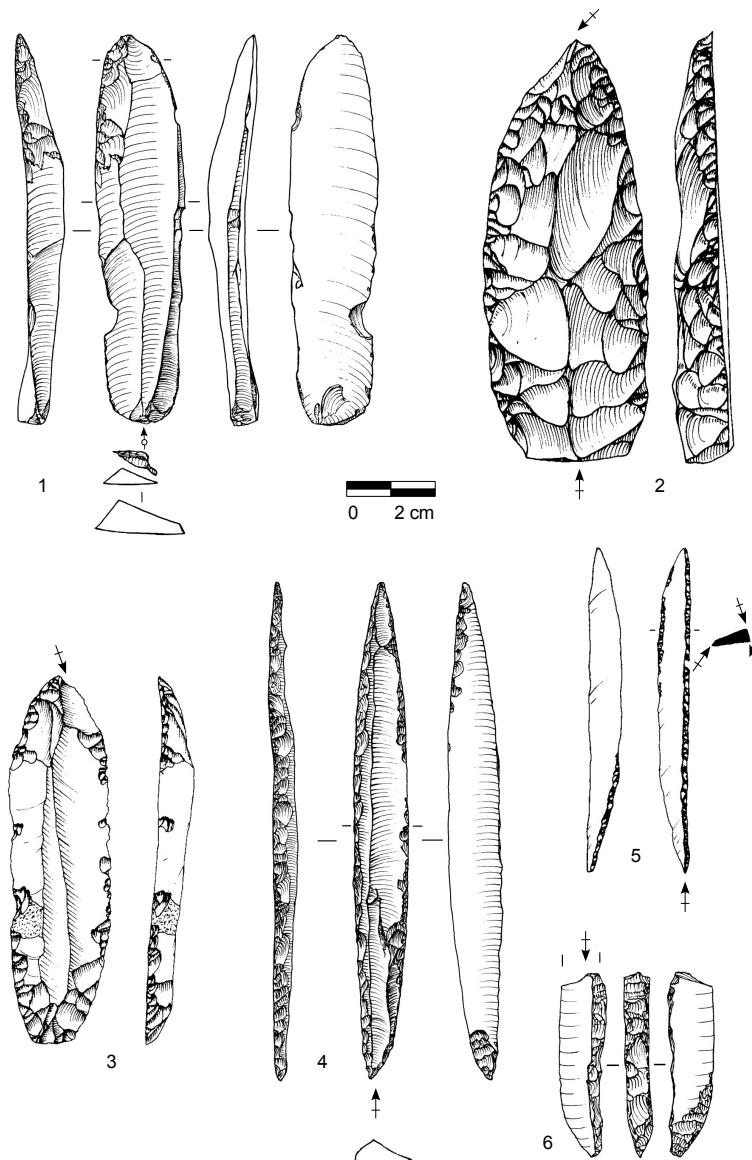


Figure 2. 1-3: Maisières points; 4-6: Gravette points (1, 4 & 6 by A.-M. Wittek, ADIA; 2-3 & 5 from Otte, 1979).

The Gravette points (Figure 2: 4-6; Figure 3: 1) are represented by some particularly typical and impressive specimens, showing considerable length and thickness, flat inverse proximal retouch and/or distal inverse or direct retouch to create the tip. These artefacts clearly correspond to the Vachons points (Figure 2: 4 & 6). The long points of this type are nonetheless rare (two and one likely fragment).

Microgravettes (Figure 3: 2-8) are much more common (31). Some show similar features to the longer backed points, such as flat inverse proximal retouch. But others have semi-abrupt direct or inverse distal retouch that is not found on the Gravette points. The microgravette tip can be axial or lateral. The back is made of a direct or crossed retouch.

A high number of mesial fragments has been found (47). Lacking characteristic features (proximal and distal retouch), they cannot be definitively associated with the Gravette points. There are also two proximal fragments with a preserved platform, but they correspond to another undefined type of backed bladelets.

Less numerous but clearly diagnostic, 14 truncated backed pieces are also present. These include seven truncated pieces (Figure 3: 12-14) and seven points with a truncated base (Figure 3: 9-11). Of these points, six have a straight back and only one a curved back. The truncation can be straight or oblique. When the truncation is oblique, the angle with the back is similar among the different types of truncated backed artefacts. Fine retouch on the edge opposite to the back, adjacent to the truncation, intensifies the general geometric aspect of the piece. This kind of lateral retouch can be found on both bi-truncated backed pieces and backed points with truncated base (Figure 3: 10). The tip of the points with a straight back is made relatively convex by a fine retouch (Figure 3: 9).

Two microgravettes and one rough-out show a bipolar dorsal scar pattern. The other backed pieces seem to come mostly from unipolar cores.

The different backed pieces show similar technical features: straight and (very) regular

laminar blanks. However, the size of the Vachons points (longer or smaller and narrower) is different from the truncated backed pieces.

Conclusion

The artefacts described here show different production strategies observable in both the *débitage* and transformation of the blanks and standardisation of the tools. Several techno-typological associations can thus be proposed.

The Font-Robert points and the Maisières points

These two types share several similarities. First, the blanks used for these tool types show the use of a relatively wide *débitage* surface with an open striking platform, sometimes prepared (faceted). Their retouch, despite their different goals, corresponds to similar approaches in considering the final tool. In both cases, standardisation is weak; the two tool types both show a broad range of variability. There is no clear sub-type, only a flexible standard. The sharpening by a flat tip removal (or “*coup de tranche*”) is one of the common features of these two types. If their use, related to the way the tool is handled, sets them apart, the issue of the functional difference between these types deserves to be tackled. Their cutting edges show similarities, a distal fragment of Font-Robert point being very difficult to recognise from a distal fragment of a Maisières point. This may suggest a common functional variety of these tool types.

The truncated backed pieces

The second group is composed of the geometric pieces. In addition to the shared technical features of the used blanks, they have many similar secondary features. They share a common “style”.

The Gravette points

The presence of Gravette and microgravette points raises several issues. Given the mixed nature of the available collection, these points cannot be separated from truncated backed pieces based on their technological features. It is only possible to note the presence of a group of

longer and a group of smaller specimens. It is difficult to establish if this corresponds to continuous production providing blanks for Gravette points/truncated backed pieces and smaller Gravette/microgravettes. Little data are available to evaluate this hypothesis. On the other hand, imagining completely different blank productions for the Gravette points and the truncated backed pieces would be overstated. We can, however, note that the Gravette points and the

microgravettes of the Vachons sub-type show numerous technical and morphological similarities separating them from the other backed pieces.

Thus, based on the patchy available data, three assemblages can be recognised: the Font-Robert points and the Maisières points, the truncated (geometric) backed pieces and an assemblage putting together some of the Gravette points.

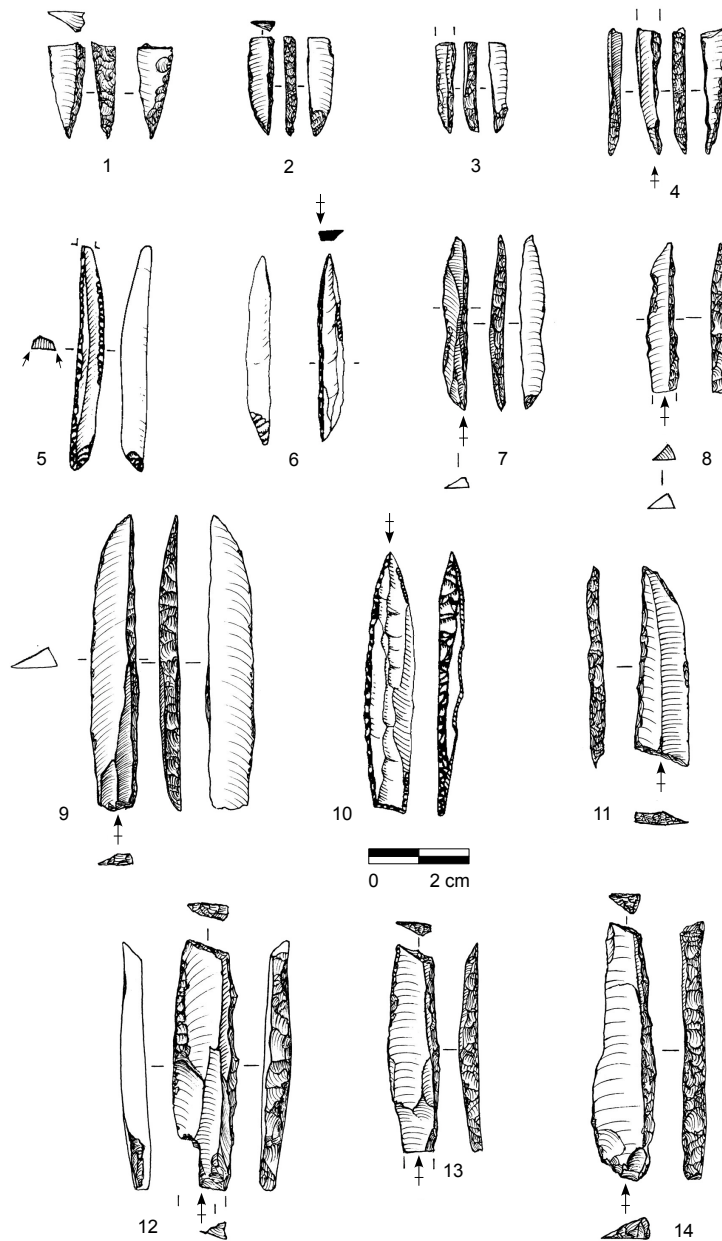


Figure 3. 1: distal fragment of Gravette point; 2-8: microgravettes; 9-11: truncated backed points; 12-14: truncated backed pieces (1-4, 7-9 & 11-14 by A.-M. Wittek, ADIA; 5-6 & 10 from Otte, 1979).

COMPARISONS

The Font-Robert and Maisières points

Comparisons have been proposed between the Maisières-Canal and Station de l'Hermitage sites (de Heinzelin, 1973; Otte, 1976, 1979, 1985; Haesaerts & de Heinzelin, 1979). These sites have been used to define a chrono-stratigraphic framework for this industry and the designations “*Périgordien Hennuyer*” (de Heinzelin, 1973), “*faciès de Maisières*” (Otte, 1976) and “*Maisierien*” (Campbell, 1980) have been created. The similar features are indeed numerous between Maisières and Spy: sturdiness of the points, high morphological variability, bipolar *débitage* (Le Mené, 1999) and typology of the Maisières points. At Maisières, the specific distal sharpening is seen on numerous points, including many Font-Robert points (that is much rarer at Spy).

These comparisons have been widened to consider the neighbouring regions where Font-Robert points are found (Otte, 1977, 1985). The British Isles yielded similar pieces, but without precise chrono-stratigraphic context (Jacobi, 1980). Here the presence of flat distal sharpening is an important feature. A link has also been proposed with the Southern Paris Basin (Otte, 1985). Otte observed flat distal sharpening on a Font-Robert point from Cirque de la Patrie, the most “*Maisierian*” of the French Font-Robert points. However, the assemblage from the lower level at Cirque de la Patrie has not yet been studied and does not permit verification of this comparison.

Otte also emphasised similarities between assemblages of the Swabian Jura and with La Vigne Brun in the Massif Central (Otte, 1985). At these sites, the Font-Robert points are actually very different to the Maisierian pieces and fit into a technical system producing mainly Gravette points and “*fléchettes*” (Pesesse, 2003; Conard & Moreau, 2004). At La Vigne Brun, Font-Robert points are very rare and are made on by-products, the main goal of the blank production being Gravette points (Pesesse, 2003). In this case, the Font-Robert point does not have the same place in the technical system and has a different status. However, it does not mean that there are no links between these regions. Among the Northern

Aquitaine sites, La Font-Robert, La Ferrassie (Delporte, 1984; Le Mené, 1999), Les Vachons and possibly Laussel could yield a similar assemblage structure where the Font-Robert point would have the central place. At La Ferrassie, some of the Font-Robert points would also have distal sharpening as at Maisières (Le Mené, 1999).

In Belgium, this industry belongs to the first phase of the Gravettian (Maisières interstadial radiocarbon dated around 28,000 BP; Damblon & Haesaerts, 2004; Haesaerts, 2004), and would later influence the French Gravettian (Otte, 1985). However, this hypothesis cannot be verified, given the absence of a complete stratigraphic sequence for the French Early Gravettian.

The recent discovery of a Late Aurignacian *débitage* workshop with *burins busqués* at Maisières (Miller *et al.*, 2004) provides new data related to the issue of the origin of Gravettian lithic technology in Belgium. This Late Aurignacian industry is very similar to the Aquitaine Late Aurignacian (Flas, 2004; Flas *et al.*, 2007). Yet, despite a similar background (the Late Aurignacian), these regions have very different Early Gravettian industries. The transition from the Aurignacian to the Gravettian clearly follows different histories. The issue of the origin of the Gravettian components in Belgium thus seems to be more complex (Flas, 2008).

The geometric pieces (truncated backed pieces)

Comparisons with the second group of artefacts – the truncated backed pieces – are simpler and have been long proposed (De Puydt & Lohest, 1887; Ophoven, 1938; Angelroth, 1951; Éloy & Otte, 1995). These pieces are present at several Belgian sites: Goyet, Engihoul, Fond-de-Forêt. The common typological features are clear between these assemblages, as well as for discrete characteristics. Technically, the blanks potentially used for the truncated backed pieces at Spy show some features described by L. Klaric at Grotte Walou, including the use of soft stone percussion (Klaric, 2004). This industry seems very homogeneous on a regional scale. Outside of the Meuse region, some typological comparisons can be proposed with more southern regions. The site of Hault-le-Roc, south of the

Paris Basin, may show some similarities, notably given the presence of three points with a curved back and a straight oblique truncated basis (Nouel, 1936; Schmider, 1971). However, the state of the assemblage does not permit verification (Schmider, 1971).

In the Vienne region, the Abri Laroux (Pradel & Chollet, 1950; Primault, 2003), a comparison previously proposed by Éloy (1952), and the Abri des Roches (Pradel, 1965; Primault, 2003) both yielded very original assemblages with truncated points and bi-truncated pieces. These assemblages have no southern equivalent. The comparison with the Walloon sites thus seems to be interesting and would merit analysis in more depth.

The Gravette points and the microgravettes

It is more difficult to find precise comparisons for the Gravette points. The Station de l'Hermitage site yielded some microgravettes and Gravette points, associated with a few "Maisierian" pieces (Straus *et al.*, 2000). These microgravettes are comparable to some pieces found at Spy. However, no Vachons point was identified at Station de l'Hermitage.

At Goyet "*abri supérieur*" (upper shelter), the presence of Gravette points is also mentioned, associated with geometric pieces (truncated backed pieces; Éloy & Otte, 1995). However, the reliability of the layers defined by Éloy has been brought into question by recent excavations (Toussaint *et al.*, 1999) that yielded only truncated pieces.

The Grotte Walou site, a key-site for the Belgian Upper Palaeolithic (Pirson *et al.*, 2006), has yielded new data. Two different areas (B5 and B5X) contain Gravettian assemblages showing numerous technical similarities (Klaric, 2008). There are, however, typological differences between the two: fragments of long Gravette points are found in B5 and truncated and bi-truncated pieces in the B5X area (Klaric, 2008). Moreover, important chronological differences are added to this typological difference (around 22,000 uncal BP for B5 and around 25,000 uncal BP for B5X; Dewez, 1993; Vrielynck, 1999).

At Goyet and Walou, the association between Gravette points and geometric (truncated backed) pieces remains unconfirmed. These sites do not provide a definitive answer to the issue of the chronostratigraphic position of the Belgian Gravette points. As no Vachons points have been found in these sites, the position of the Vachons points from Spy in the Belgian Gravettian sequence cannot be clearly defined.

CONCLUSION

At the end of this study, three techno-typological components were identified. These components are more or less superimposed on the three phases of the Belgian Gravettian (Otte & Noiret, 2007). This is the most important result of the reappraisal of the Gravettian assemblage from Spy. Until now this assemblage was considered to be a relatively homogeneous collection (Otte, 1977, 1979). Dewez opted for a division of the collection into two assemblages, one Maisierian and the other Gravettian (Dewez *et al.*, 1986).

The Maisierian assemblage, including Font-Robert points and Maisières points, is likely the most important Gravettian occupation at Spy. But all of the Font-Robert points cannot be with certainty attributed to this phase as they still appear later in Belgium (Otte, 1977). A component similar to the Station de l'Hermitage assemblage, associating Font-Robert points and microgravettes, is likely at Spy. Finally, the group of truncated backed pieces testifies to the existence of later Gravettian occupation(s). Given the absence of other similar assemblages, the Vachons points and microgravettes cannot be precisely related to one particular phase; they may be associated with the Font-Robert points phase (Dewez, 1989) or with the truncated backed pieces.

This division of the Gravettian collection from Spy is but a working hypothesis and should not be used as a definitive classification. Our understanding of the assemblage is limited by the weaknesses in the Belgian Gravettian sequence. While the early phase (the Maisierian) and the later phase with truncated pieces are relatively well known, there remain several gaps that can-

not be filled by the Station de l'Hermitage site alone. The discovery of new sequences may permit refinement of the chrono-cultural framework of the Gravettian and proposal of new interpretations of the Spy assemblage.

ACKNOWLEDGEMENTS

We thank Cécile Jungels, Pierre Noiret, Marcel Otte, Luciane Paquay and Jean-Luc Schütz who helped us during the study of the various collections from Spy, and Rebecca Miller for the English text correction.

BIBLIOGRAPHY

- ANGELROTH H., 1951. Lames et lamelles à dos abattu des Cavernes de Goyet (Périgordien-Aurignacien). In: *Mélanges en hommage au Professeur Hamal-Nandrin à l'occasion du XXV^e Anniversaire de la création de l'Université de Liège de l'Enseignement de l'Archéologie Préhistorique*. Bruxelles, Société royale belge d'Anthropologie et de Préhistoire: 111-116.
- BARDON L. & BOUYSSONIE A., 1907. La Grotte de La Font-Robert près Brive (Corrèze). In: *Congrès International d'Anthropologie et d'Archéologie Préhistoriques. Compte rendu de la 13^{ème} session, Monaco, 1906*. Monaco, Imprimerie de Monaco, 2: 172-184.
- BREUIL H., 1905. Essai de stratigraphie des dépôts de l'âge du Renne. In: *Congrès préhistorique de France*. Périgueux: 74-83.
- BREUIL H., 1907a. Les gisements Présolutréens du type d'Aurignac. Coup d'œil sur le plus ancien âge du Renne. In: *Congrès International d'Anthropologie et d'Archéologie Préhistoriques. Compte rendu de la 13^{ème} session, Monaco, 1906*. Monaco, Imprimerie de Monaco, 1: 323-350, figs 101-110.
- BREUIL H., 1907b. La question aurignacienne. Étude de critique de stratigraphie comparée. *Revue préhistorique*, 2: 173-219.
- BREUIL H., 1912. Les subdivisions du Paléolithique supérieur et leur signification. In: *Congrès International d'Anthropologie et d'Archéologie Préhistoriques, XIV^e session*. Genève, Imprimerie Albert Kundig: 165-238.
- CAMPBELL J. B., 1980. Le problème des subdivisions du Paléolithique supérieur britannique dans son cadre européen. *Bulletin de la Société royale belge d'Anthropologie et de Préhistoire*, 91: 39-77.
- CONARD N. J. & MOREAU L., 2004. Current Research on the Gravettian of the Swabian Jura. *Mitteilungen der Gesellschaft für Urgeschichte*, 13: 29-59.
- DAMBLON F. & HAESAERTS P., 2004. Les dates radiocarbone de Maisières-Canal. In: R. MILLER, P. HAESAERTS & M. OTTE (dir.), *L'atelier de taille aurignacien de Maisières-Canal (Belgique)*. Liège, Études et Recherches Archéologiques de l'Université de Liège, 110: 27-28.
- DE HEINZELIN J., 1973. *L'industrie du site paléolithique de Maisières-Canal*. Bruxelles, Institut

- royal des Sciences naturelles de Belgique, Mémoire, **171**: 63 p.
- DE PUYDT M. & LOHEST M., 1887. L'homme contemporain du Mammouth à Spy (Namur). *Annales de la Fédération archéologique et historique de Belgique, Compte rendu des travaux du Congrès tenu à Namur les 17-19 août 1886*, **2**: 207-240, 10 pl. h.t.
- DEWEZ M., 1989. Données nouvelles sur le Gravettien de Belgique. *Bulletin de la Société préhistorique française*, **86**: 138-142.
- DEWEZ M. (dir.), 1993. *Recherches à la Grotte Walou à Trooz (Province de Liège, Belgique)*. Liège, Société wallonne de Paléontologie, Mémoire, **7**: 80 p.
- DEWEZ M., KOZŁOWSKI S. K. & SACHSE-KOZŁOWSKA E., 1986. Spy, Les fouilles de F. Twisselmann sur la Basse Terrasse. Paléolithique supérieur. *Bulletin de la Société royale belge d'Anthropologie et de Préhistoire*, **97**: 153-178.
- ÉLOY L., 1952. Une pointe pédonculée type Font-Robert retaillée en burin, provenant de la caverne de Spy. *Bulletin des Chercheurs de la Wallonie*, **15**: 82-84.
- ÉLOY L. & OTTE M., 1995. Le Périgordien de l'abri sous-roche de Goyet (Namur, Belgique). *Bulletin des Chercheurs de la Wallonie*, **35**: 25-40.
- FLAS D., 2004. Technologie du débitage laminaire. In: R. MILLER, P. HAESAERTS & M. OTTE (dir.), *L'atelier de taille aurignacien de Maisières-Canal (Belgique)*. Liège, Études et Recherches Archéologiques de l'Université de Liège, **110**: 85-100.
- FLAS D., 2008. La transition du Paléolithique moyen au supérieur dans la plaine septentrionale de l'Europe. *Anthropologica et Præhistorica*, **119**: 254 p.
- FLAS D., MILLER R. & JACOBS B., 2007. Les "burins" de l'atelier de débitage aurignacien de Maisières-Canal (Province du Hainaut, Belgique). In: M. DE ARAUJO IGREJA, J.-P. BRACCO & F. LE BRUN-RICALES (ed.), *Burins préhistoriques: formes, fonctionnements, fonctions*. Actes de la Table Ronde d'Aix-en-Provence (3-5 mars 2003). Luxembourg, MNHA, ArchéoLogiques, **2**: 55-74.
- HAESAERTS P., 2004. Maisières-Canal (2000-2002): cadre stratigraphique. In: R. MILLER, P. HAESAERTS & M. OTTE (dir.), *L'atelier de taille aurignacien de Maisières-Canal (Belgique)*. Liège, Études et Recherches Archéologiques de l'Université de Liège, **110**: 13-26.
- HAESAERTS P. & DE HEINZELIN J., 1979. *Le site paléolithique de Maisières-Canal*. Brugge, De Tempel, Dissertationes Archaeologicae Gandenses, **XIX**: 120 p.
- JACOBI R. M., 1980. The Upper Palaeolithic of Britain with special reference to Wales. In: J. A. TAYLOR, *Culture and Environment in Prehistoric Wales*. Oxford, BAR British Series, **76**: 15-100.
- KLARIC L., 2004. Un usage de la pierre tendre pour le débitage des lames au Gravettien: remarques à propos de l'industrie lithique de la Grotte Walou (commune de Trooz, Province de Liège, Belgique). In: M. DEWEZ, P. NOIRET & E. TEHEUX (ed.), *Le Paléolithique supérieur, Actes du XIV^e Congrès UISPP, Université de Liège (2-8 septembre 2001)*. Oxford, BAR International Series, **1240**: 23-31.
- KLARIC L., 2008. L'industrie lithique gravettienne de la Grotte Walou (Couches B5 et B5X). In: M. DEWEZ (dir.), *Monographie de la Grotte Walou*. Oxford, BAR International Series, **1789**: 11-28.
- LE MENÉ F., 1999. *Proposition pour une nouvelle approche de la pointe de La Font-Robert: les données de La Ferrassie et de Maisières-Canal*. Mémoire de Maîtrise. Paris, Université de Paris I.
- MILLER R., HAESAERTS P. & OTTE M. (dir.), 2004. *L'atelier de taille aurignacien de Maisières-Canal (Belgique)*. Liège, Études et Recherches Archéologiques de l'Université de Liège, **110**: 136 p.
- NOUEL A., 1936. La station paléolithique de Haultle-Roc, à Montigny-sur-Loing (Seine-et-Marne). *Bulletin de la Société préhistorique française*, **33**: 567-576.
- OPHOVEN C., 1938. L'Aurignacien en Belgique. Quelques pointes de la Gravette inédites provenant de gisements belges. *Bulletin de la Société préhistorique française*, **35**: 90-105.
- OTTE M., 1976. Observations sur l'industrie lithique de Maisières et sur ses relations avec les autres ensembles périgordiens de Belgique. *Bulletin de la Société préhistorique française*, **73**: 335-351.
- OTTE M., 1977. Données générales sur le Paléolithique supérieur ancien de Belgique. *L'Anthropologie*, **81**: 235-272.
- OTTE M., 1979. *Le Paléolithique supérieur ancien en Belgique*. Bruxelles, Musée royaux d'Art et

- d'Histoire, Monographies d'archéologie nationale, 5: 684 p.
- OTTE M., 1985. *Les industries à pointes foliacées et à pointes pédonculées dans le nord-ouest européen*. Viroinval, CEDARC, Artefacts, 2: 27 p.
- OTTE M. & NOIRET P., 2007. Le Gravettien du Nord-Ouest de l'Europe. In: J.-P. RIGAUD (ed.), *Le Gravettien: entités régionales d'une paléoculture européenne*. Les Eyzies-de-Tayac, 7 au 8 juillet 2004. Paléo, hors série: 243-256.
- PESESSE D., 2008. *Les premières sociétés gravettiennes, Analyse comparée des systèmes lithiques de la fin de l'Aurignacien aux débuts du Gravettien*. Thèse de doctorat inédite, Université de Provence, Aix-en-Provence: 278 p.
- PIRSON S., HAESAERTS P., COURT-PICON M., DAMBLON F., TOUSSAINT M., DEBENHAM N. & DRAILY C., 2006. Belgian cave entrance and rock-shelter sequences as palaeoenvironmental data recorders: the example of Walou Cave. *Geologica Belgica*, 9 (3-4): 275-286.
- PRADEL L., 1965. L'abri aurignacien et périgordien des Roches, commune de Pouligny-Saint-Pierre (Indre). *L'Anthropologie*, 69: 219-236.
- PRADEL L. & CHOLLET A., 1950. L'abri périgordien de Laroux, commune de Lussac-les-Châteaux (Vienne). *L'Anthropologie*, 54: 214-227.
- PRIMAULT J., 2003. *Exploitation et diffusion des silex de la région du Grand-Pressigny au Paléolithique*. Thèse de doctorat inédite, Université de Paris X.
- SCHMIDER B., 1971. *Les industries lithiques du Paléolithique supérieur en Ile-de-France*. Paris, CNRS Éditions, VI^e suppl. à *Gallia Préhistoire*: 220 p.
- SEMAL P., JUNGELS C., CREVECOEUR I., ROUGIER H. & PIRSON P., 2009. Acquisition de la collection de Spy de François Beaufays (dit "l'Horloger") par l'Institut Royal des Sciences Naturelles de Belgique. *Notae Praehistoricae*, 29: 157-164.
- STRAUS L. G., OTTE M., NOIRET P. & MILLER R., 2000. La station de l'Hermitage à Huccorgne: un habitat gravettien de plein-air en Belgique. *Notae Prehistoricae*, 20: 73-83.
- TOUSSAINT M., PIRSON St., LÓPEZ BAYÓN I., BECKER A., LACROIX Ph. & LAMBERMONT S., 1999. Bilan préliminaire de trois années de fouilles à l'Abri Supérieur de Goyet (Gesves, province de Namur). *Notae Praehistoricae*, 19: 39-47.
- VRIELYNCK O., 1999. *La chronologie de la préhistoire en Belgique. Inventaire des datations absolues*. Liège, Société Wallonne de Palethnologie, Mémoire, 8: 76 p.

AUTHORS AFFILIATION

Damien PESESSE
 Université Rennes 2
 Laboratoire d'Archéologie
 et d'Histoire Merlat (LAHM)
 CReAAH, UMR 6566
 Place du Recteur Henri Le Moal
 35043 Rennes cedex
damien.pesesse@univ-rennes2.fr

Damien FLAS
 FNRS
 Département de Préhistoire
 Université de Liège
 7, place du XX Août
 4000 Liège
 Belgium
damienflas@yahoo.com