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MESOLITHIC PALETHNOGRAPHY

RESEARCH ON OPEN-AIR SITES BETWEEN LOIRE AND NECKAR

PROCEEDINGS FROM THE INTERNATIONAL ROUND-TABLE MEETING IN PARIS (NOVEMBER 26–27, 2010)

as part of sessions organised by the Société préhistorique française

Published under the direction of

Boris Valentin, Bénédicte Souffi, Thierry Ducrocq,
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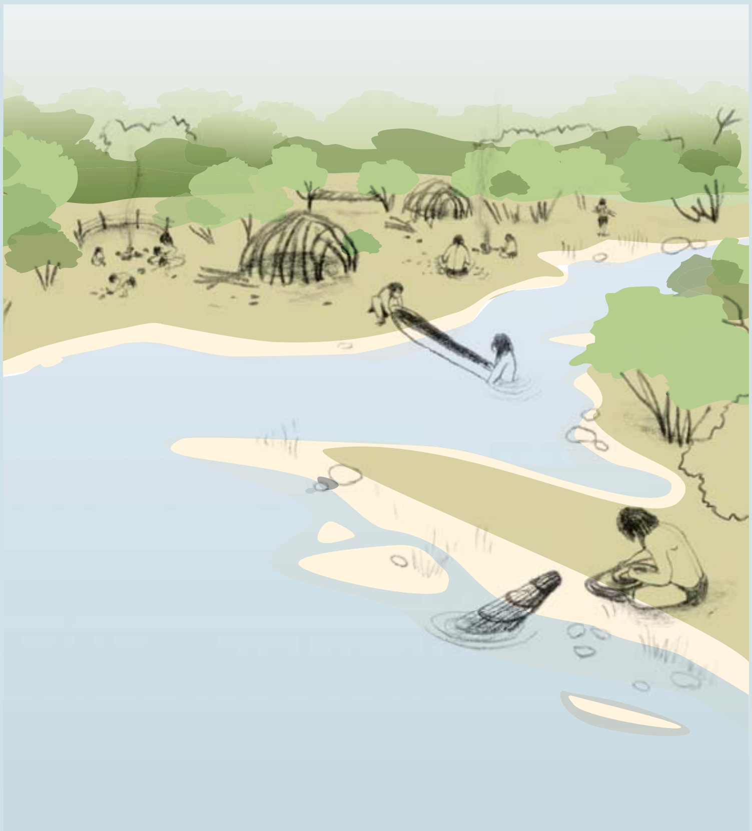

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Manufacture and use of Montmorencian prismatic tools:

The case of 62 rue Henry-Farman, Paris (15th arrondissement)

Sylvain Griselin, Caroline Hamon and Guy Boulay

Abstract: The Mesolithic site of 62 rue Henry-Farman in Paris' 15th arrondissement, excavated by the INRAP in 2008, has produced a series of prismatic tools whose mode of production, maintenance and use are investigated here. These macrolithic tools are known from numerous Middle Mesolithic sites in and around the Île-de-France and occasionally in the rest of the Paris Basin. At the Paris site, these quartzite tools are generally broken, but can measure up to 10 cm in length when whole. They have triangular and / or trapezoidal cross-sections with a flat un-retouched face characteristic of Montmorencian tools. The shaping of these pieces is relatively simple as it aims to shape-out the sides and the dorsal face, forming the tool's lateral longitudinal ridges. Different degrees of repair are observable on the tools, indicating a fairly long period of use. Use-wear referable to contact with a mineral material is visible along the longitudinal ridges of both the flat and opposing faces, while the prominences of the sides show a distinct undetermined type of wear. The ridges seem to constitute the main working surfaces of these objects and, despite some wear on the extremities of several examples, the overall use-wear distribution refutes their supposed main use as 'picks'. Further functional hypotheses may be formulated and several preliminary tests have been carried out to evaluate them, including the use of these tools as retouchers to fracture bladelets using the microburin technique. This hypothesis is discussed in the light of use-wear observed on archaeological and experimental tools.

The site of 62 rue Henry-Farman in Paris' 15th arrondissement, excavated in 2008 as part of a rescue operation by the INRAP under the direction of Bénédicte Souffi and Fabrice Marti (Souffi *et al.*, this volume), has produced numerous Montmorencian prismatic tools from 6 loci and their periphery (fig. 1). These long, narrow macrolithic quartzite tools have triangular and / or trapezoidal cross-sections with plano-convex profiles (fig. 2). The un-modified ventral face, or 'flat face', is smooth and can be rectilinear, concave or convex with denticulated edges. The object's contours are sinuous with numerous small prominences. The average width and thickness of these tools is 2.4 cm with the length of whole tools ranging between 9.6 and 17.7 cm. Whole objects therefore present a natural extremity perpendicular to the flat face, opposite another transversely bevelled extremity which is partially retouched. In total, thirteen tools of this type were found at Farman, including 5 extremities, 2 mesial fragments and 6 whole tools (three represented by conjoined fragments), and form the basis of our investigation concerning the modes of production, maintenance and use of Montmorencian tools[1].

After presenting the chrono-cultural and geographic context of this tool type, its technological and functional characteristics are described in more detail and a functional hypothesis, guided by experimentation, is discussed.

CHRONO-CULTURAL CONTEXT

At Farman, the use of quartzite for the manufacture of prismatic tools and their general morphology tie them to the Montmorencian industries which were defined following discoveries spanning the 19th century to the 1970s and thanks to an important synthesis by Jacques Tarrête (1977). 'Montmorencian' sites are found

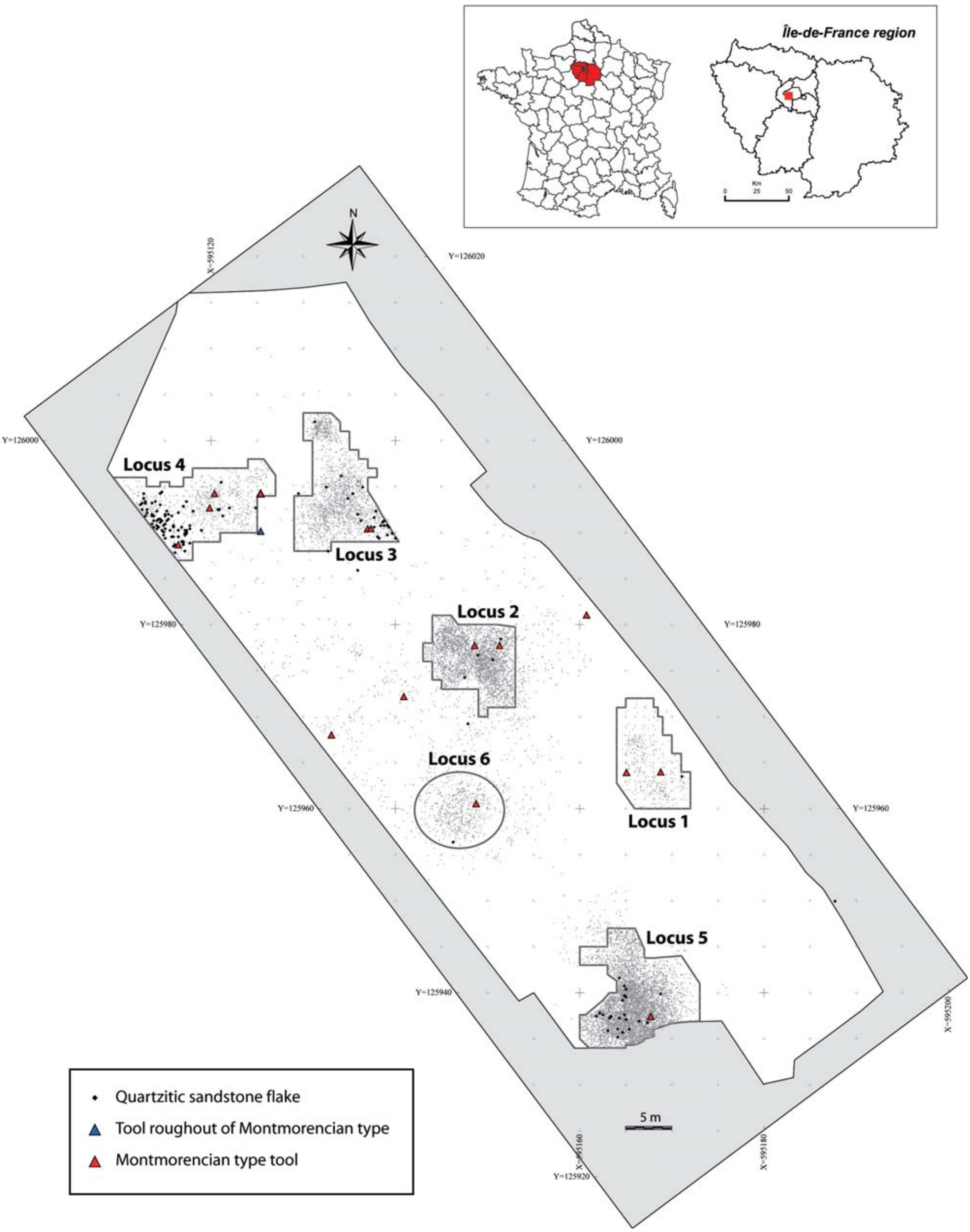

Fig. 1 – 62 rue Henry-Farman, Paris. Distribution of quartzite artefacts.

Fig. 2 – 62 rue Henry-Farman, Paris. Locus 4: Refit of two Montmorencian tool fragments (photo L. Petit).

along the quartzite outcrops of the Stampian massifs and hills of the Île-de-France and are distinguishable by the presence of specialised zones of quartzite extraction and exploitation, essentially composed of rough-outs and tool preforms, often broken during manufacture and associated with significant shaping waste.

Similar tools from other Mesolithic assemblages had already been noted prior to excavations at Farman, for example at the following sites where finished, often broken, tools with traces of use have been recovered: Onglais at Acquigny in the Eure (see Souffi, 2004), Les Closeaux (sectors II and VIII) at Rueil-Malmaison in Hauts-de-Seine (Lang and Sicard, 2008) or Parc du Château at Auneau in the Eure-and-Loir (see Verjux et al., this volume). These recent excavations demonstrate that Montmorencian prismatic tools are well-represented at Middle Mesolithic campsites, revealing a strong territorial connection between Montmorencian 'production and/or extraction' sites and essentially 'tool-use sites' such as Farman (fig. 3). The geographic distribution of these objects depicts a regional phenomenon centred around the Île-de-France and less pronounced in the rest of the Paris Basin. Exploitation of Stampian quartzites represent a regional idiosyncrasy that could be partly explained by specific geological features of the Francilian landscape and its margins.

TECHNOLOGICAL CHARACTERISATION OF TOOLS FROM FARMAN

Tools were manufactured from a Stampian quartzite that is amenable to conchoidal fracture and thus enables a technological analysis of the pieces (fig. 4). The mechanical qualities of this material and its presence in outcrops in the form of large blocks from which blanks (knapped or gelifracted fragments) could be extracted and/or collected may have influenced the production of macrolithic tools.

Tools abandoned at the site have three or four faces, one of which is devoid of any modification (the ventral face or 'flat face'). Their cross-section is triangular and/or trapezoidal resulting from modifications of the sides and dorsal face. Only three longitudinal ridges, two on the sides of the tool's flat face and one on its back, received particular attention during their shaping and maintenance.

Shaping

The precise nature of the blanks employed (natural or knapped fragments) is generally indeterminable. Nevertheless, their original morphology must have at least partially corresponded to that of the tools. Indeed, certain pieces retain non-worked faces other than the flat unmodified debitage face (fig. 5).

The shaping of the tool consists of two main stages: roughing-out and finishing the tool (fig. 6). The roughing-out stage corresponds to reducing the size of the block and framing the eventual tool, effecting all or part of the sides and dorsal face, generally determining the cross-section, thickness and contour of the tool. This stage also establishes the tool's future working zones. One or two of the flat faces' lateral ridges are shaped by a series of unipolar removals originating from the flat face serving as the striking platform. The dorsal ridge is then retouched, reducing the thickness of the piece by unifacial, and on

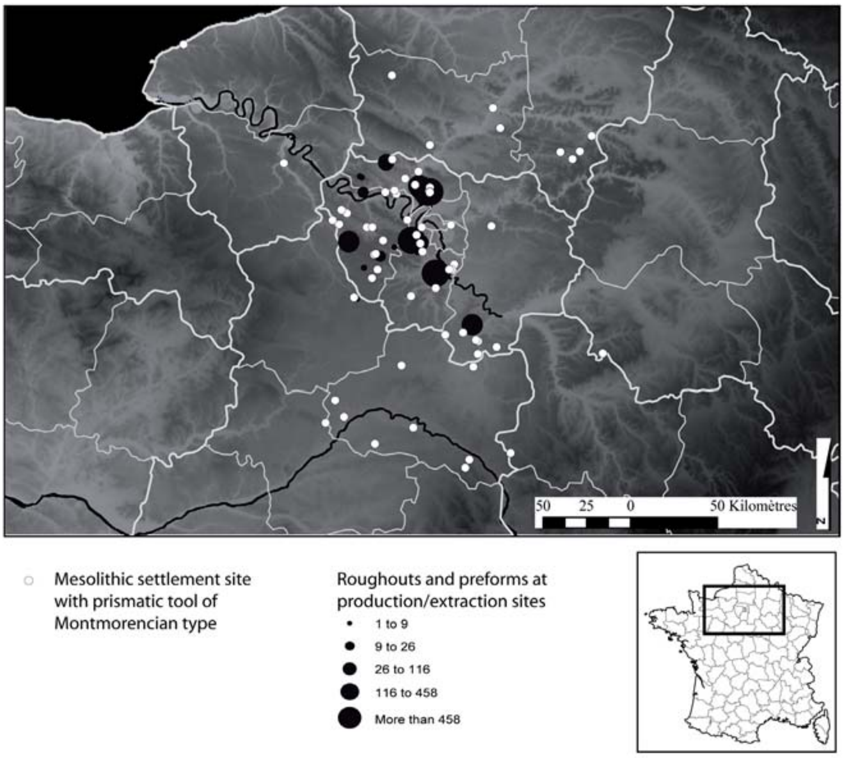

Fig. 3 – Distribution of Montmorencian prismatic tools from Mesolithic sites; number of prismatic tool rough-outs and preforms recovered from quartzite extraction or exploitation sites (datas from Tarrête, 1977).

Fig. 4 – 1: outcrop of quartzite on the commune of Bièvres (Essonne); 2: experimentally knapped block of quartzite; 3: shaping of experimental tools by Guy Boulay; 4: scars on an experimental tool.

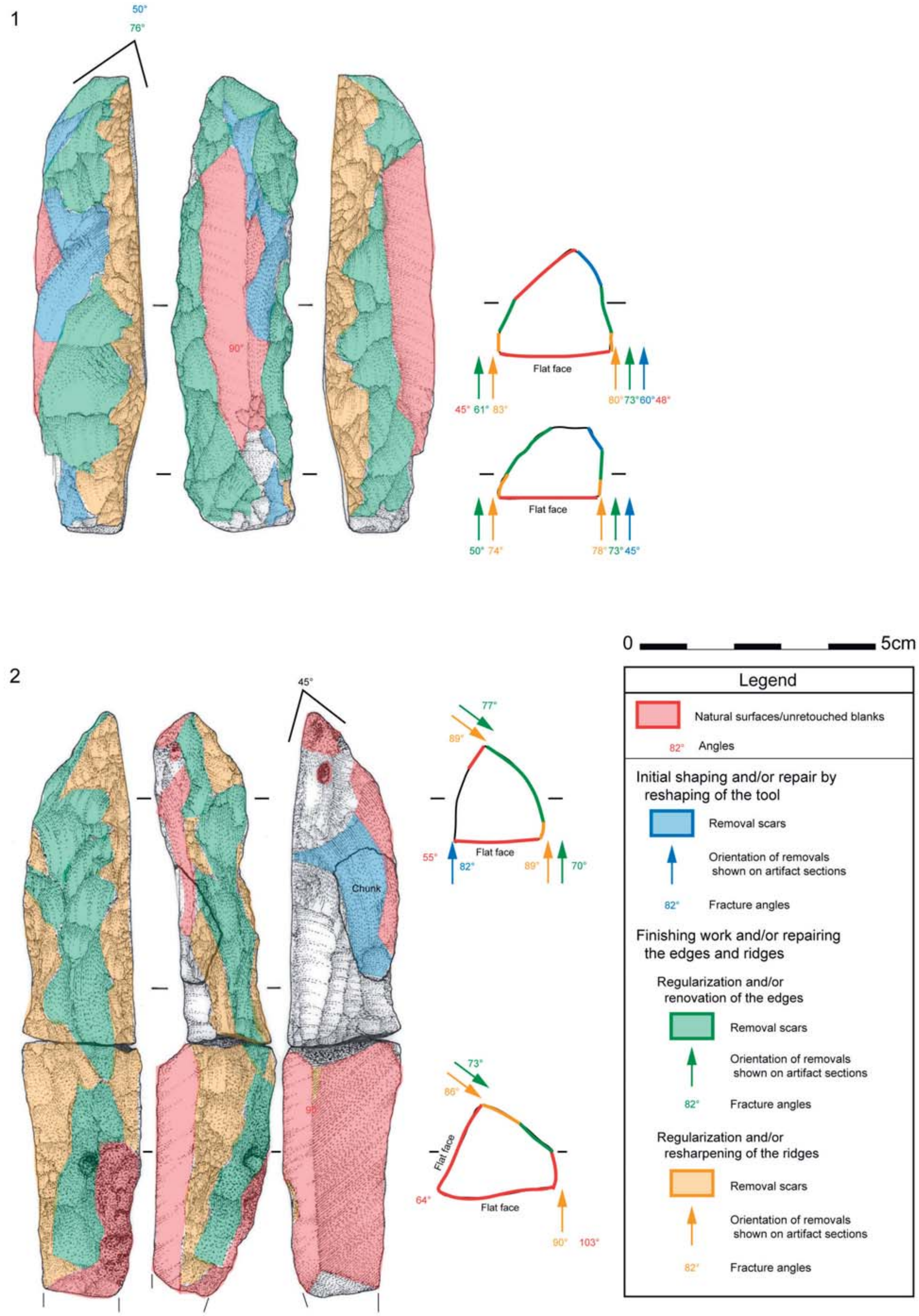

Fig. 5 – 62 rue Henry-Farman, Paris. Diacritic schemes for two Montmorencian tools. 1: locus 2, tool 151/977-9; 2: locus 4, refit of tools 119/992-15, 120/994-21 and 119/989-6 (drawings E.Boitard).

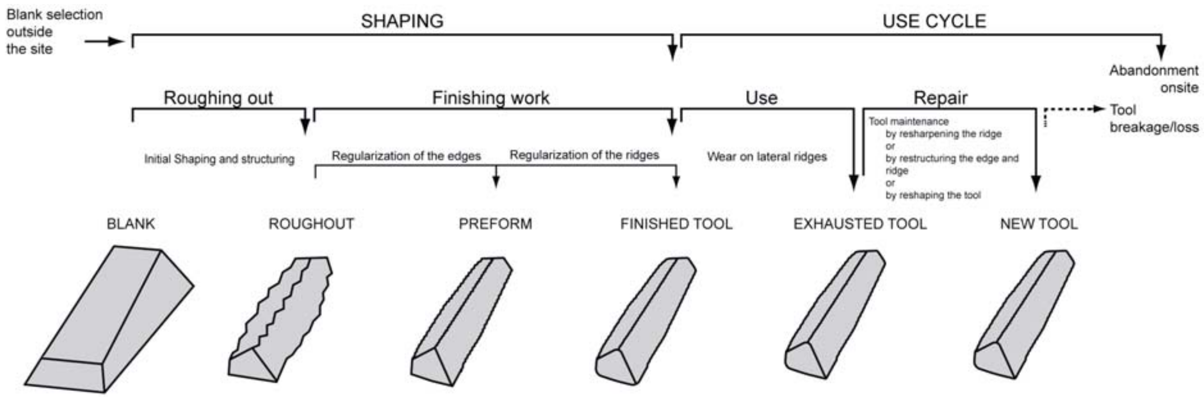

Fig. 6 – 62 rue Henry-Farman, Paris. Overall *chaîne opératoire* for Montmorencian tools.

rare occasions bifacial, removals. Before being repaired, certain tools may have had two adjacent un-retouched faces corresponding to the initial stage of shaping and use (fig. 5, no. 2). This type of tool, referred to as 'slices' or 'orange quarters' "based on analogous pieces from the Belgian Neolithic" (Tarrête, 1977, p. 28), is common in Montmorencian industries.

Following the roughing-out phase, the finishing of the tool can be broke down into two main operations. The first consists of a series of removals rectifying the edges and creating numerous prominences on the sides and denticulations on the longitudinal ridges. The second operation smoothes the contour of the ridges by removing a portion of the small prominences remaining from the earlier stage and regularising the 'line' of the sides and their angle. This stage is characterised by a series of abrupt unipolar retouch that is often discontinuous, scaled and scalariform.

The extremities bear no sign of specific modifications which aren't directly tied to the shaping of the sides or their subsequent management during repairs.

Tool repair

The tools from Farman show evidence of multiple repair episodes, indicative of occasionally long periods of use. This repair also seems to be the main cause of their breakage. The simplest form of management concerns the ridges (fig. 7, nos. 2a and 2c): when they become too dull a series of retouch rejuvenates their entire length. This type of repair can be repeated several times and explains the occasionally very scaled and 'stepped' character of the retouch (fig. 7, no. 3).

When the ridges become too damaged by repeated rejuvenation, repair consists of a complete modification of the ridges' entire length (fig. 7, no. 2b). This type of repair entails a partial or total transformation of the sides' morphology or the initially modified dorsal face.

If the ridges can no longer be rejuvenated or reinstalled, the active surfaces of certain tools are reoriented, sometimes leading to a renewed shaping-out of the tool (fig. 7, no. 4), including a redistribution of its active edges.

Functional characterisation of the tools

Brief History

Questions concerning the function of Montmorencian tools are not new; woodworking (Reynier, 1910; Guichard, 1941), agricultural activities (Franchet and Giraux, 1923) or even the processing of skins and bones have all been suggested. Given the fact that certain extremities had been shaped, their use as 'picks' has often been put forward. However, from the 1930s onwards, the use of their sides as 'pick-planes' has been suggested based on the presence of edge damage and breakage of the mesial section of the pieces (Breuil and Lantier, 1951; Daniel, 1956).

Laurent Lang reaffirmed the hypothesis of their lateral use in 1997 following a study of Montmorencian tools recovered from different sectors of Les Closeaux at Rueil-Malmaison, Hauts-de-Seine (Lang and Sicard, 2008). The author notes that all the quartzite tools present traces of abrasion on the lateral ridges which could have resulted, awaiting confirmation by use-wear analysis, from contact with a fairly hard material "during grinding with a gesture parallel to the axis of the piece" (Lang et al., 1997, p. 184).

Sylvie Philibert was the only person to carry out use-wear analysis on an analogous object, a flint tool recovered from the Mesolithic site of Les Baraquettes in the Cantal. This piece bore scars and micropolish on one of its extremities, suggesting its use as a 'pick' for transverse abrasion or percussion on "hard materials with an abrasive mineral component" (Surmely et al., 2003, p. 191-193).

Use-wear analysis of tools from Farman

Use-wear analysis was carried out on all Montmorencian tools and demonstrates that the main traces of use are found on the lateral ridges and occasionally on the flat face and topography of the sides (figs. 8a and 8b). The backs sometimes have one or two ridges bearing similar, but less intense, traces to those found on the flat

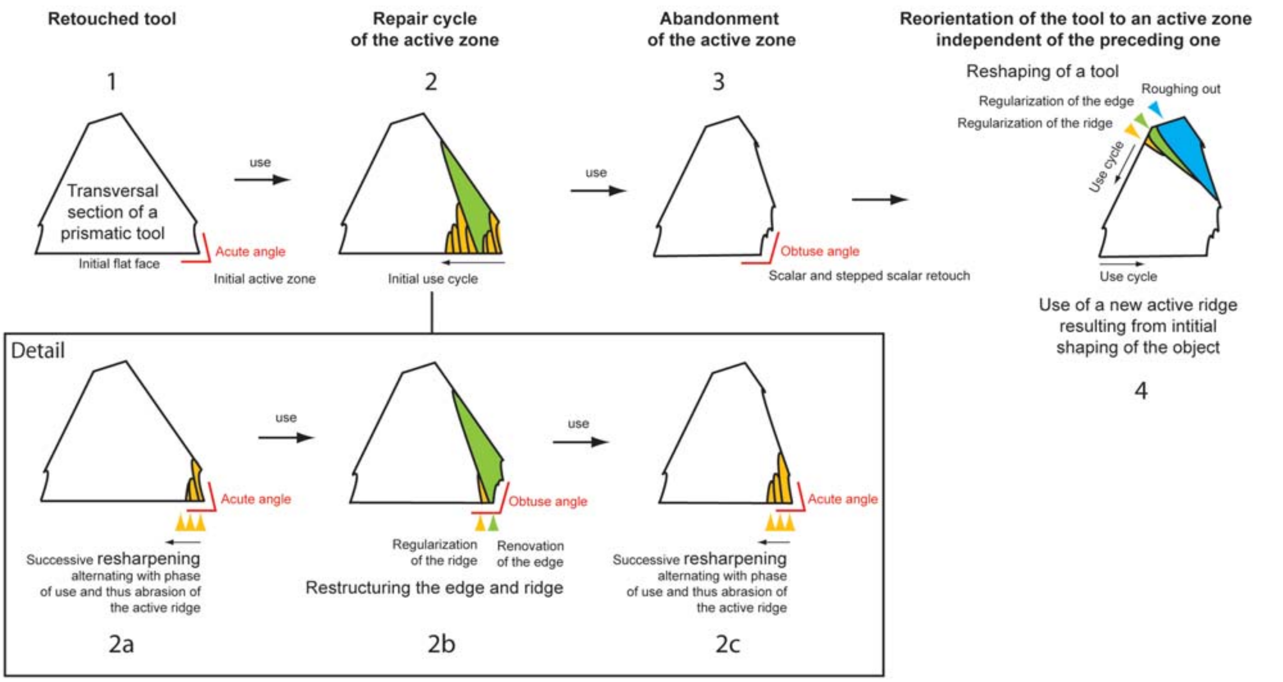

Fig. 7 – 62 rue Henry-Farman, Paris. Overall use / repair cycle for Montmorencian tools.

face. Contrarily to what was observed at Les Baraquettes, the extremities were rarely used which, in our opinion, excludes this tool functioning mainly as 'picks': only one tool presents bifacial edge damage, while two others bear slight wear on their extremities extended from the longitudinal ridges.

A first type of smoothing found along the longitudinal ridges, as well as the adjacent surfaces, appears macroscopically as a levelling of grains with altered faces and, microscopically as a semi-hard, convex and loosely welded coalescence (fig. 8c). This wear, indicative of contact with a generally hard mineral material, is distributed almost continuously between the hollows and raised areas resulting from edge-damage during use and / or repair (fig. 8d). On the other hand, traces on the ridges show no specific orientation. Smoothing is therefore accompanied by edge-damage, however it is difficult to distinguish traces of use from retouch designed to repair the edges since these tools all appear to have been rejuvenated (fig. 8e). Less intense smoothing of certain recessed surfaces may however attest to alternating phases of repair and use of the ridges.

The topography of the tools' sides and the flat face's asperities carry a second, significantly less pronounced, type of wear. Its arrangement and aspect indicate an unexplained secondary friction whose use-wear signature is however reminiscent of contact with dry hides.

The distribution of use-wear on prismatic tools from Farman leads us to consider that their longitudinal ridges (along the flat face or back) were in fact the working surfaces. Smoothing, and possible associated edge-damage, results from a single action combining percussion and abrasion on a fairly hard material. In the absence of an *ad hoc* reference collection, we cannot yet distinguish a mobile or fixed use for these tools based solely on the interpretation of use-wear patterns.

New functional hypotheses

The results of the use-wear analysis lead us to believe that these tools, particularly their ridges, were used on hard mineral materials. Different functional hypotheses can therefore be advanced, notably their use as strike-a-lights, 'saws' or scrapers. As a first step, we have chosen to test their usage for fracturing bladelets using the microburin technique to create microlith blanks. This hypothesis considers the hard mineral materials most frequently worked during the Mesolithic and is complemented by several basic morphological and technological observations: the notches present on the majority of failed microburins from Farman are often asymmetrical and form an angle generally close to 90°, corresponding to that of the longitudinal ridges of prismatic tools which slot into these notches (fig. 9).

In order to verify this hypothesis, three main methods for fracturing bladelets were tested (figs. 10 and 11):

– *test A*: the prismatic tool is used as an anvil on which the bladelet is struck by a stone retoucher;

– *test B*: the mobile prismatic tool is used to transversely grind the edge of the bladelet held on its side;

– *tests C to C"*: the mobile prismatic tool serves as a retoucher for non-tangential (test C) and tangential percussion (test C') on the edge of a bladelet laid flat and obliquely on a stone anvil. The hardness of the anvil (see below) also plays a role in the C" variant.

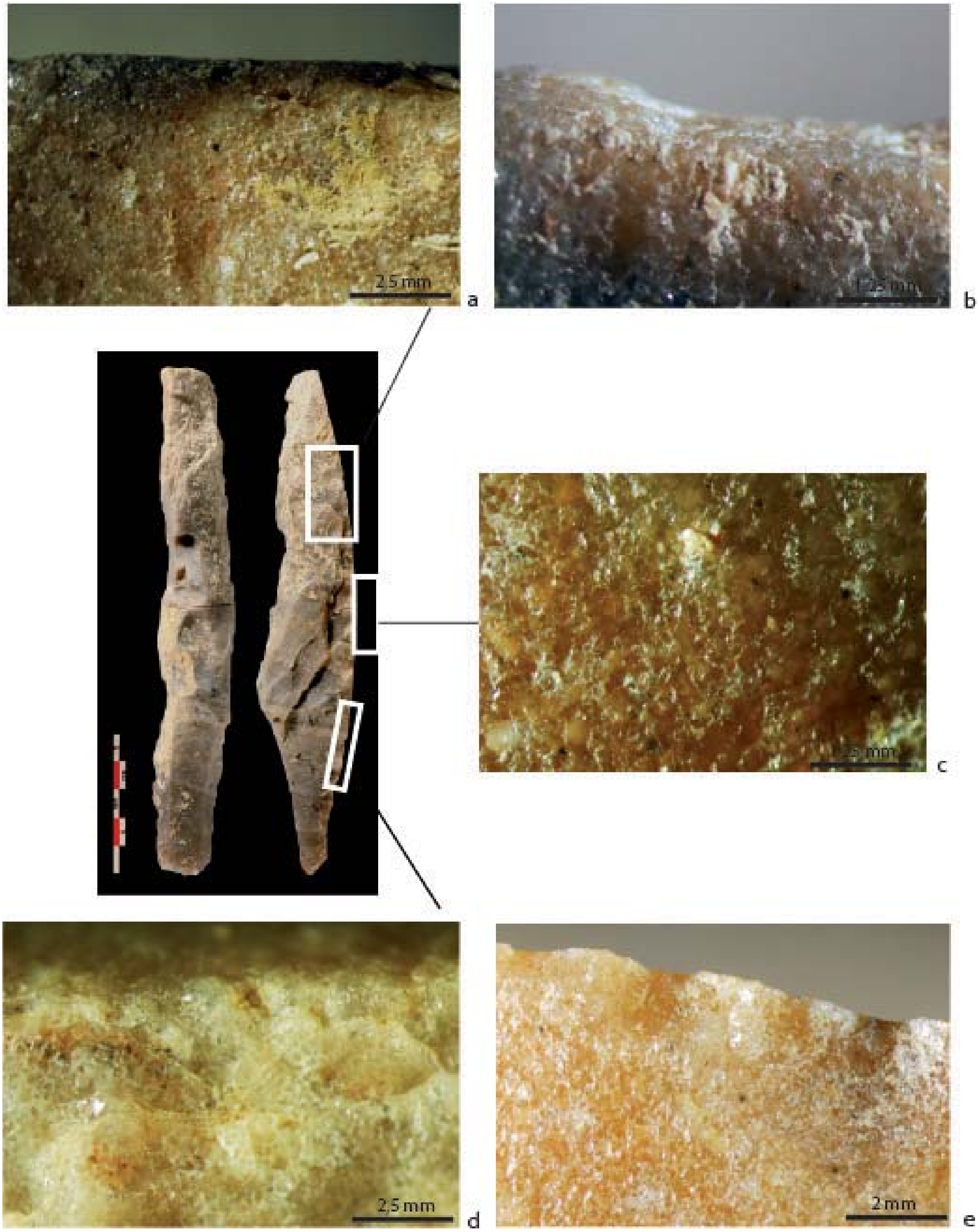

Fig. 8 – 62 rue Henry-Farman, Paris. Schematic distribution of use-wear identified on prismatic tools. a: tool 140/972-5, longitudinal ridge smoothed across its entire length, a similar smoothing is also found on its side (× 10); b: tool 148/977-2, this smoothing also affects the flat face (× 20); c: tool 160/981-1, polish on the asperities of the flat face (× 20); d: tool 119/989-6, distribution of smoothing in the hollows and on the asperities of the ridge; e: tool 160/981-1, repeated chipping of the retouched or working zone (× 15).

Test A did not produce characteristic trihedral point fractures, instead bladelets broke perpendicularly during the creation of the notch (fig. 12). This method's failure lies in difficulties holding both the bladelet and prismatic tool, used as an 'anvil', in place during successive blows. The percussion point cannot be accurately controlled, resulting in random fractures. Furthermore, this method does not explain the presence of use-wear across the length of the tool's longitudinal ridges. We therefore quickly excluded this type of use for the prismatic tools.

Test B was also inconclusive, as no characteristic trihedral point fractures were produced (fig. 12). The wear that developed on the tools was however similar to that observed on archaeological specimens (polish on the line of the ridges). The bladelet was positioned on its edge with the prismatic tool used for longitudinal abrading; the tool's ridge transversely abraded one of the bladelet's cutting-edges, rapidly wearing it and producing random bladelet fractures.

Although *test C* produced characteristic trihedral point fractures, the use-wear formed on the prismatic tools differed from that observed on archaeological specimens. The bladelet was placed flat and obliquely on the edge of the anvil with part of the dorsal face resting upon it (future microlith) and the remainder hanging off the anvil (eventual microburin). The prismatic tool was used for non-tangential percussion with a rectilinear motion. One of the tool's lateral ridges strikes the edge of the bladelet, on the outside and close to the edge of the anvil, until the bladelet breaks. The resulting microburins are

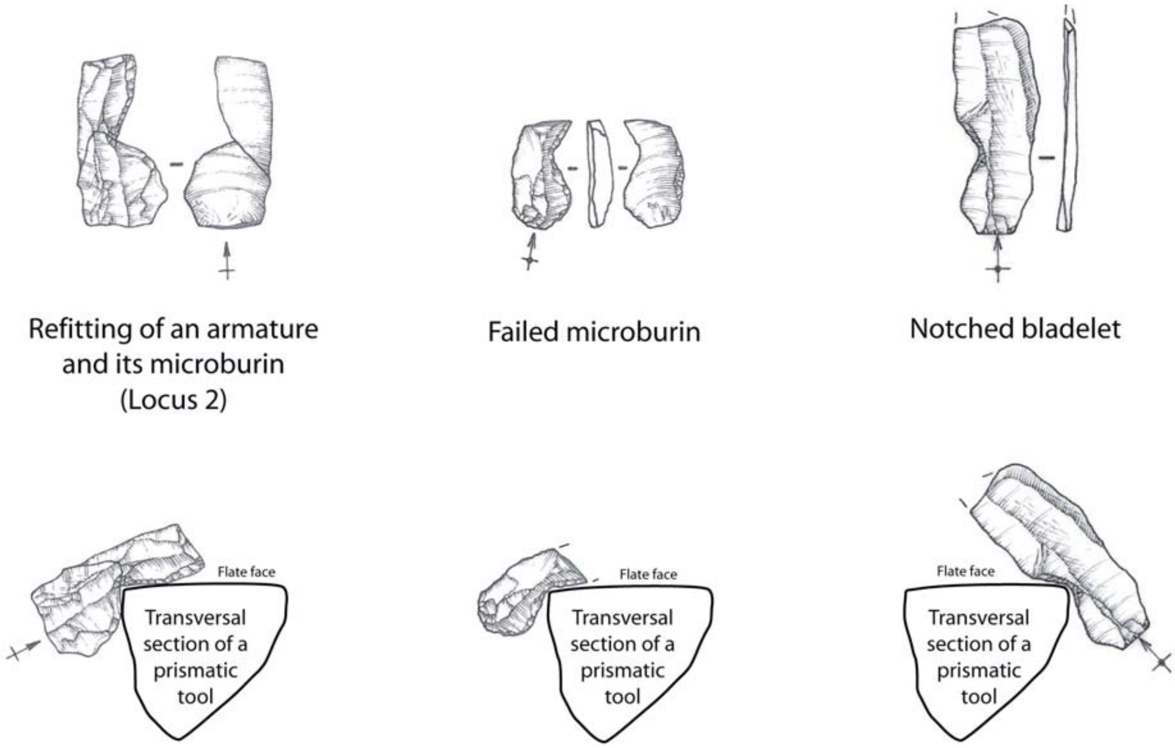

Fig. 9 – Morphological similarity between the working zones of Montmorencian tools and notches made on bladelets for the microburin fracture (drawings E. Boitard).

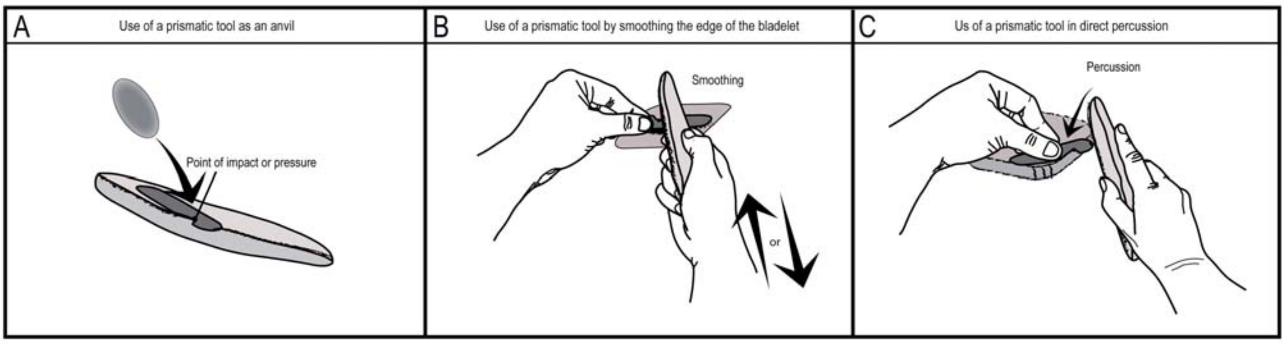

Fig. 10 – Test using Montmorencian tools for segmenting bladelets by the microburin technique.

Test	Number of active surfaces used on prismatic tools	Number of used bladelets	*Piquant-trièdre* fractures	
			Number	Frequency
A	1	13	0	
B	3	82	0	
C	1	34	14	41,20%
C'	1	48	20	41,60%
C''	1	60	29	48,30%

Fig. 11 – Trihedral point fracture frequencies according to different modes of use tested.

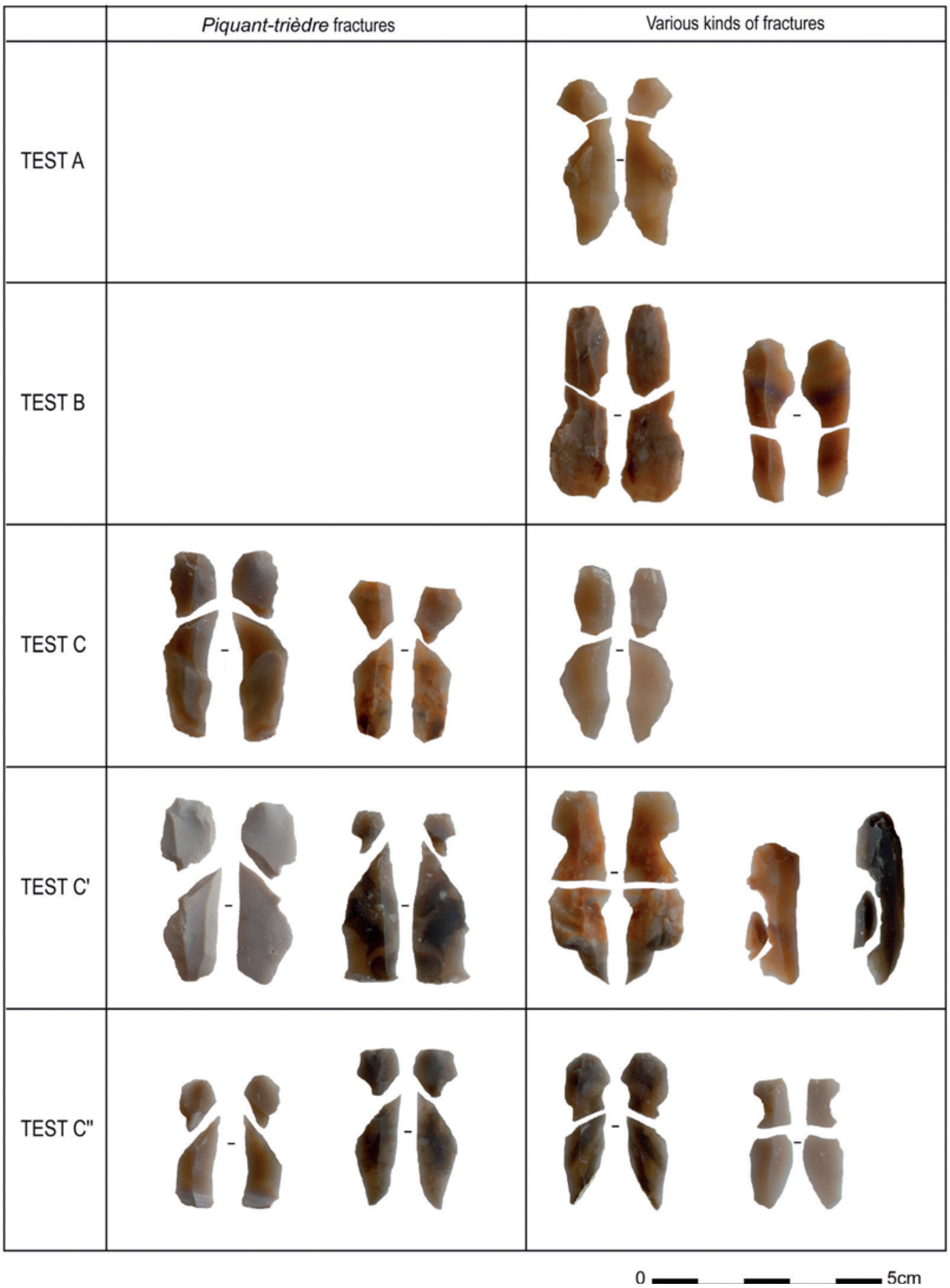

Fig. 12 – Examples of bladelets broken during experimental tests.

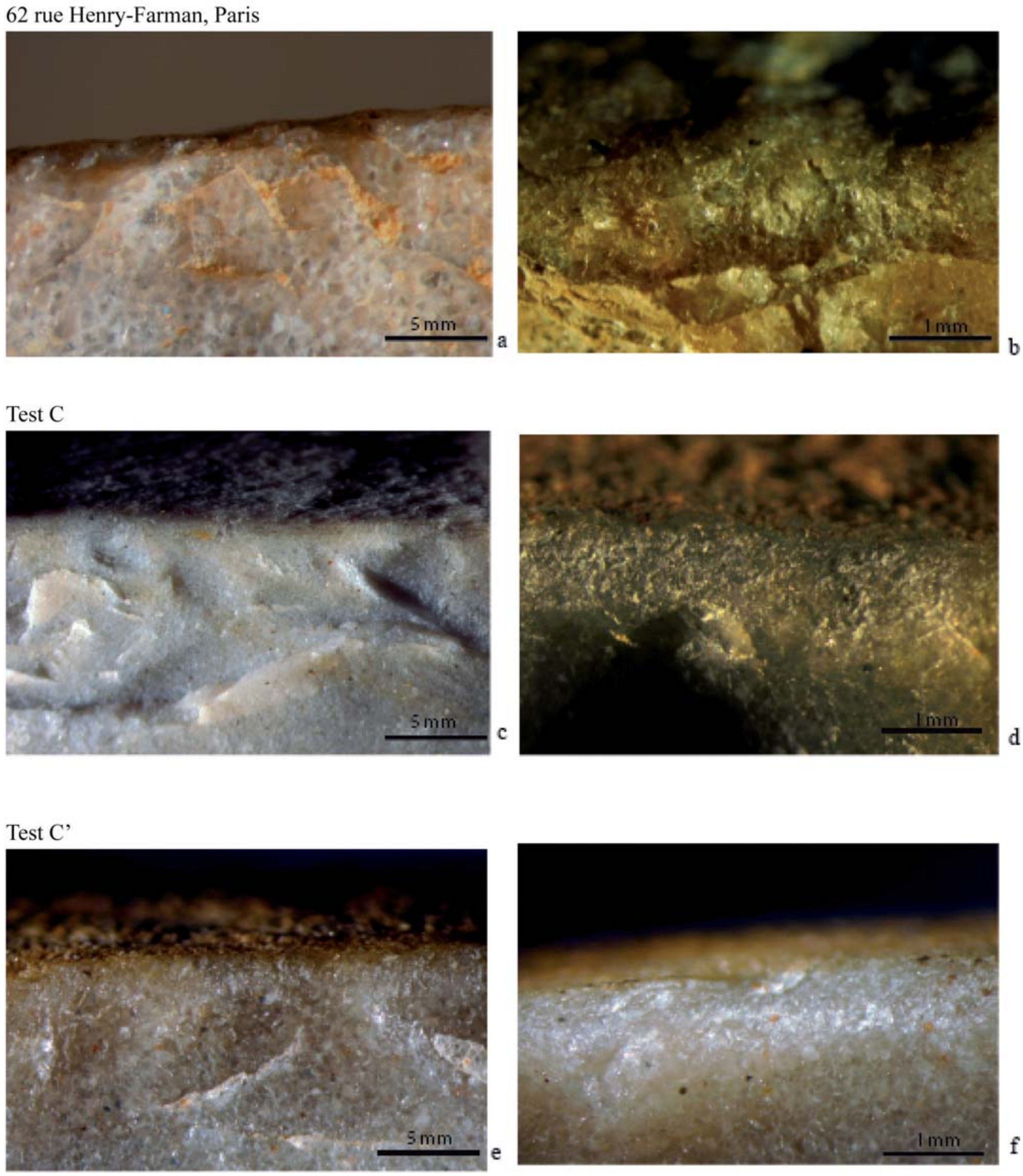

Fig. 13 – Comparison of use-wear on the longitudinal ridges of archaeological specimens and experimental pieces. A: 62 rue Henry-Farman, Paris, tool 151/977-9 (× 5); b: 62 rue Henry-Farman, Paris tool from locus 1549 (× 50); c: experimental tool used in test C (× 5); d: experimental tool used in test C (× 50); e: experimental tool used in test C' (× 5); f: experimental tool used in test C' (× 50).

characteristic and have part of the directly retouched notch on their dorsal face and a fracture facet on the ventral face that formed between deepest part of the notch and the opposite edge (fig. 12; Inizan et al., 1995). This method 'bruised' the ridges of the experimental prismatic tools, leaving traces unlike those observed on archaeological specimens, thus making this method highly unlikely (fig. 13).

Test C' appears the most suitable for fracturing bladelets while producing a trihedral point (fig. 12) and leaving traces that most accurately correspond to those observed on archaeological prismatic tools: blunting which extends slightly to the flat face and sides, together with a fluid polish and longitudinal striations (fig. 13). The bladelet is placed in similar manner to test C, although the tool is used for tangential percussion with a curvilinear motion. The series of precise blows from the tool's ridge creates a notch that is then shaped by fuller blows guided by the notch's morphology until the bladelet fractures, leaving a trihedral point. The denticulated length of the tool's ridge produces several small successive impacts within the notch.

It should also be noted that the type of anvil influences the conditions in which the bladelet is supported and the quality of the fractures. The use of a mineral anvil (in this case, sandstone) requires the bladelet to be firmly held and may result in different knapping accidents, notably a partial, longitudinal break produced by a counterblow from the anvil (fig. 12). In order to reduce the counterblow's effect, a piece of hide was placed between the bladelet and the anvil, producing good results, as well as better supporting the bladelet on the anvil (Test C"). The use of a wooden anvil is also possible.

The hypothesised use of Montmorencian tools according to methods C'-C" described above is therefore plausible. Further experiments are however necessary to evaluate other variants and, in particular, better characterise the scars and micro-scars left on microburins and use-wear on prismatic tools. Future more exhaustive experiments will also aim to test other modes of use for this tool type, as a strike-a-light for example.

CONCLUSION

The present study of Montmorencian prismatic tools demonstrates that their relatively simple shaping was designed to produce tools with fairly standardized morphologies. Several faces are transformed from an un-modified flat face serving as the striking platform. The lateral ridges, unlike the extremities, comprise the functional surfaces thus contradicting their functioning mainly as 'picks'. The use of these ridges on hard mineral materials has been highlighted. Based on preliminary experiments, the use of prismatic tools as retouchers for fracturing bladelets using the microburin technique seems plausible, however future experiments are necessary to validate this hypothesis.

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NOTES

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REFERENCES

Breuil H., Lantier R. (1951) – *Les hommes de la pierre ancienne (Paléolithique et Mésolithique)*, Paris, Payot, 234 p.

Daniel R. (1956) – Les gisements préhistoriques de la forêt de Montmorency, *Bulletin de la Société préhistorique française*, 53, p. 217-221.

Franchet L., Giraux L. (1923) – Les ateliers néolithiques de la forêt de Montmorency, *Comptes rendus des congrès annuels de l'Association française pour l'avancement des sciences (AFAS)*, 47th session, Bordeaux, p. 642-648.

Grunevald R. (1935) – Étude sur l'outillage d'une station de grès de la forêt de Montmorency, *Bulletin de la Société préhistorique française*, 32, p. 455-464.

Guichard X. (1941) – Hypothèses sur l'utilisation des pics campigniens, *Bulletin de la Société préhistorique française*, 38, p. 113-114.

Inizan M.-L., Reduron-Ballinger M., Roche H., Tixier J. (1995) – *Technologie de la pierre taillée. Préhistoire de la pierre taillée*, vol. 4, Meudon, CERP, 199 p.

Lang. L., Bridault A., Gebhardt A, Leroyer C., Limondin N., Sicard S., Valentin F. (1997) – *Occupations mésolithiques dans la moyenne vallée de la Seine. Rueil-Malmaison « Les Closeaux »*, final excavation report, Paris, AFAN, service régional de l'Archéologie, 394 p.

Lang L., Sicard S. (2008) – Les occupations mésolithiques des Closeaux à Rueil-Malmaison (Hauts-de-Seine), in J.-P. Fagnart, A. Thevenin, T. Ducrocq, B. Souffi and P. Coudret (eds.), *Le début du Mésolithique en Europe du Nord-Ouest*, proceedings of the round-table (Amiens, 9-10 October 2004), Paris, Société préhistorique française (Mémoire, 45), p. 65-83.

Reynier P. (1910) – Les grès taillés de la Vignette, *Bulletin de la Société préhistorique française*, 7, p. 182-185.

Souffi B. (2004) – *Le Mésolithique en Haute-Normandie (France). L'exemple du site d'Acquigny « L'Onglais » (Eure) et sa contribution à l'étude des gisements mésolithiques de plein air*, Oxford, Archaeopress (BAR, International Series 1307), 208 p.

Surmely F., Tzortzis S., Pasty J.-F., Bouby L., Courtaud P., Courty M.-A., Fontana L., Heinz C., Philibert S. (2003) – *Le site mésolithique des Baraquettes (Velzic, Canal) et le peuplement de la moyenne montagne cantalienne, des origines à la fin du Mésolithique*, Paris, Société préhistorique française (Mémoire, 32), p. 191-196.

Tarrête J. (1977) – *Le Montmorencien*, Paris, CNRS (Supplement to *Gallia Préhistoire*, 10), 216 p

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MESOLITHIC PALETHNOGRAPHY

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Proceedings from the international round-table meeting in Paris (November 26–27, 2010)

as part of sessions organised by the Société préhistorique française

Published under the direction of
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