

Débiter un éclat à la fin du Paléolithique inférieur : approches technologique et expérimentale de l'industrie lithique d'Etricourt-Manancourt (niveau HUD)

Producing a flake at the end of the Lower Palaeolithic: technological and experimental approaches of the lithic industry of Etricourt-Manancourt (HUD layer)

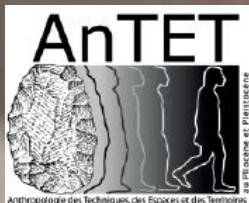
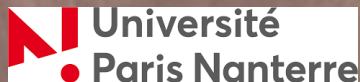
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³INRAP ; CNRS-UMR 5199, PACEA.

⁴Association Chalchophore.



6th International Congress of Experimental Archaeology – Pézenas – 25-28 october 2022

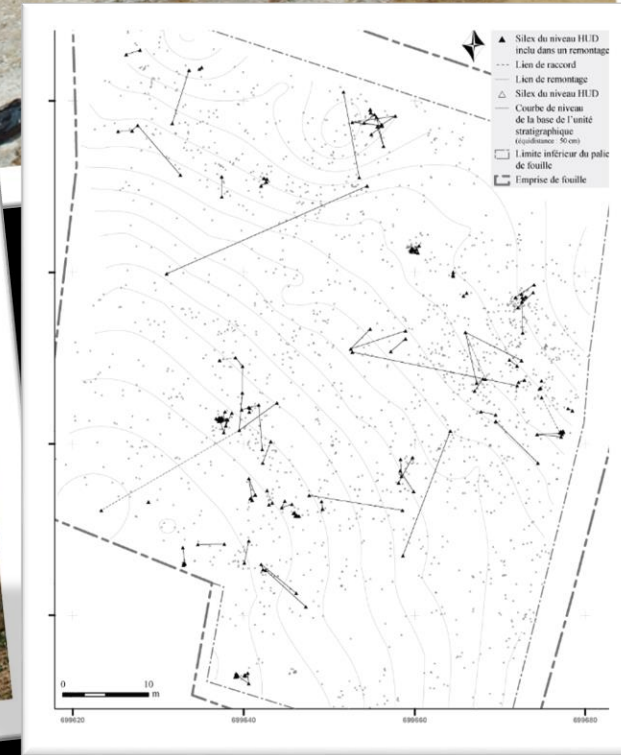
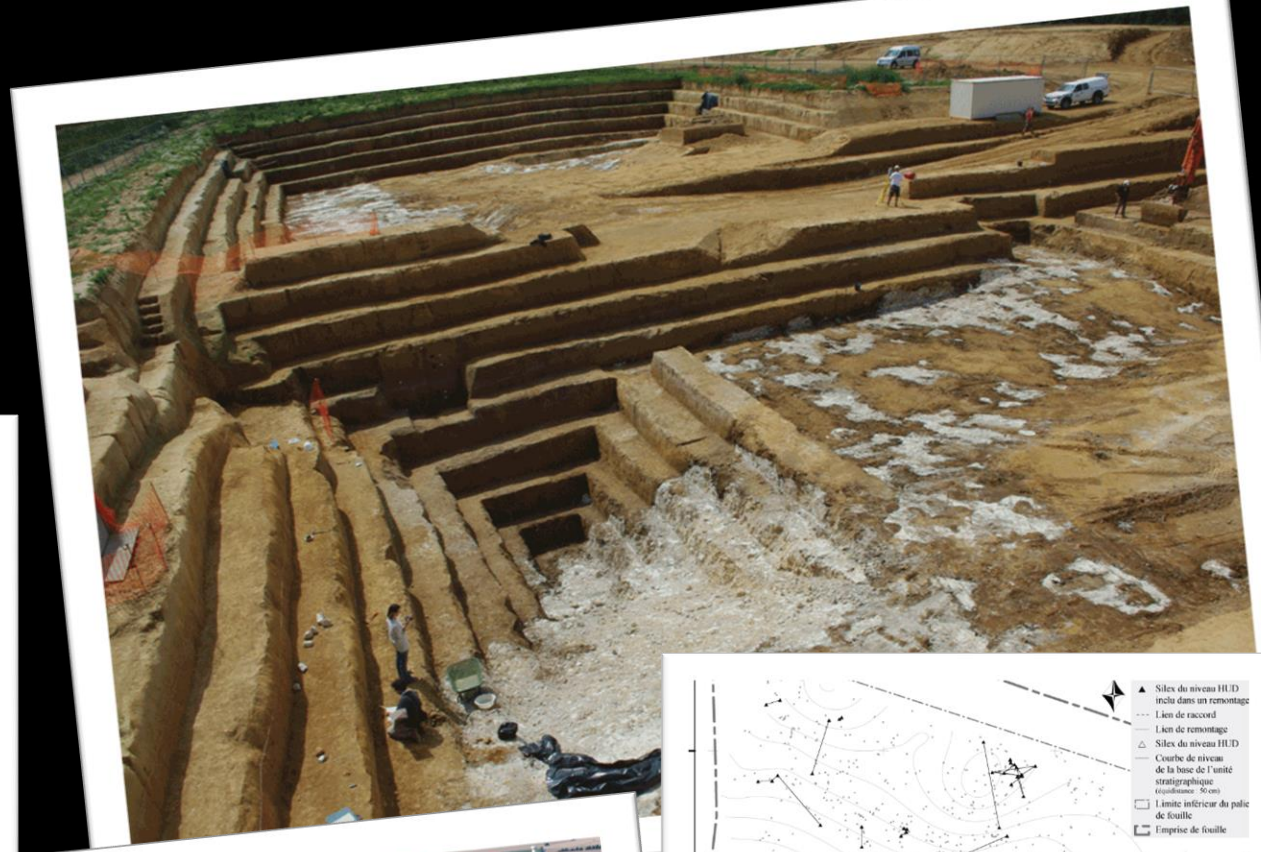
Etricourt-Manancourt (HUD)

D. Hérisson dir.

4 300 m²

2 402 artifacts

56 refittings (229 artifacts)



MIS 4-2 Archaeo layers

5

HUD ▲

6

LGS ▲

7

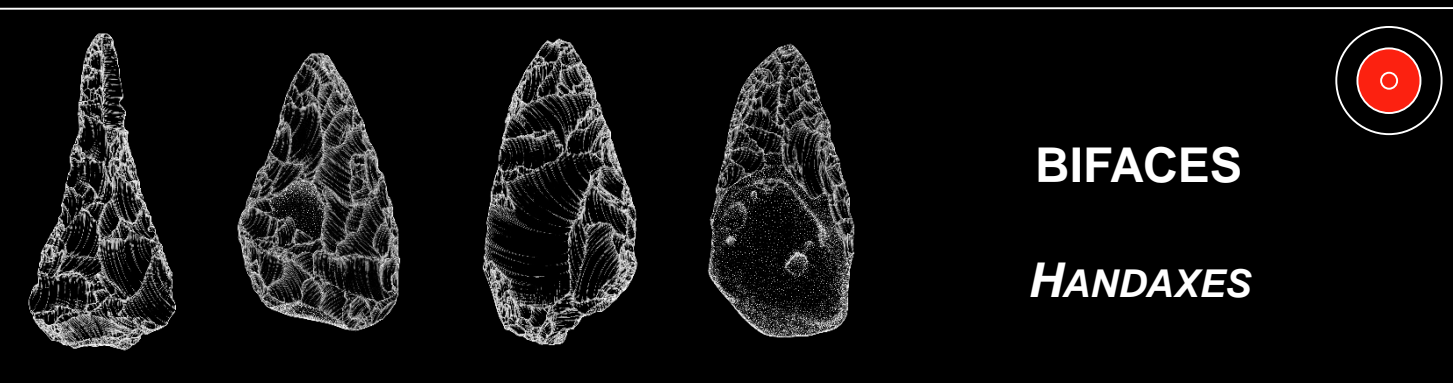
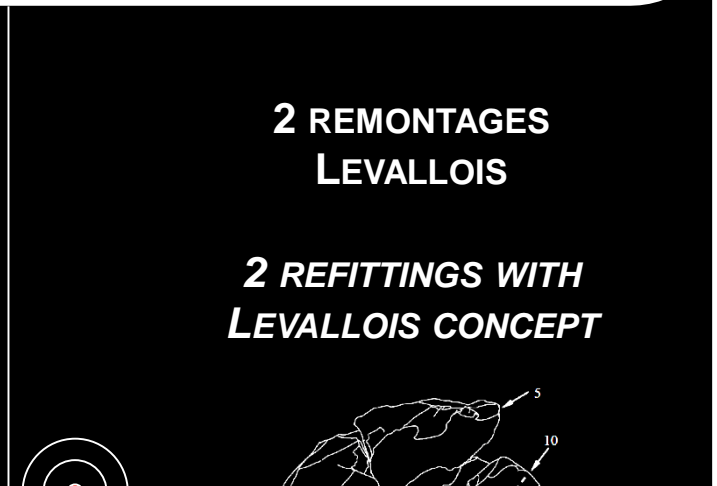
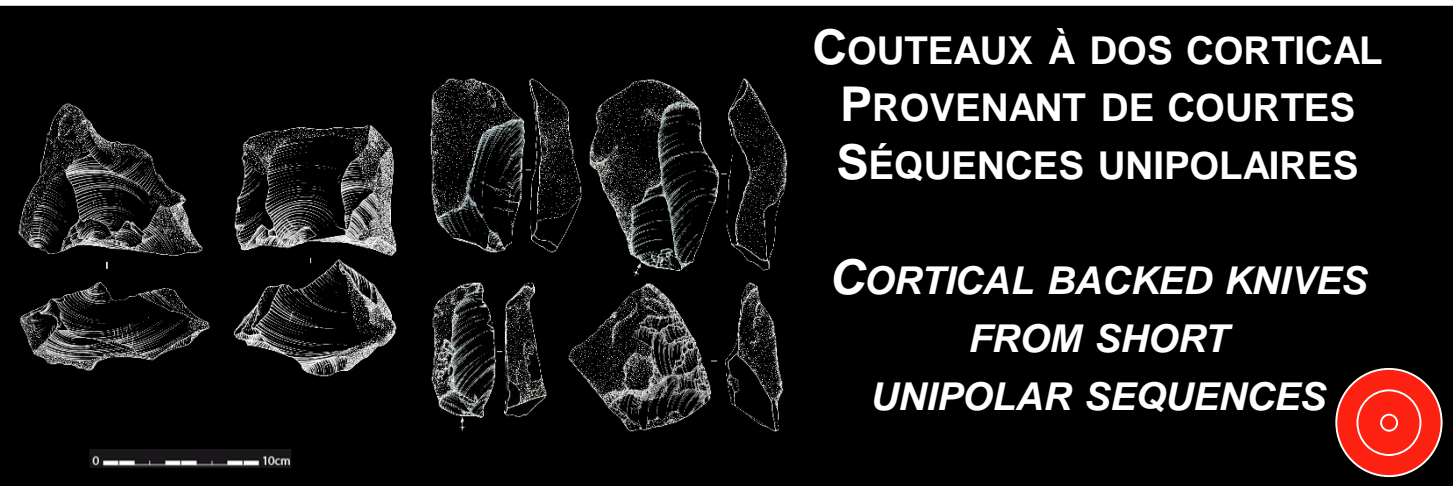
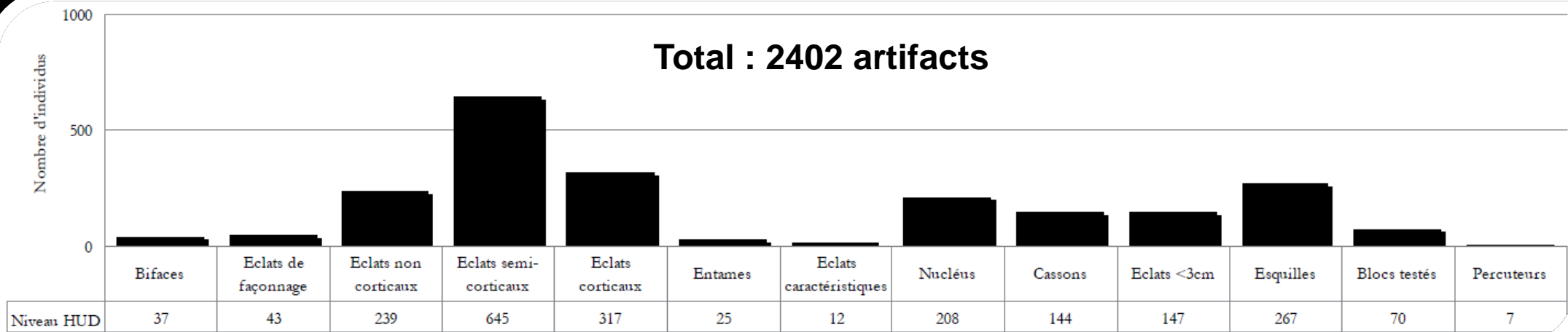
LRS ▲

8

HUD ▲

9

HUZ ▲



MIS 4-2 Archaeo layers

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LGS ▲

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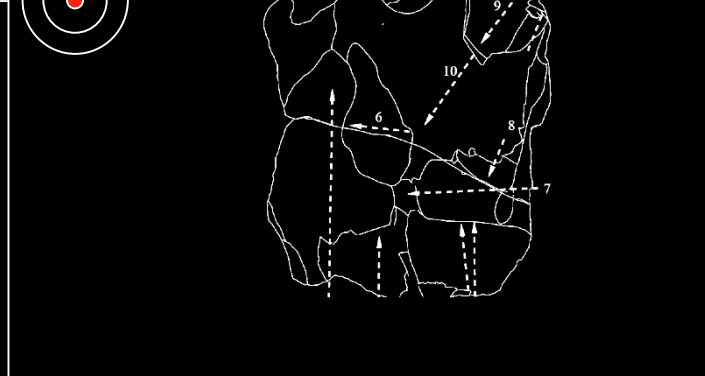
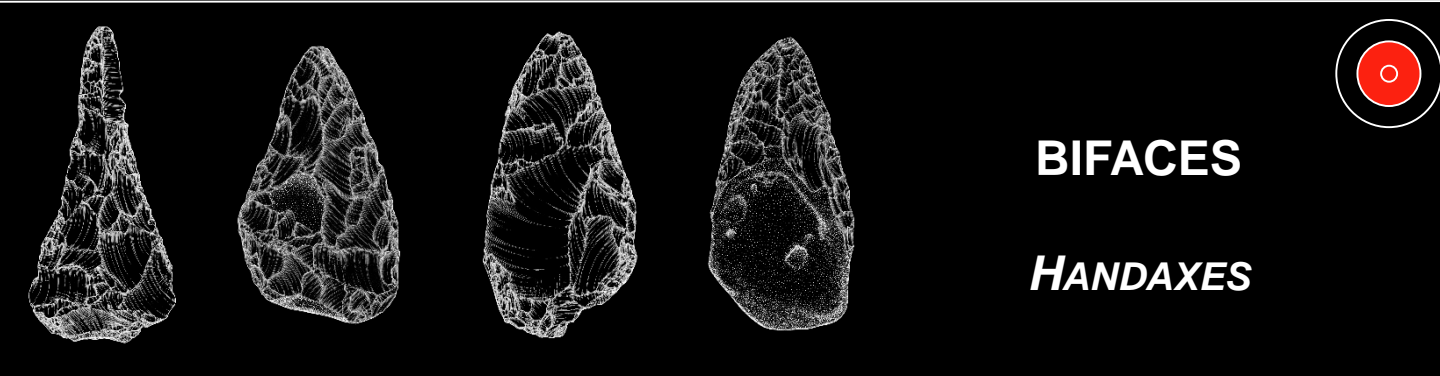
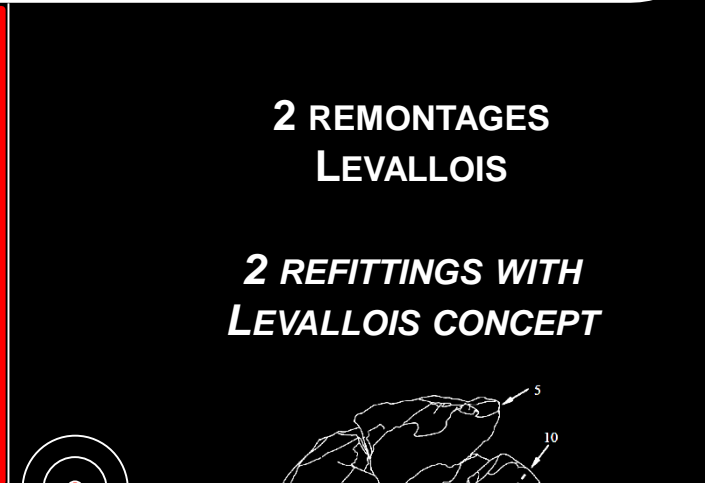
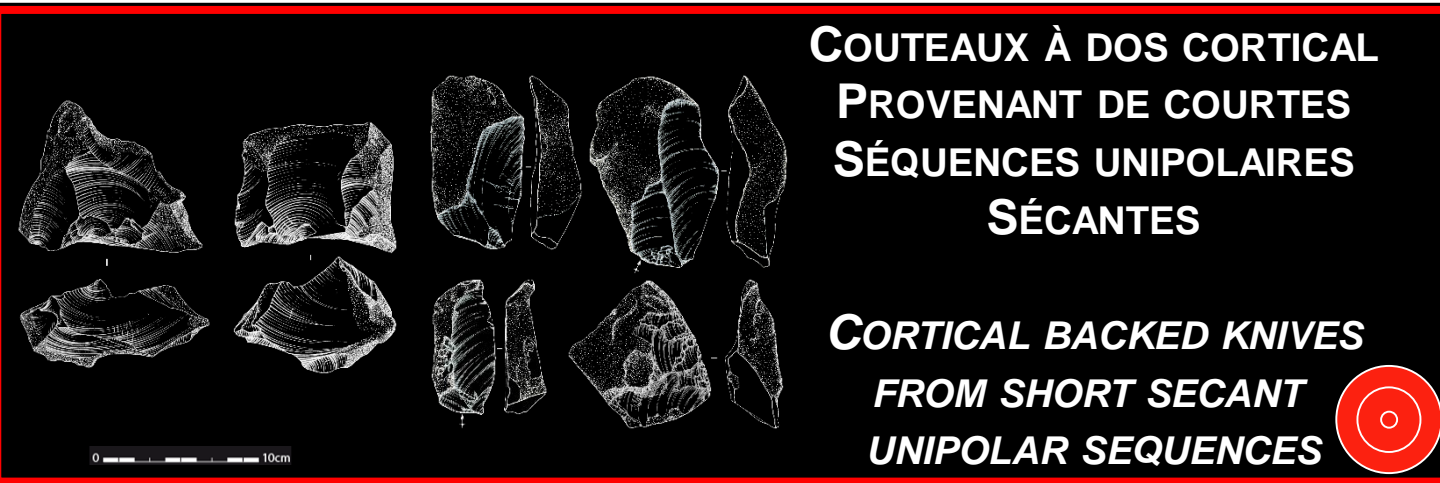
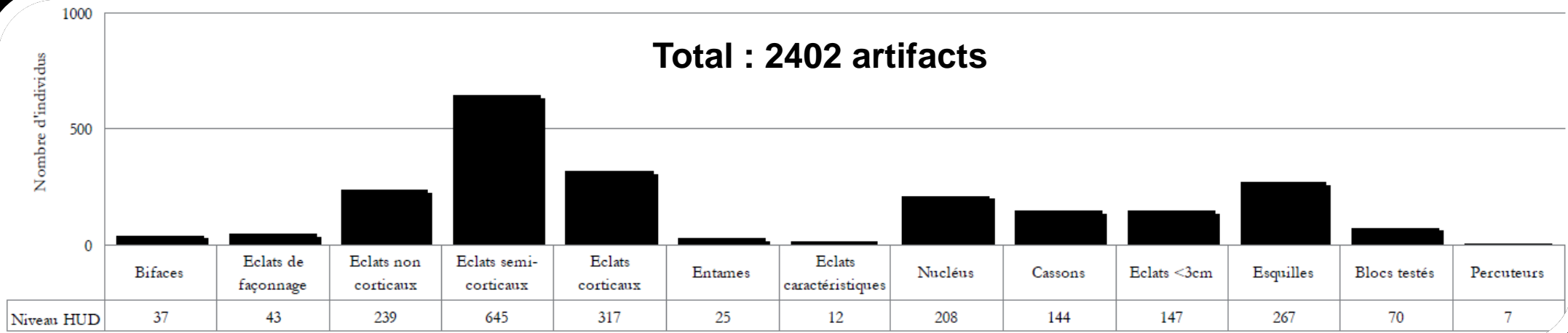
LRS ▲

8

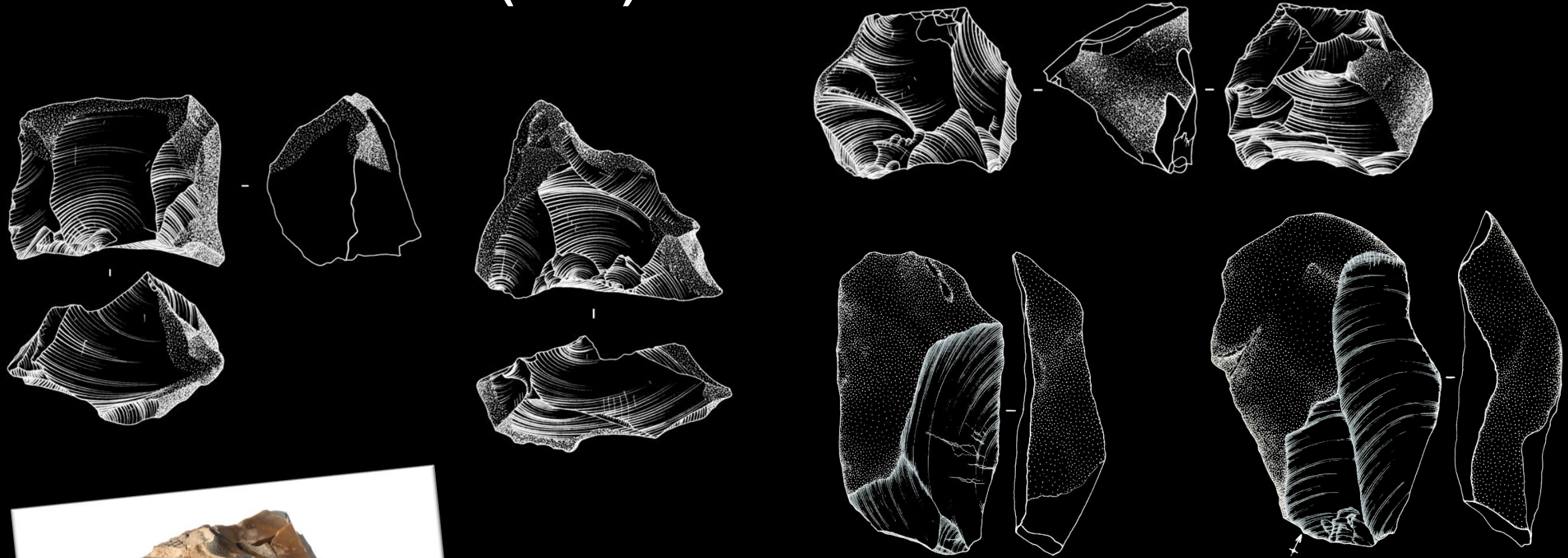
HUD ▲

9

HUZ ▲



Etricourt-Manancourt (HUD)



= CLACTONIAN/SSDA ?

Methods

End-products



TECHNO-STRUCTURAL
APPROACH



Which criteria are
necessary for the
tool to work ?

Methods

End-products



TECHNO-STRUCTURAL
APPROACH



Which criteria are
necessary for the
tool to work ?

End-products

+ cores
+ other elements
+ refittings



TECHNOLOGICAL
APPROACH



How was the artifact
produced?
(organization of the
débitage)

Methods

End-products



TECHNO-STRUCTURAL
APPROACH



Which criteria are necessary for the **tool** to work ?

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+ cores
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TECHNOLOGICAL
APPROACH



How was the artifact **produced**?
(organization of the débitage)

Reconstructed schema

End-products
+ cores
+ other elements
+ refittings



EXPERIMENTAL
APPROACH



Is a better understanding of **gestures** and **techniques** possible ?

Methods

End-products



TECHNO-STRUCTURAL
APPROACH



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Reconstructed schema

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EXPERIMENTAL
APPROACH



Is a better understanding of **gestures** and **techniques** possible ?



Reconstructed and evaluated system with its techno-logical traits & proprieties

Techno-structural approach methodology

Nombre de fil tranchant
Number of cutting edge

Dos
Back

Partie transformative
Transformative unit

Fil retouché ou brut
Retouched or rough cutting edge

Délinéation du dos
Delineation of the back

Dos débité/
Dos cortical
*Knapped back/
Cortical back*

Épaisseur
Thickness

Délinéation du fil tranchant
Delineation of the cutting edge



Angle de dos
Back edge

Latéralité G|D
Laterality L|R

Angle de coupe
Cutting edge

Droit Sinueux Convexe Concave
Straight Sinuous Convex Concave

Techno-structural approach methodology

Angle measurement methods

Manuel *Manual*



$$\alpha = \arctan (E/4)$$

Hayden, Kamminga (1979) ; Odell (1979) ;
Dibble, Bernard (1980)



Angle moyen
Mean angle
55°

Punctual measure **at** 4mm of width!

3D

Artifact3-D

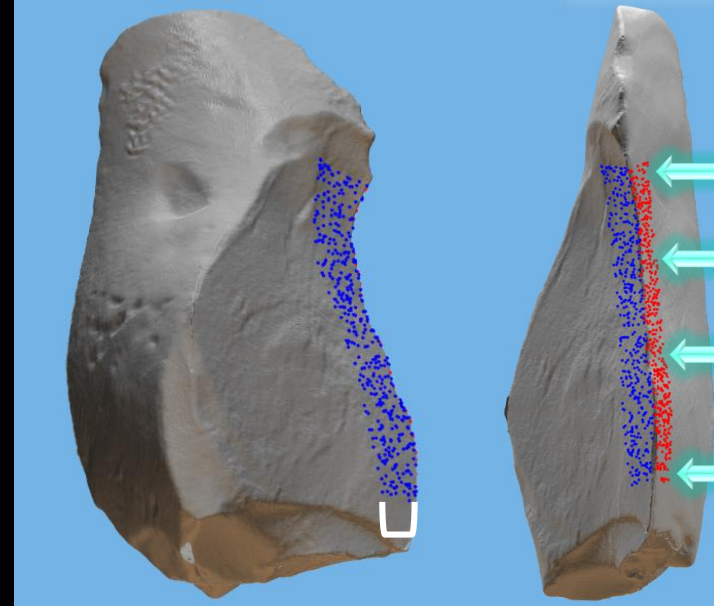


Grosman *et al.* (2022)

<https://doi.org/10.1371/journal.pone.0268401>

eclat_ETMA_HUD_1399
average angle between surfaces: 59.1121 degrees

single angle m	single length r	mean angle m	total length measurement
61,1545256	9,67647414	59,1120844	37,2707692
59,4446645	12,0850098		
57,5786248	15,5092853		



Angle moyen
Mean angle
59°
+
Longueur fil
Cutting edge length
37 mm

Global measure **on** 4mm of width!

Techno-structural approach methodology

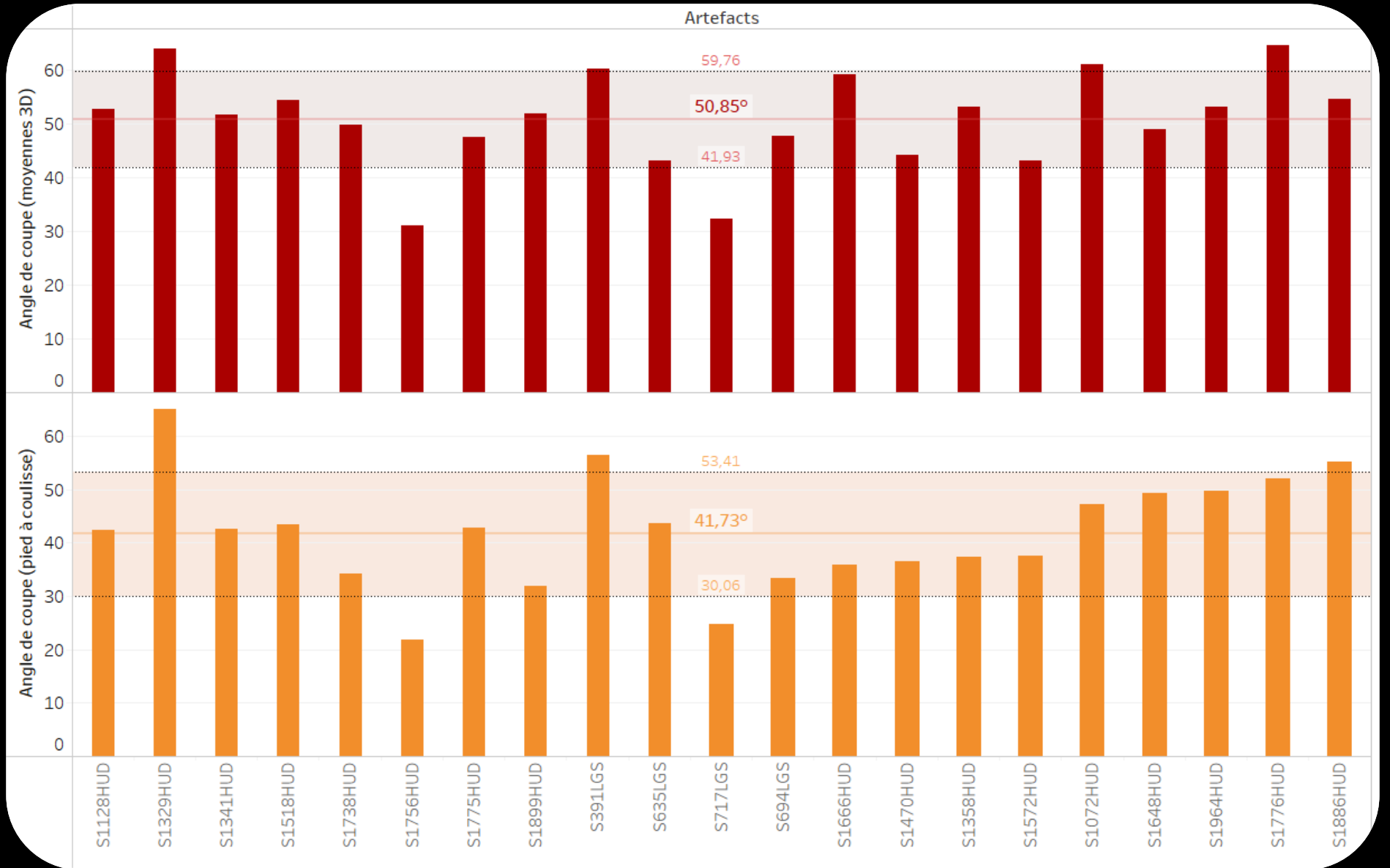
Comparison of angle measurement methods

3D



$\Delta = 5-9^\circ$

Manuel
Manual



Main techno-structural results

Dos à gauche
Left back

N=101



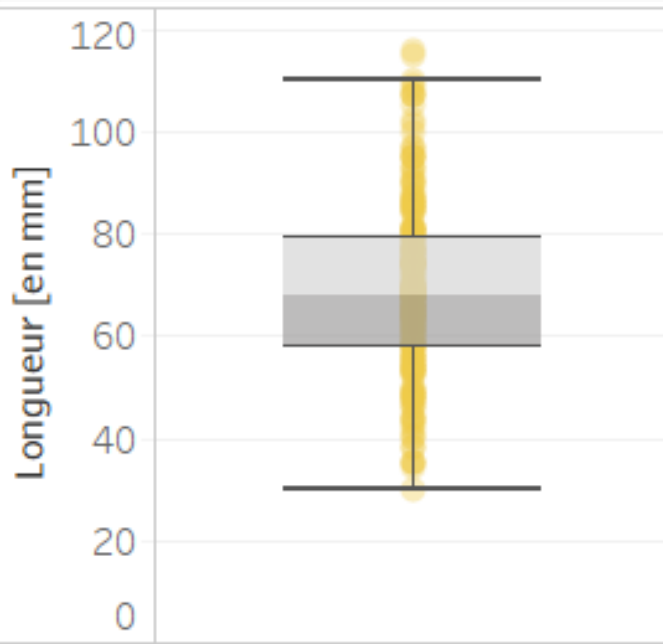
Total
N=216



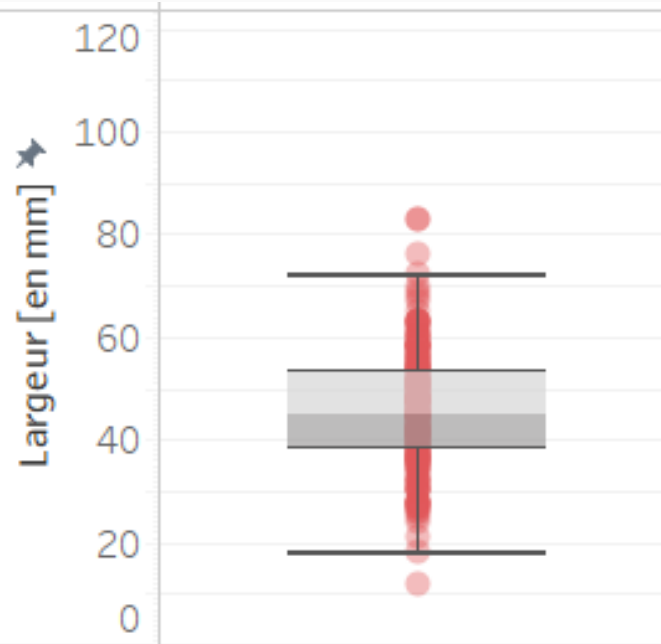
Dos à droite
Right back

N=115

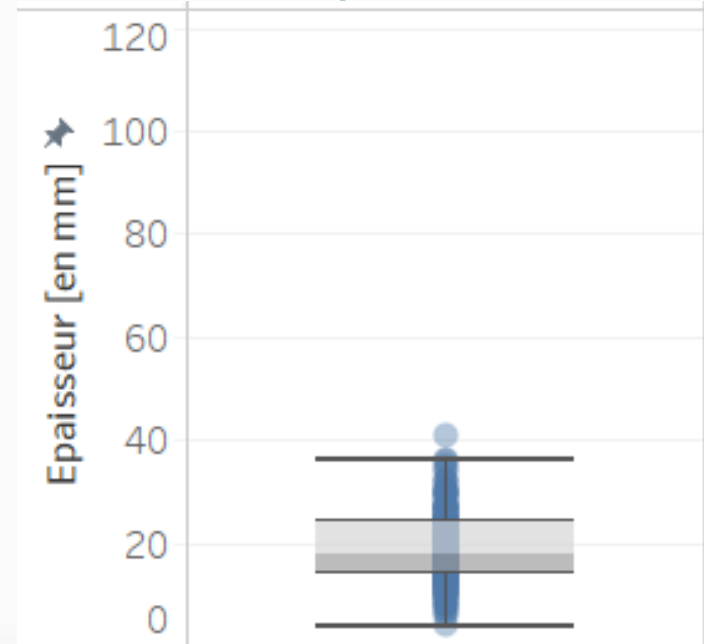
Moyenne = 60mm



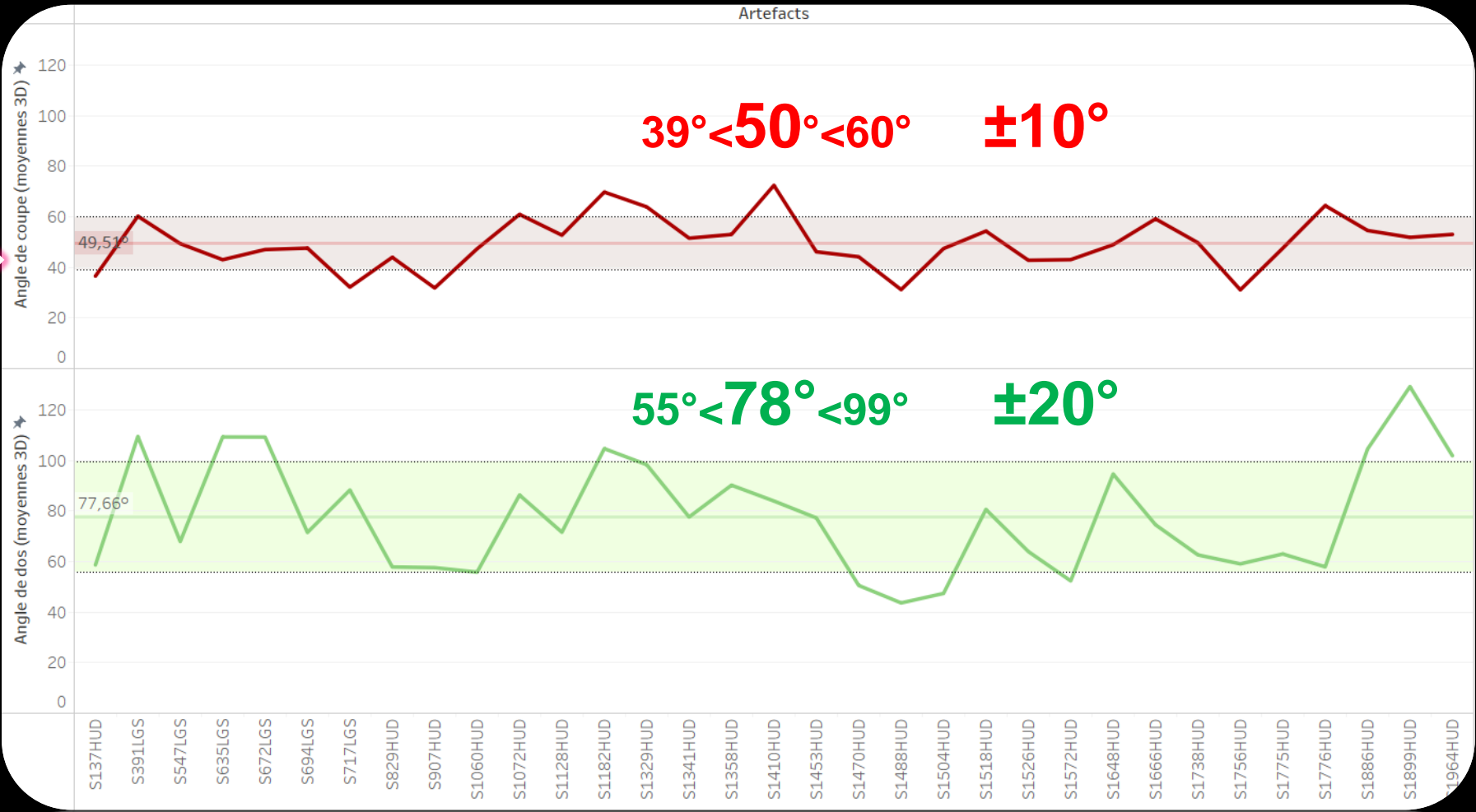
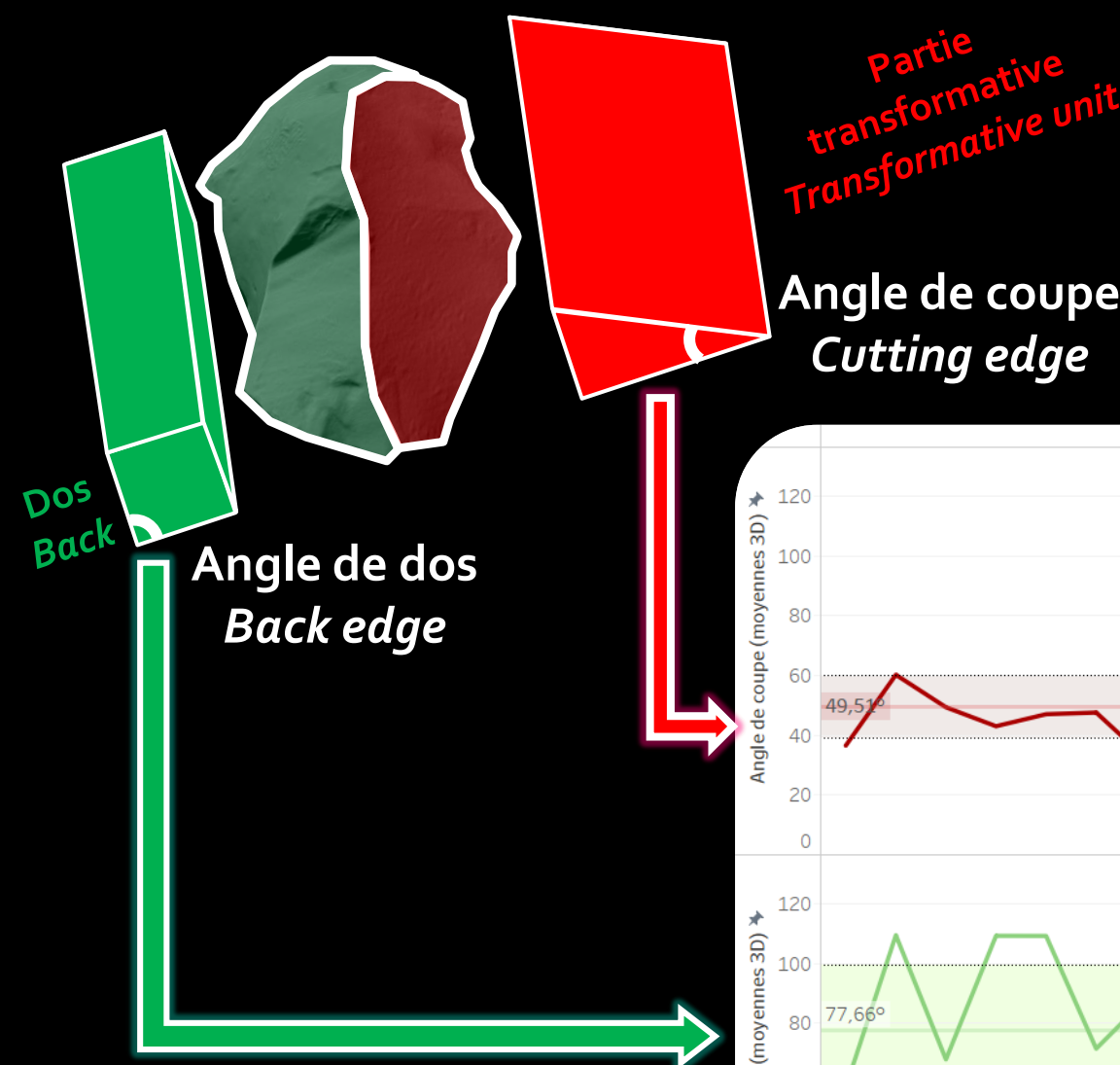
Moyenne = 45mm



Moyenne = 19mm



Main techno-structural results

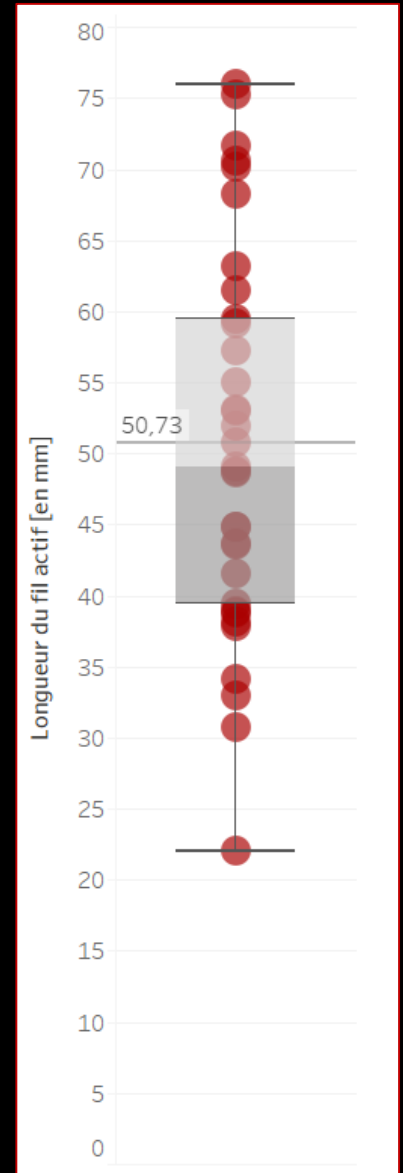


Main techno-structural results

Dos cortical N= 161

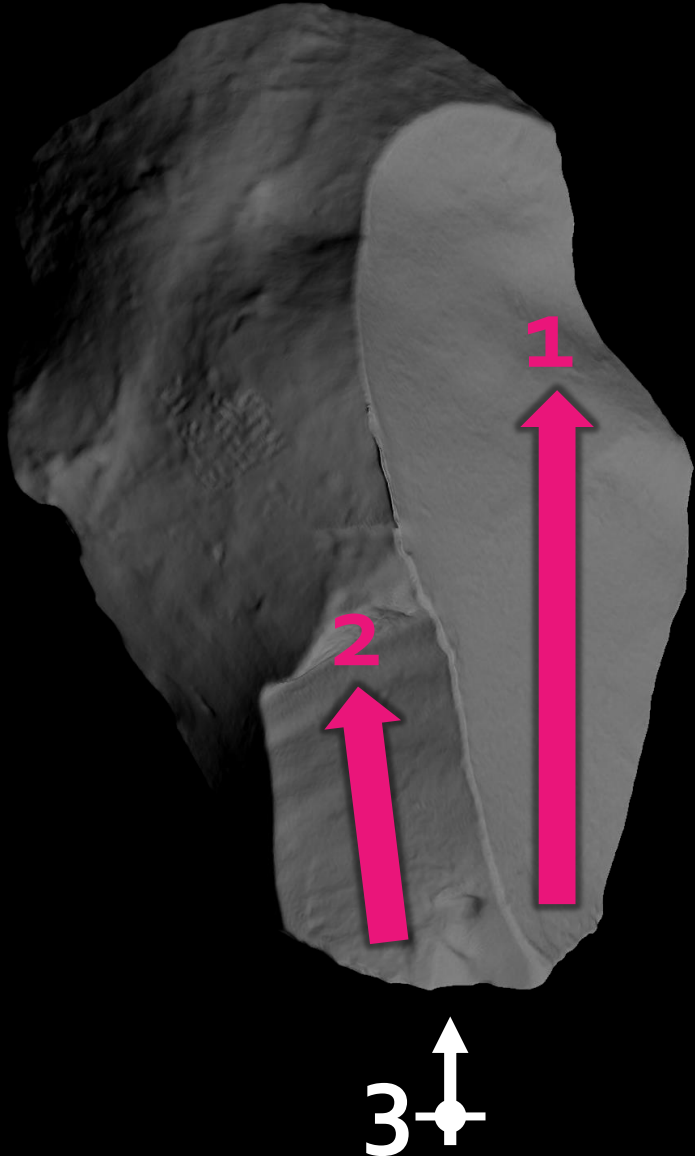
Dos débité N= 54

Non-normalized,
often cortical back

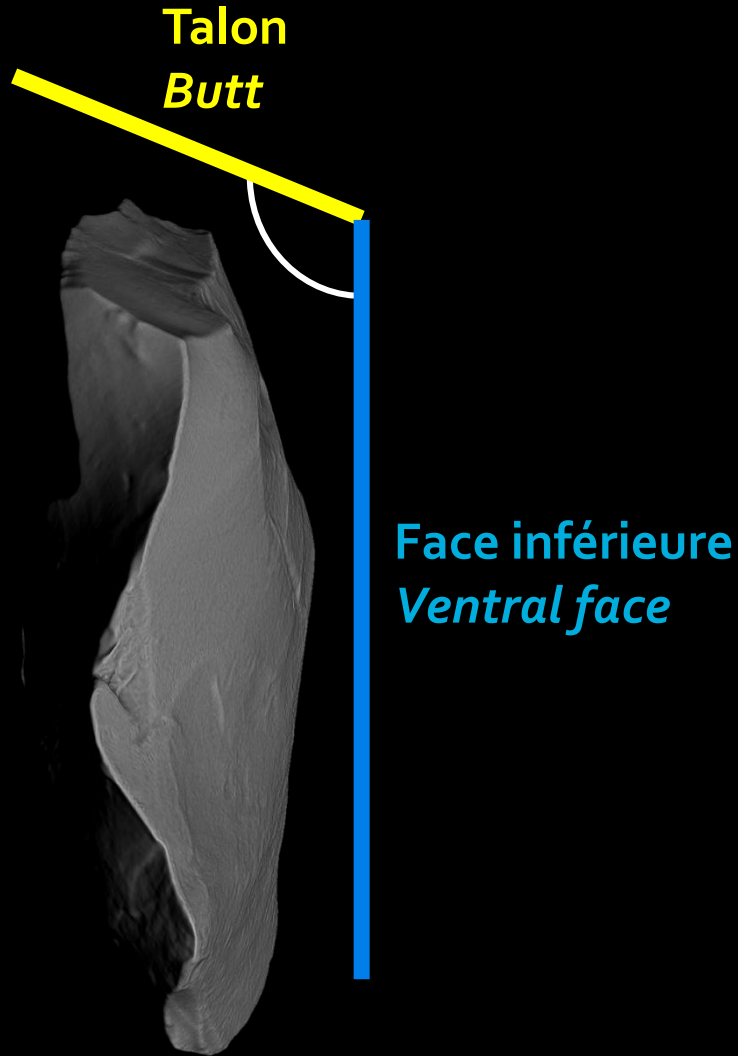


Technological approach methodology

Schéma diacritique
Diacritical scheme

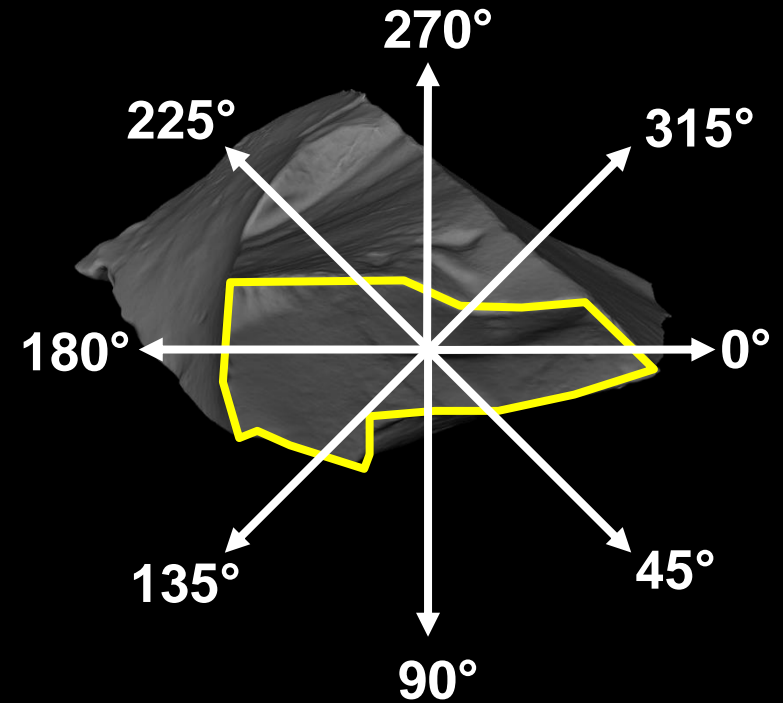


Angle de d'éclatement
Flaking angle



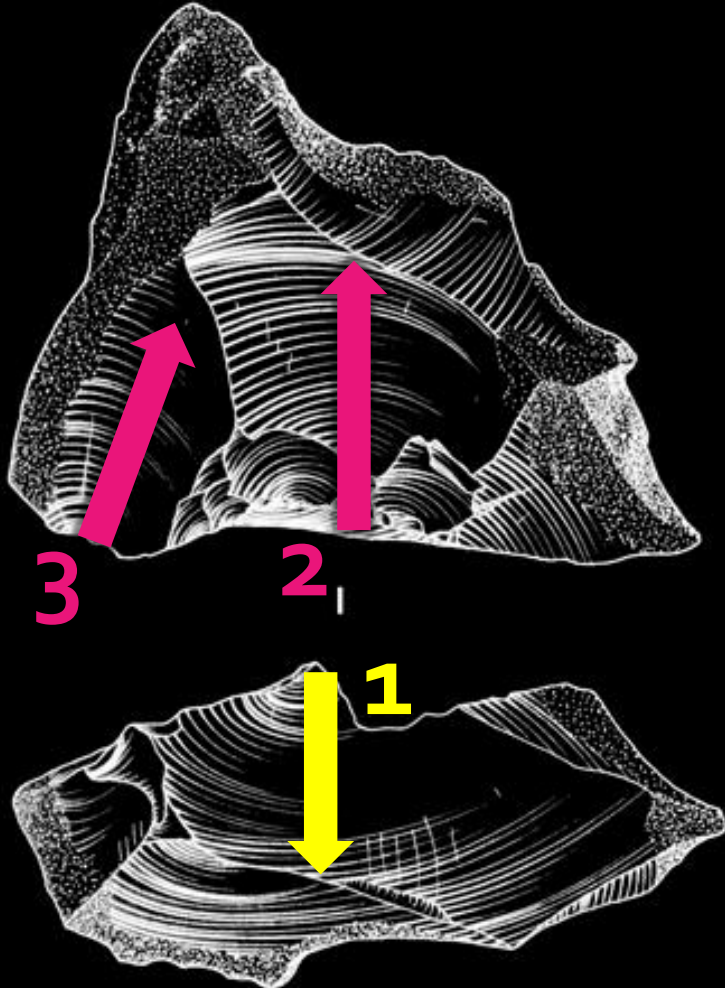
En cours *In progress*

Orientations du négatif sur talon
Negative's orientation on butt



Technological approach methodology

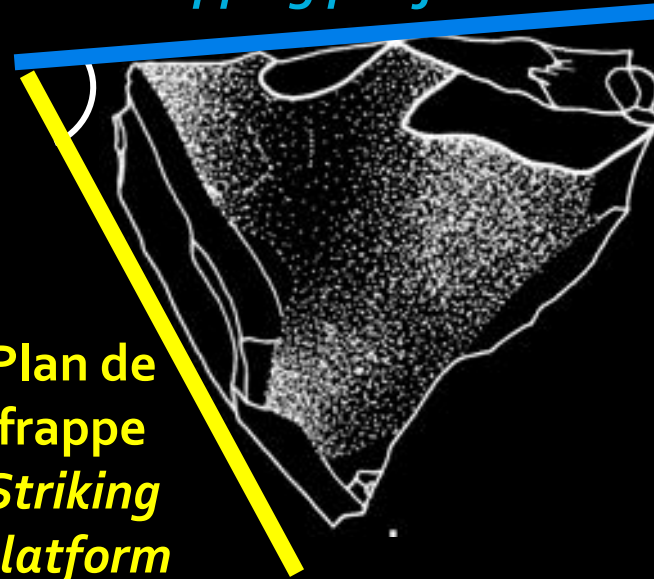
Schéma diacritique
Diacritical scheme



Angle de détachement
Flaking angle

Surface de débitage
Knapping platform

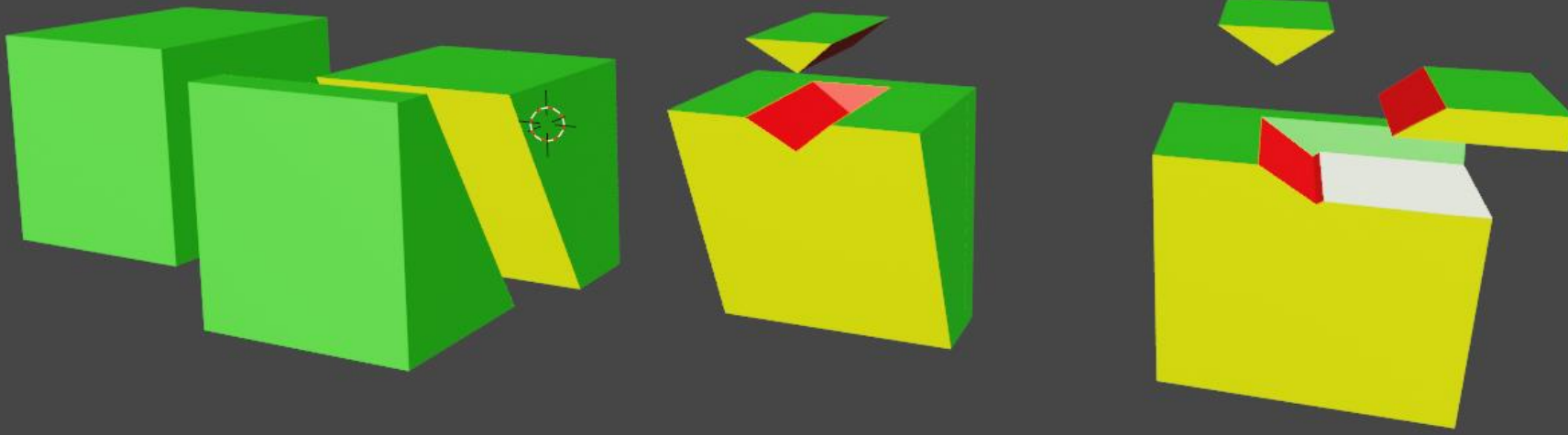
Plan de frappe
Striking platform



Remontages
Refittings

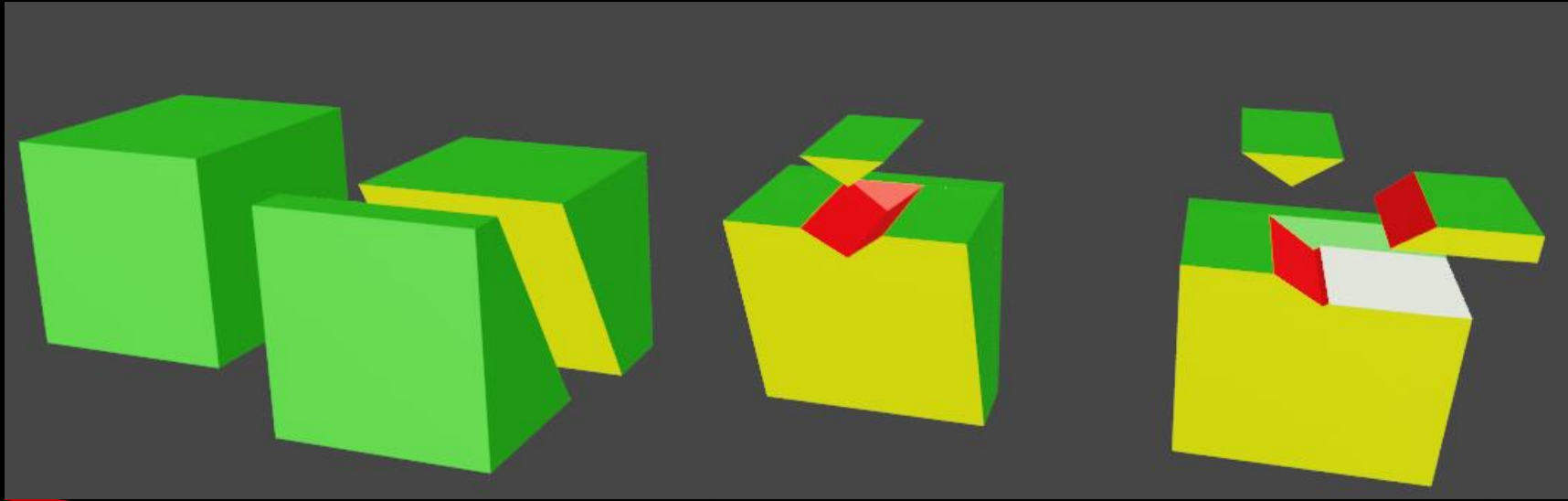


Main technological results



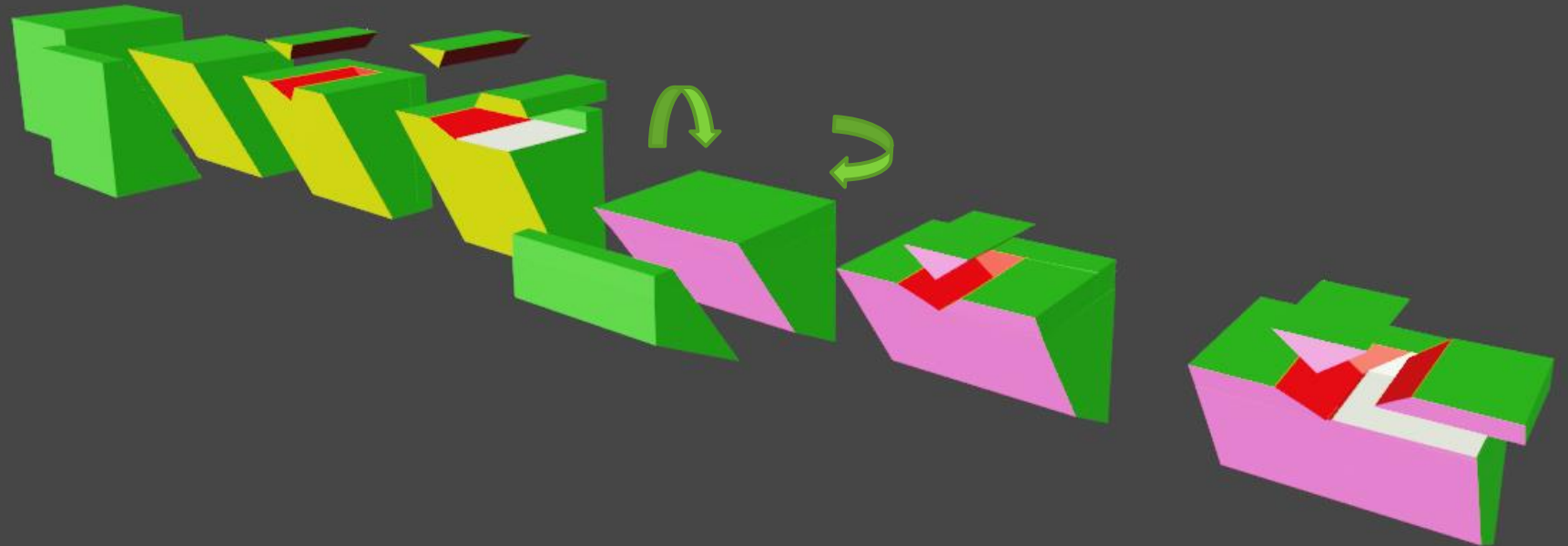
Main scheme :
- short secant
unipolar sequence

Main technological results



Replication of the same algorithmic **sequence** on another volume of the same matrix

+ another scheme :
Short secant bipolar
sequence (6 cores)



Experimental approach methodology

Invariant parameters

- ✓ Percussion
- ✓ Raw material
- ✓ Unipolar modality

Variant parameters

- ✓ Reduction modalities



Vincent Lascour



Michel Brenet



David Hérissou



Strict unipolar	Semi-rotating unipolar	Multi-platform unipolar	Total
7	8	7	22
10	8	7	25
8	7	7	22
25	23	21	69

Main experimental results

✓ Reduction modalities

Strict
unipolar

~~Semi-
rotating
unipolar~~

Multi-
platform
unipolar

✓ Length of sequences

- Necessarily short
- After 2 or 3 flakes, impossible to obtain other desired end-product
 - End / another sequence on another volume of the matrix

✓ Important technical parameter

Opening of the striking platform
=> flaking angle + thickness of the products

✓ Difficulties

Large flakes, unusual gesture of flint knapping for experimentators
Backed knives are structured via two orientations
No guiding except the first ridge
Necessity of a precise gesture
More failures in experimentation than in the archeological material

Crossed results

1 short main scheme : short secant unipolar
Rare repetition of the algorithm
A variant of the scheme (orthogonal)

Different schemes, same products

**A more technical sequence
than it seems to be !**

Perspectives

Are those tools polyvalent ?

Is it Clactonian ?

**Are backed-knives and bifaces
complementing each other ?**

Merci pour votre attention

