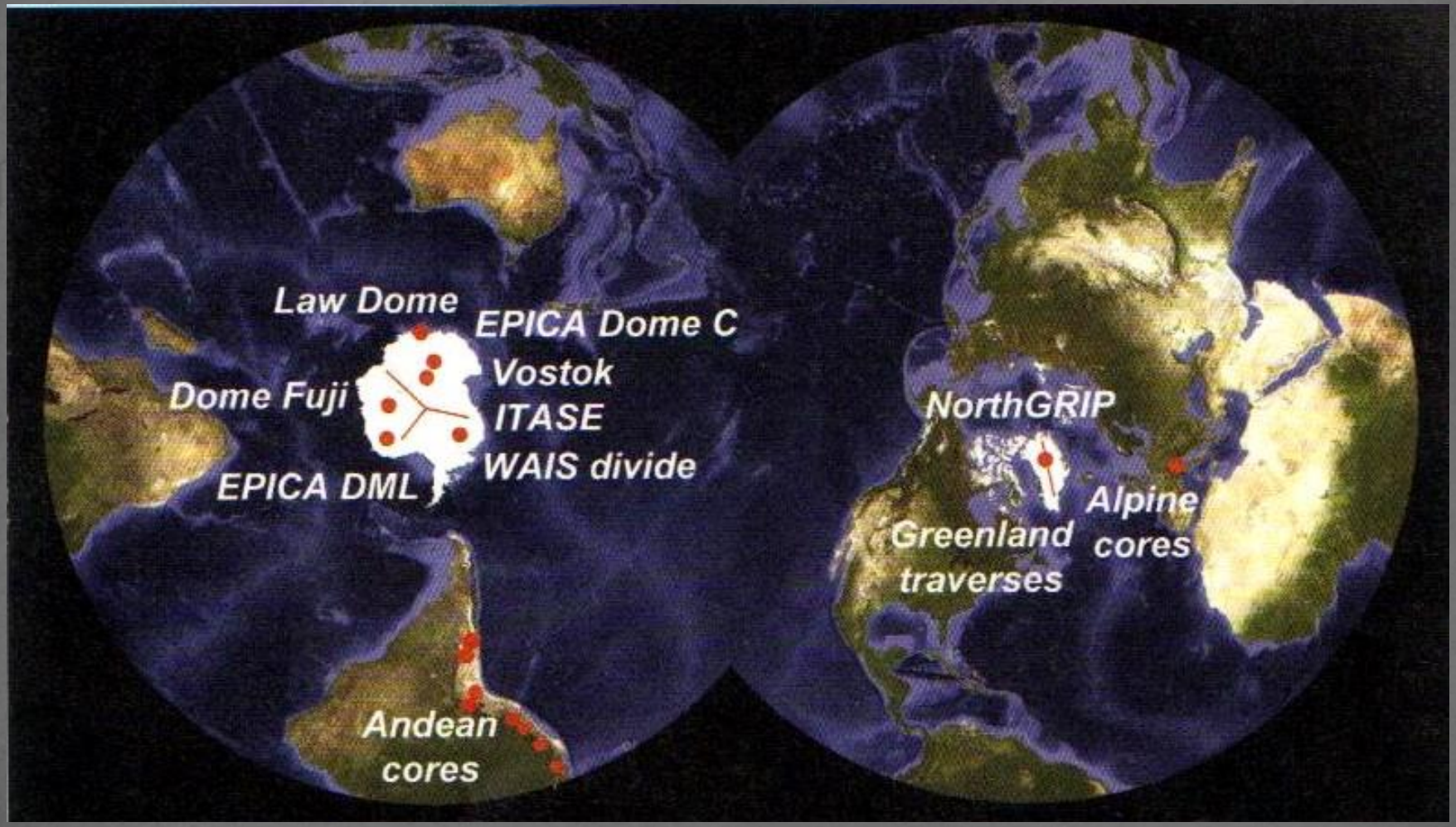
Università degli Studi di Ferrara

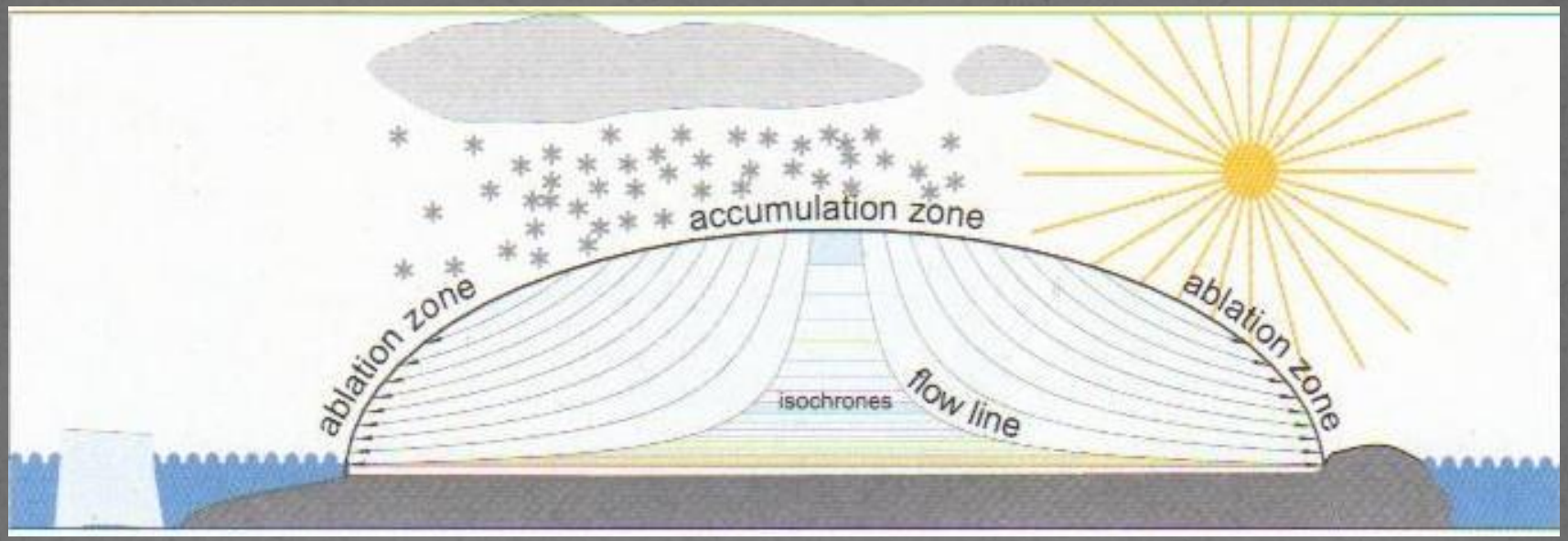
Marco Peresani

Cronologie e culture del Paleolitico
Lezione 5 – The Acheulean in Europe

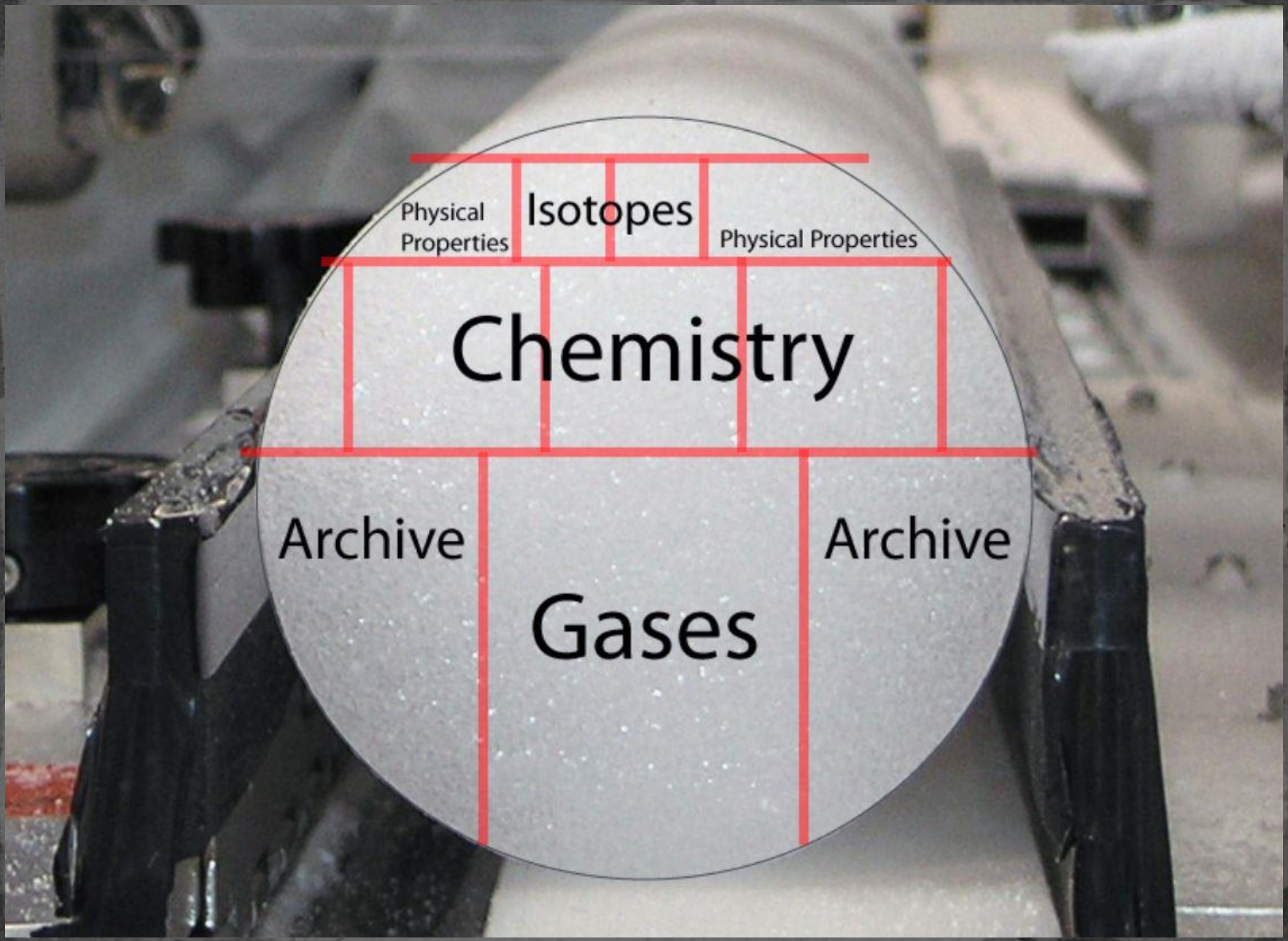
Università di Ferrara
Dipartimento di Studi Umanistici
Sezione di Scienze Preistoriche e Antropologiche

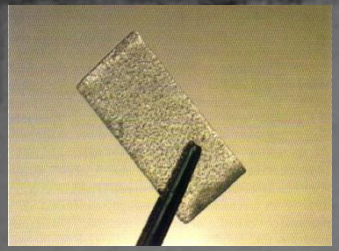
The Middle Pleistocene and the climatic variability: the scenario of the Lower Palaeolithic



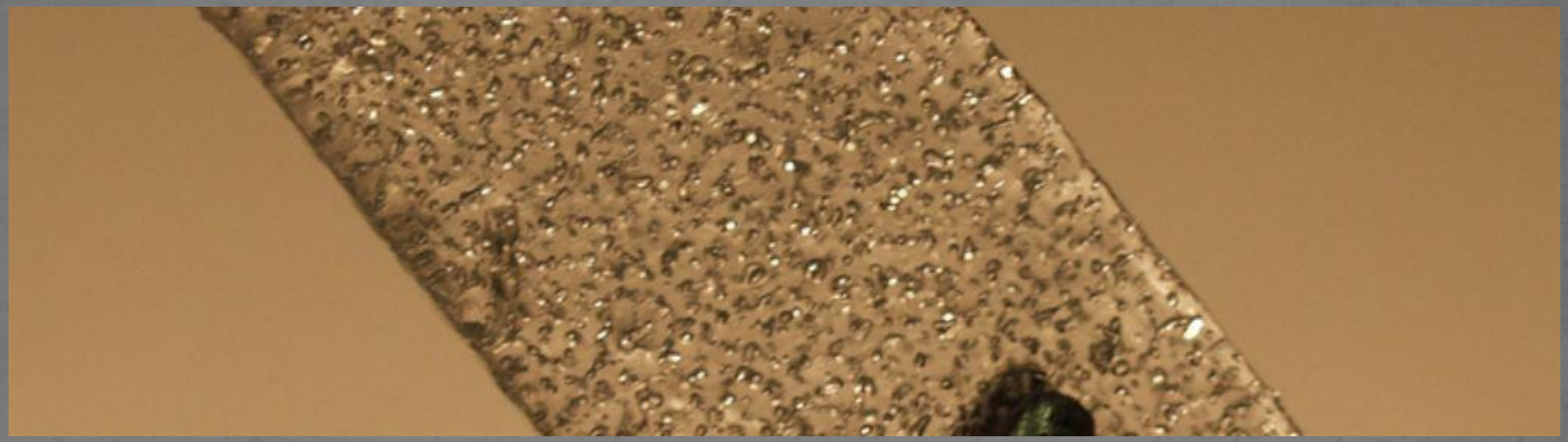


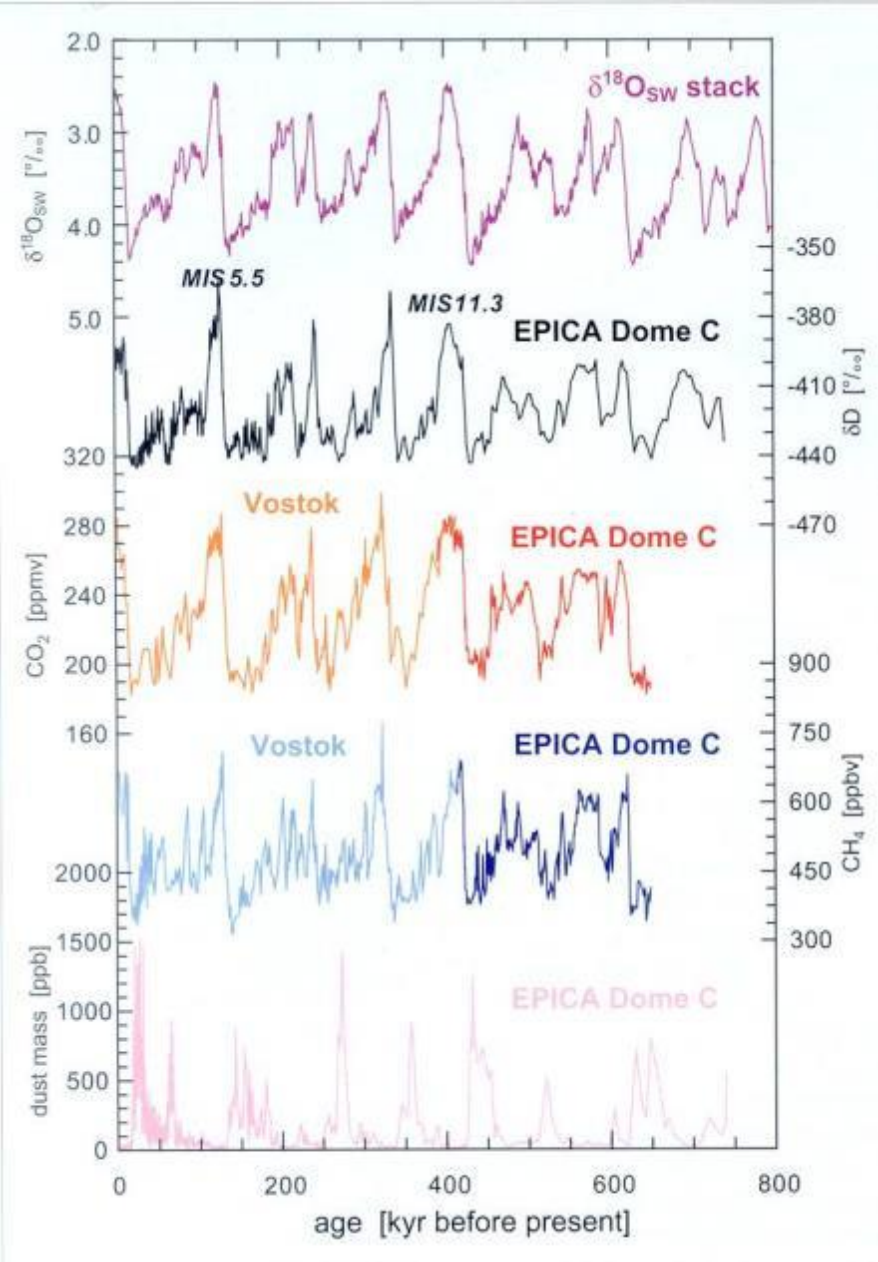
Fossil ice in Antartica and Greenland : the structure of an ice dome


Physical Properties
Isotopes
Physical Properties
Chemistry
Archive
Gases
Archive



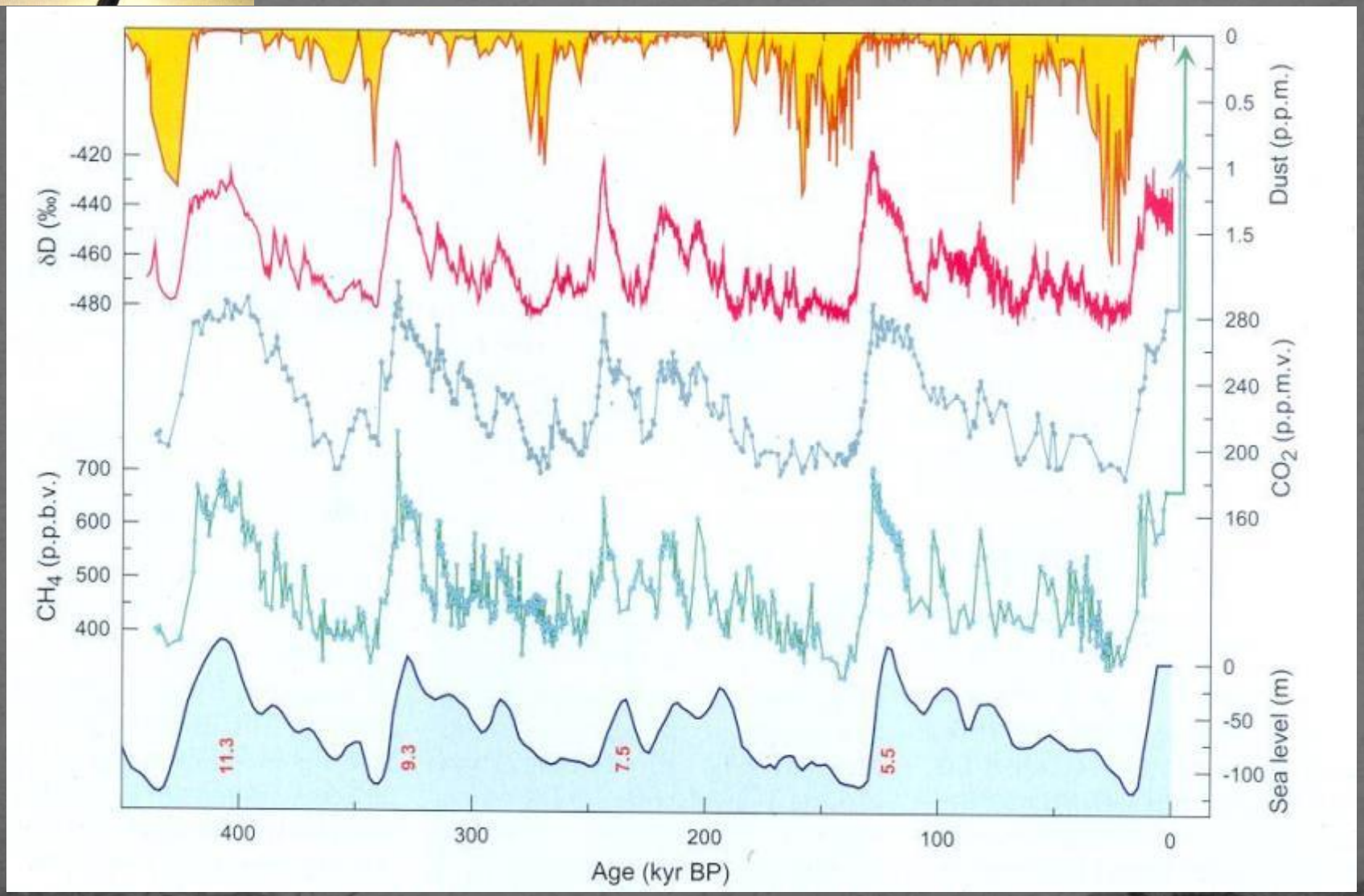
Vostok Ice Core
Air bubbles





The last 800ky recorded in the Vostok and EPICA Dome Ice Cores, Antartica

The last four glacial cycles recorded in the Vostok Ice Core, Antartica



JOURNAL OF QUATERNARY SCIENCE (2015) 30(7) 585–592 ISSN 0267-8179. DOI: 10.1002/jqs.2820

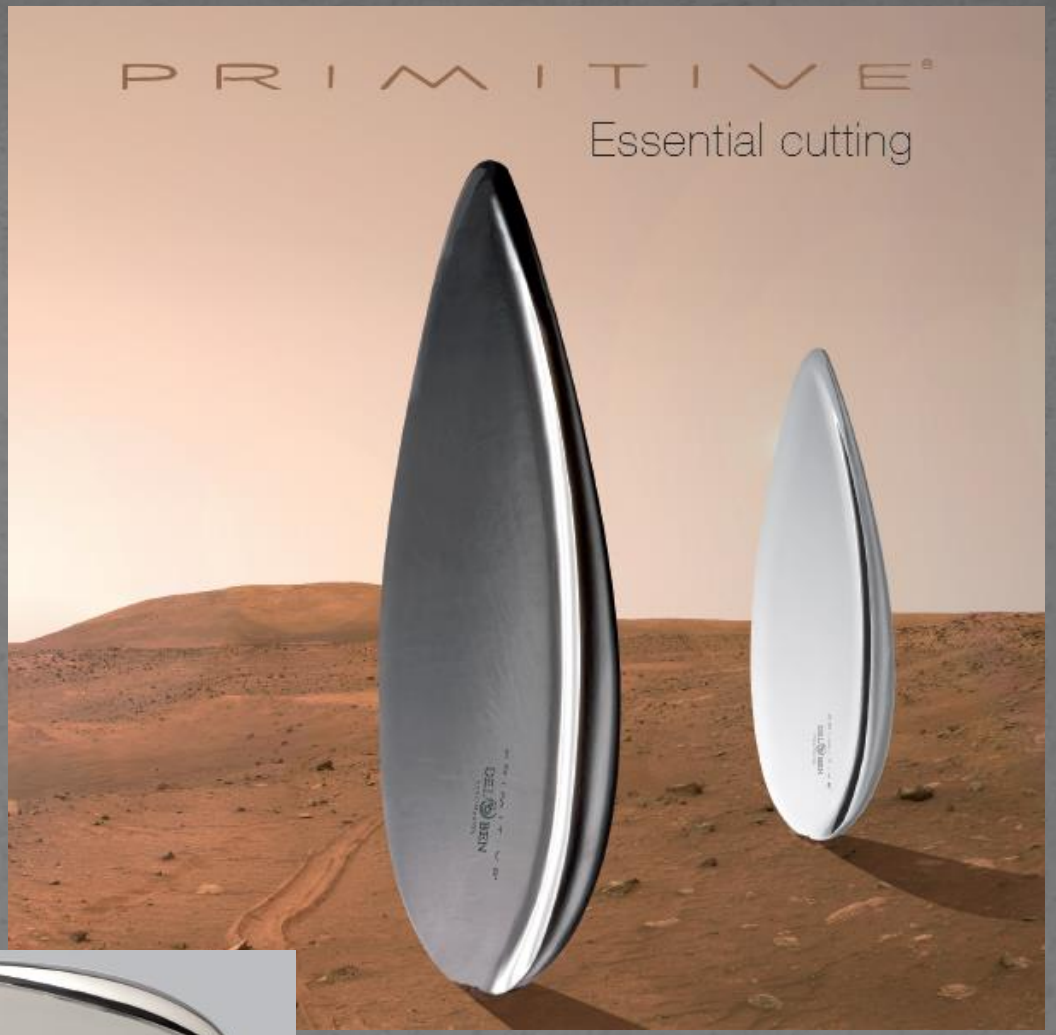
Editorial: Chronology, palaeoenvironments and subsistence in the Acheulean of western Europe

DANIELLE SCHREVE,[1]* MARIE-HÉLÈNE MONCEL[2] and DAVID BRIDGLAND[3]

JQS

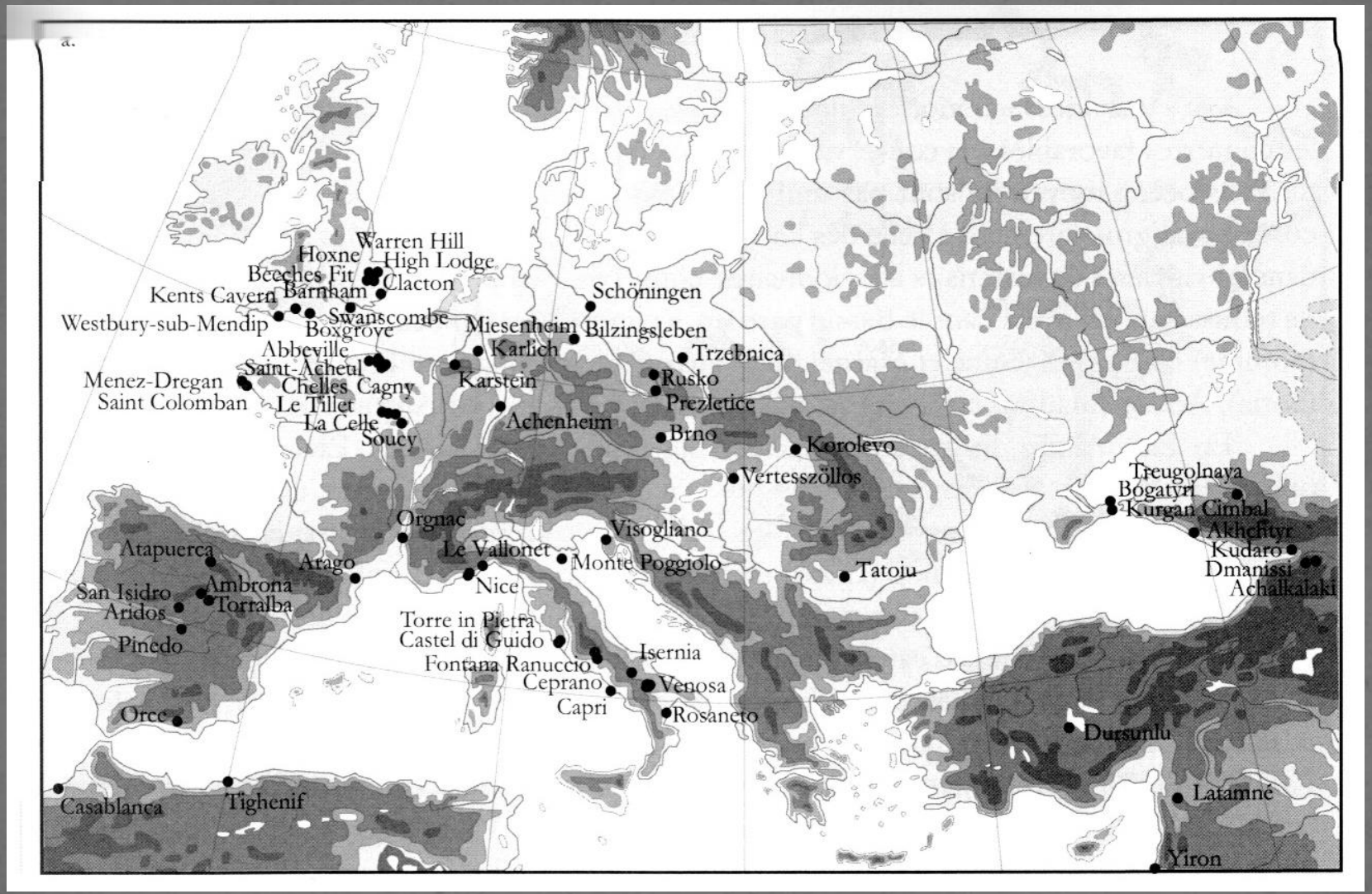
The handaxe is an iconic object in European prehistory.

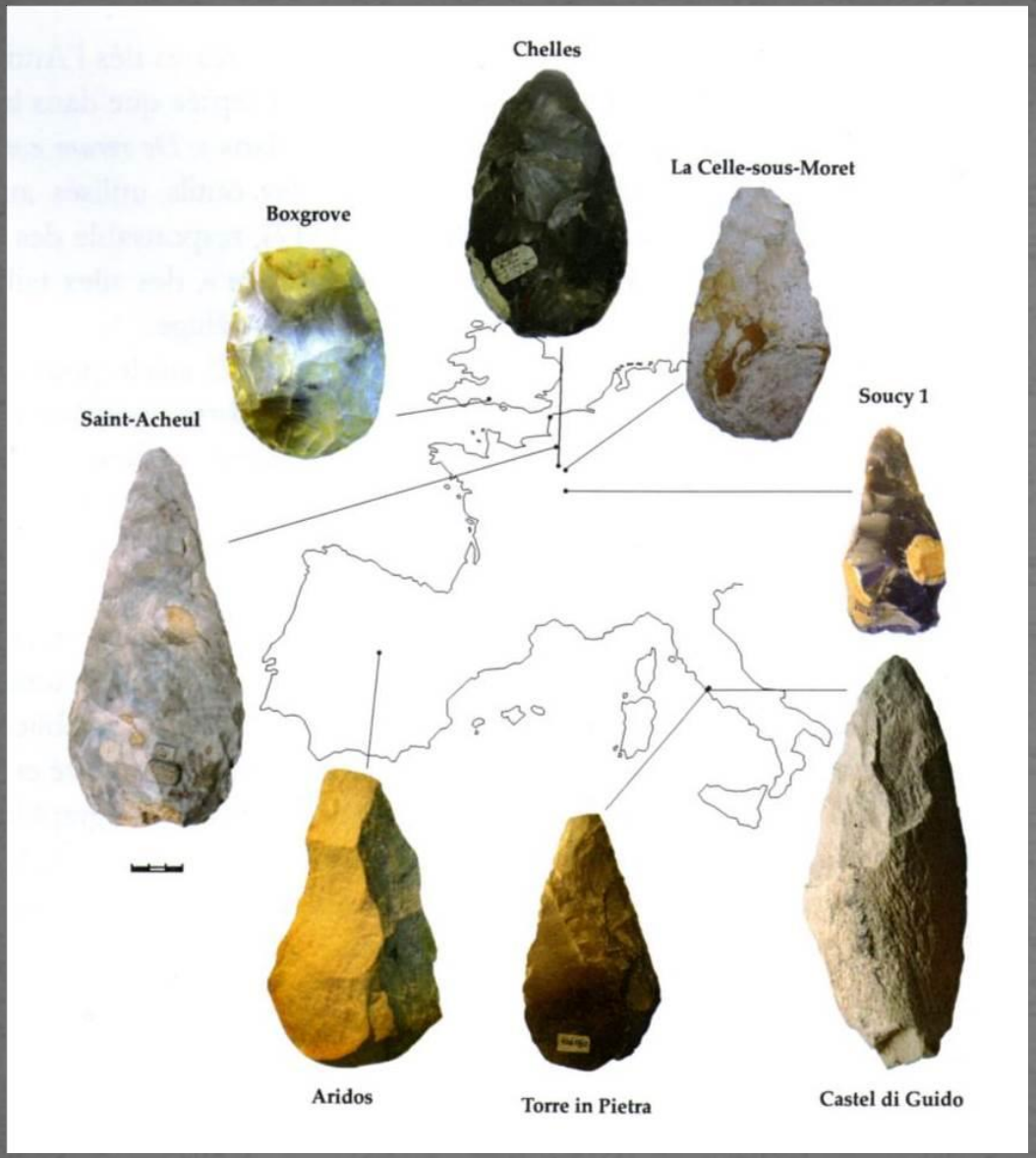
John Frere's 'Flint Weapon found at Hoxne in Suffolk (Frere, 1800)



https://www.youtube.com/watch?reload=9&v=H4BLU2P3z2A

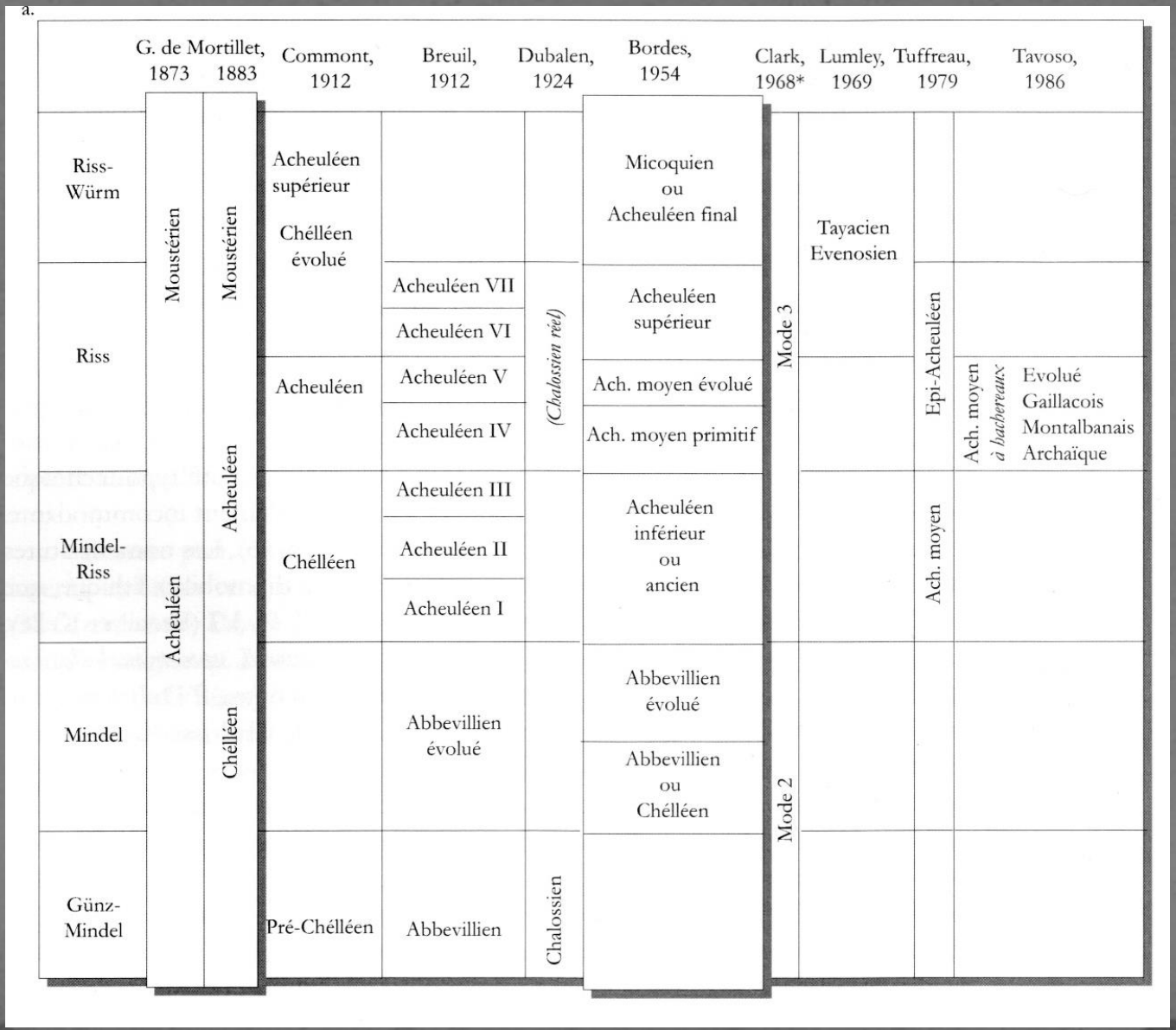
The most important Lower Palaeolithic sites





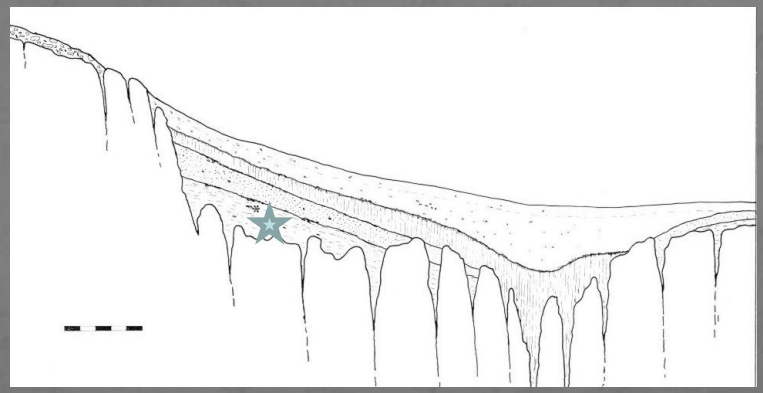
Biface morphological variability

The evolution of the Lower Palaeolithic taxonomy

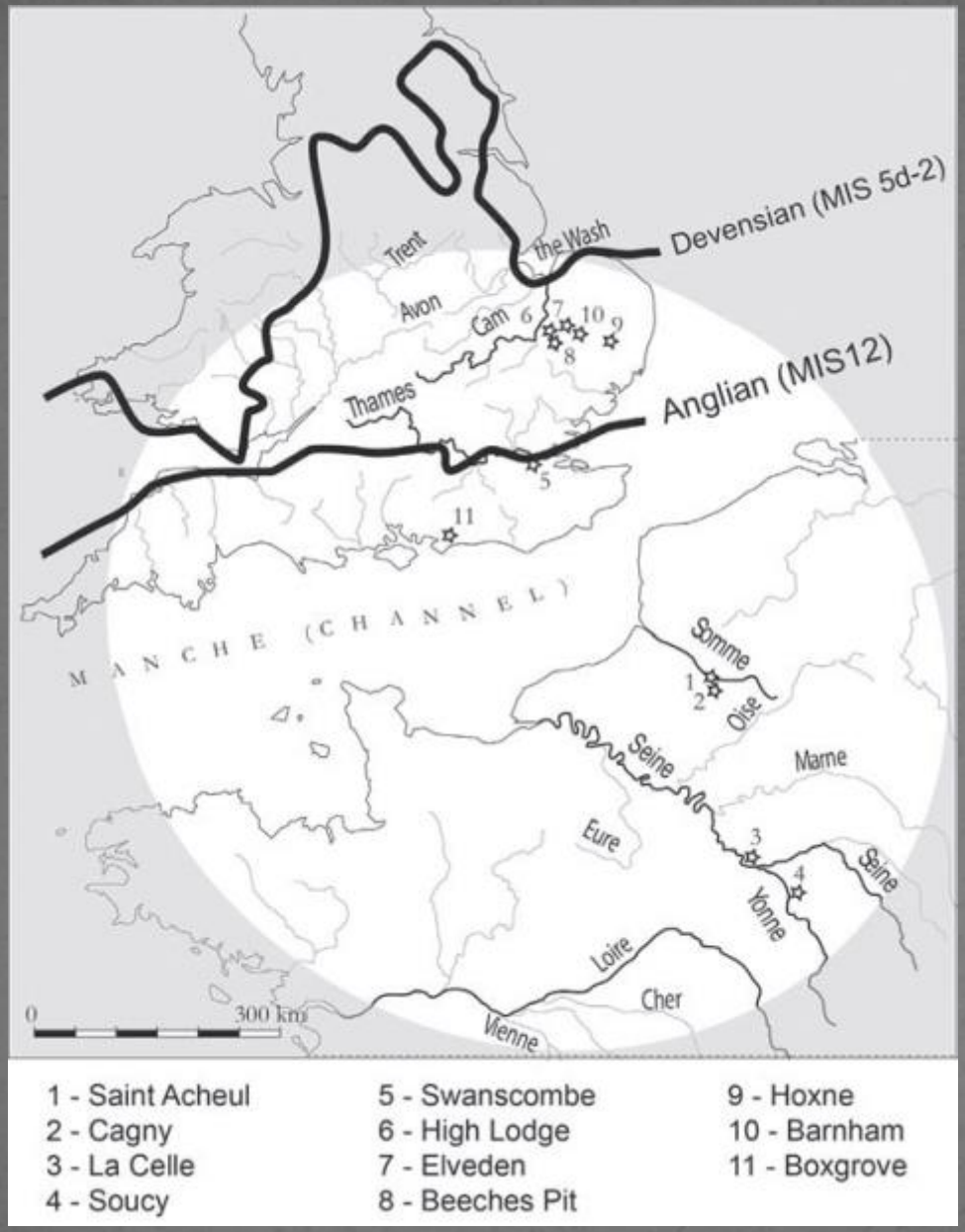


Bifaces found at the open and buried in paleosoils

Cà Palui (Monti Lessini)

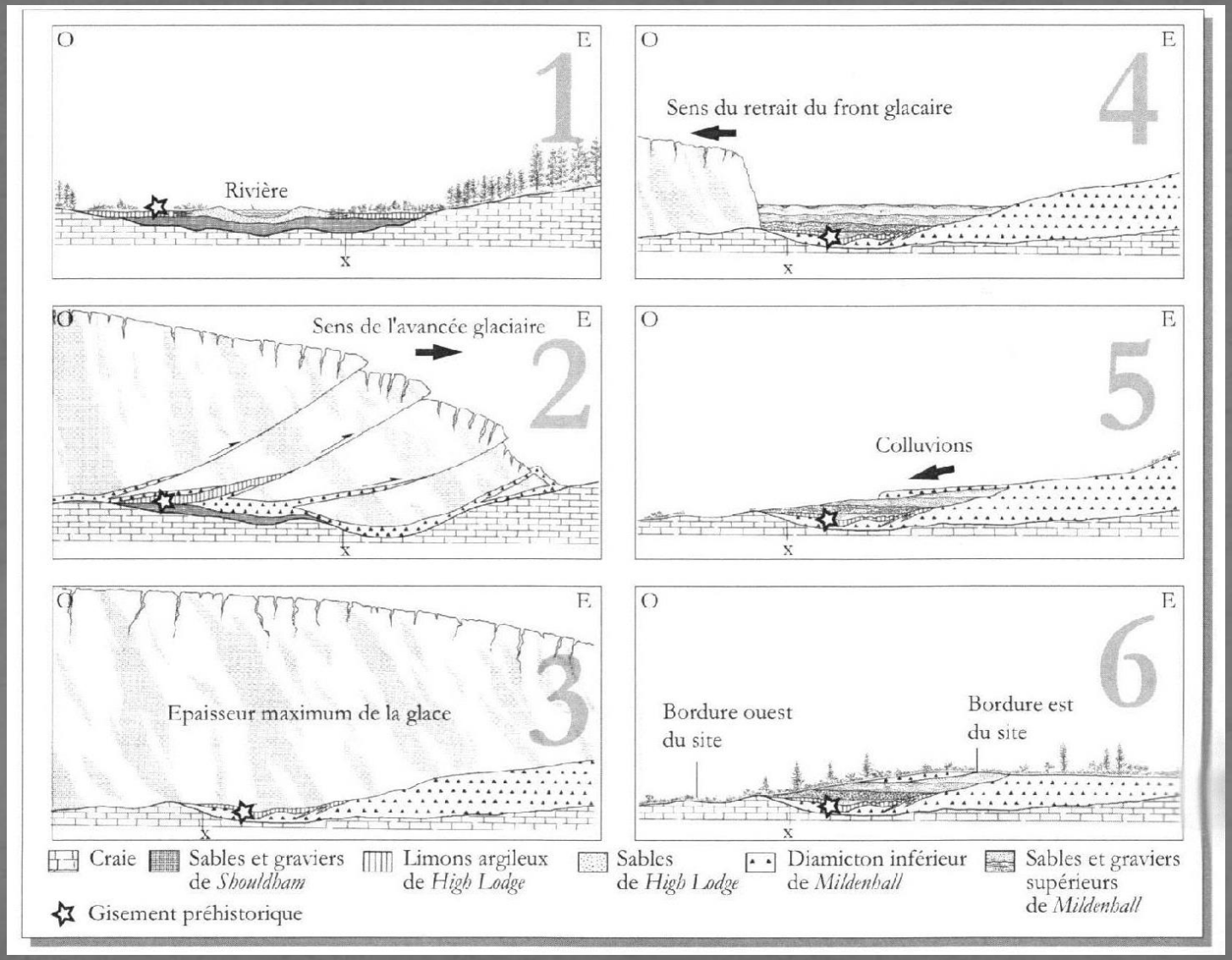


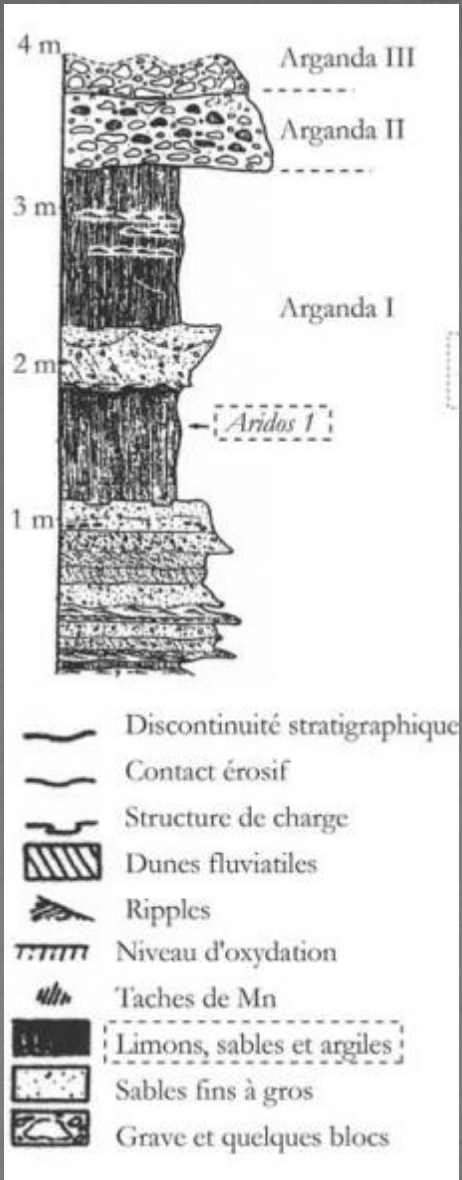
Lughezzano (Monti Lessini)



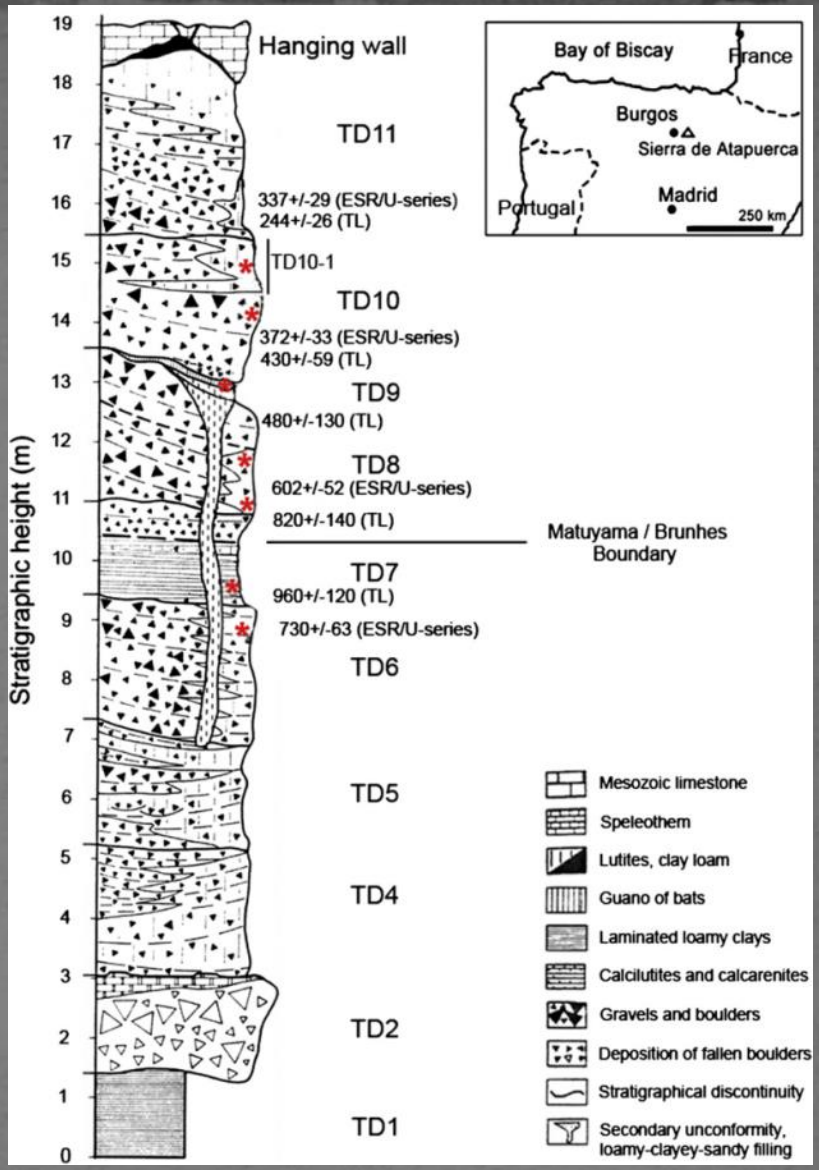
Boundaries of the ice sheet in Britain and location of relevant sites in the hydrographical basin Somme-Seine-Yonne-Thames Rivers.

The stratigraphic position of High Lodge site, England



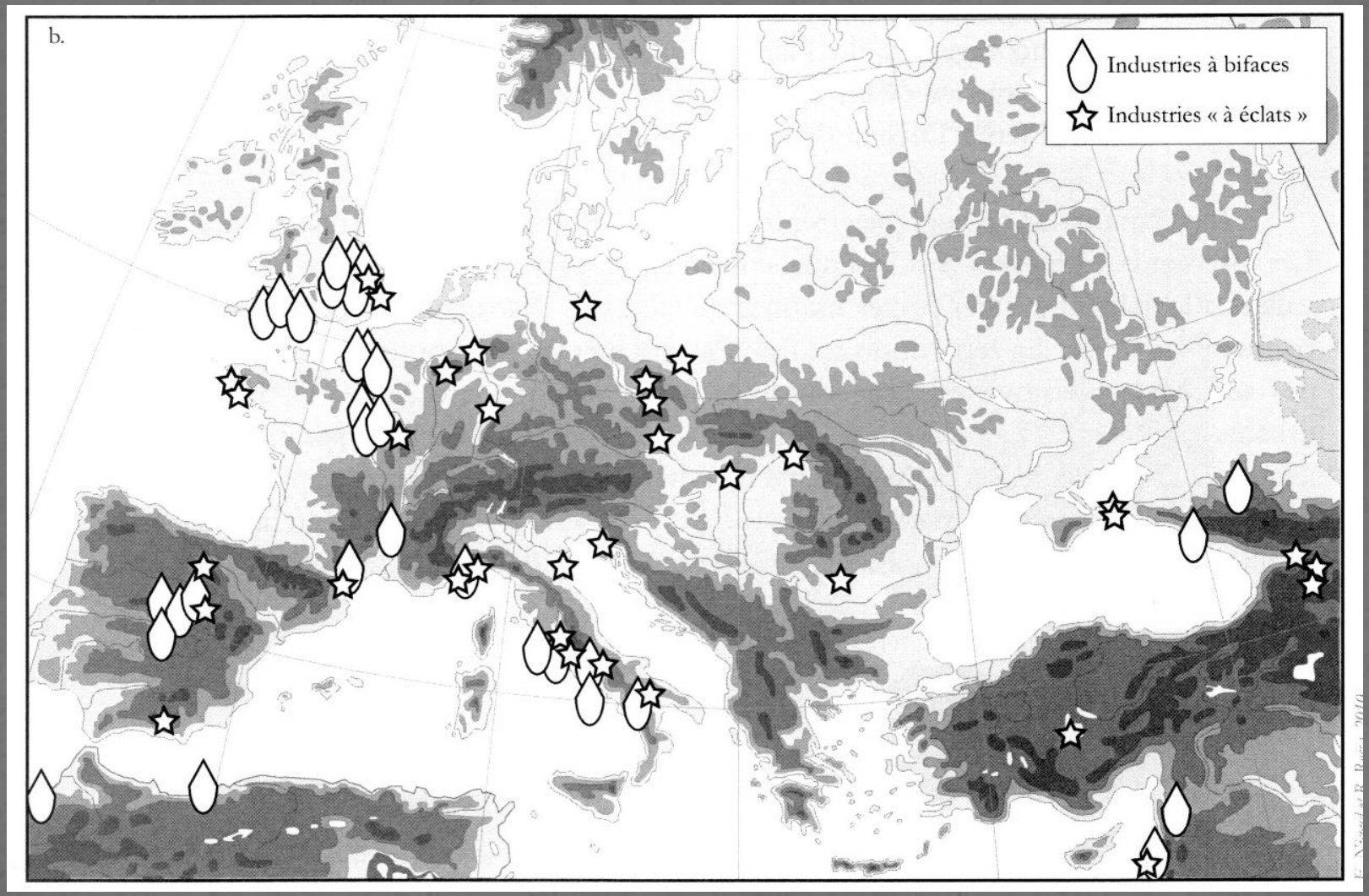


Stratigraphic profile of the Aridos site.

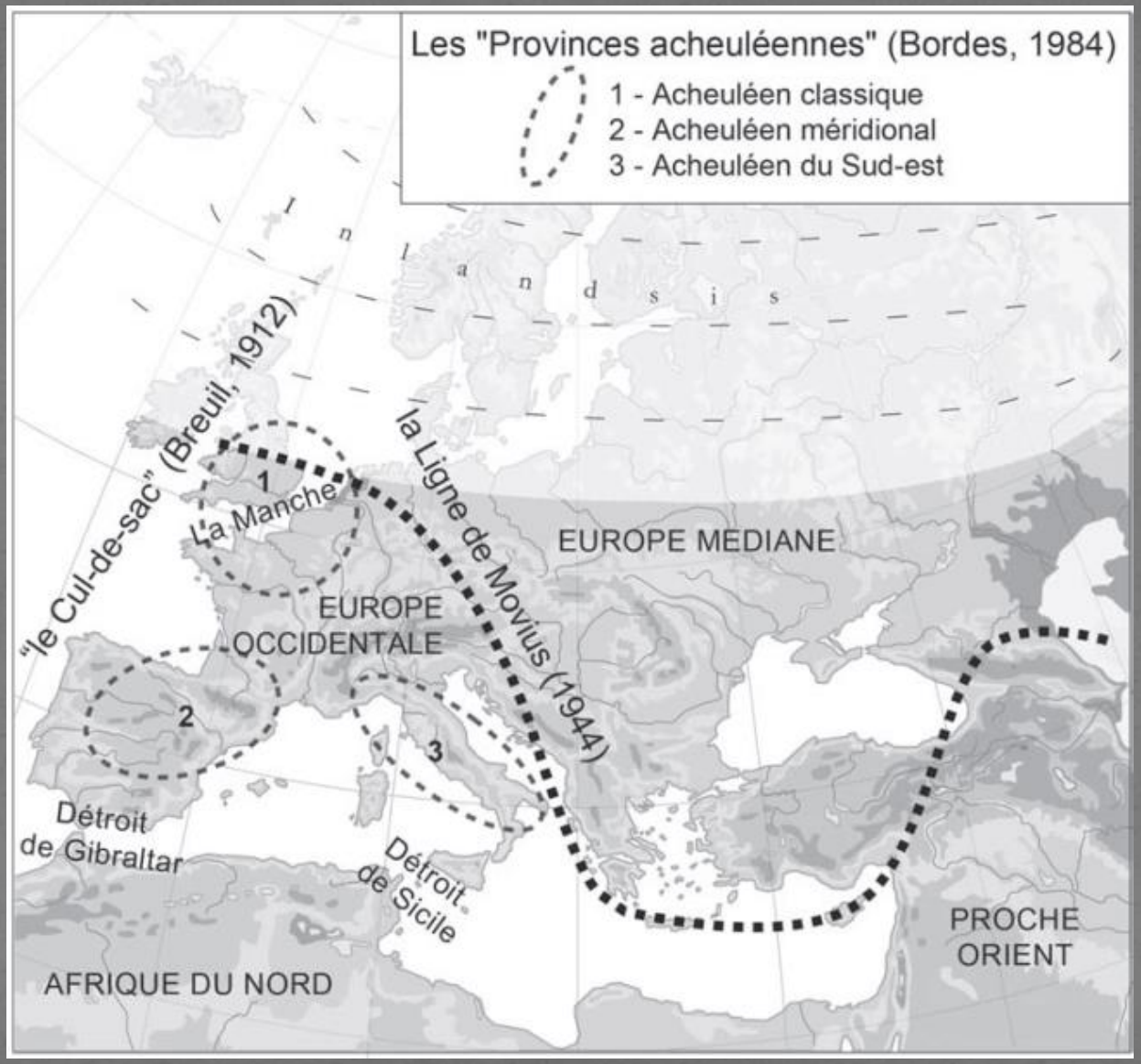


Location of Sierra de Atapuerca on the Iberian Peninsula and stratigraphic profile of the Gran Dolina site.

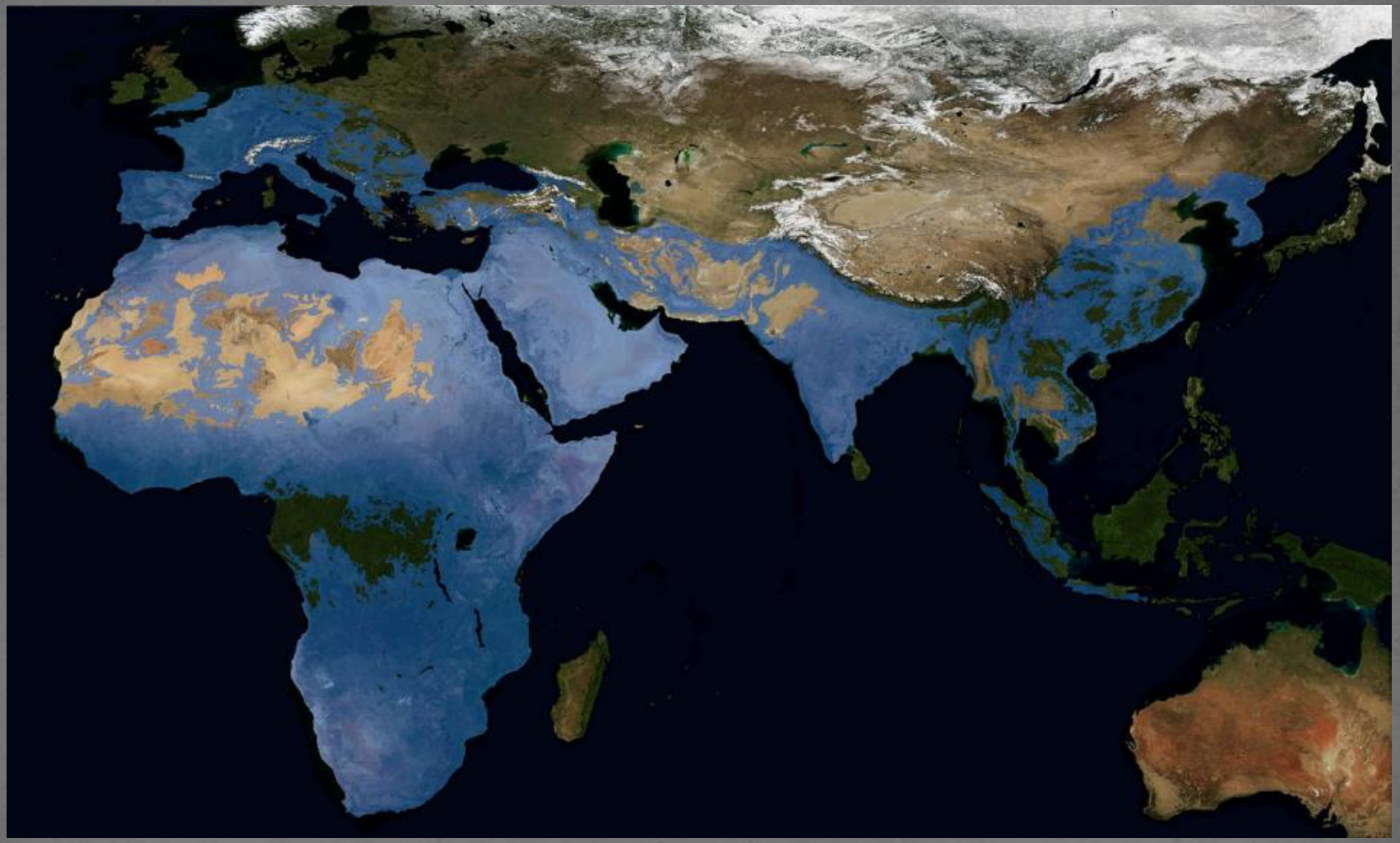
Distribution of industries with and without bifaces in Lower Palaeolithic sites



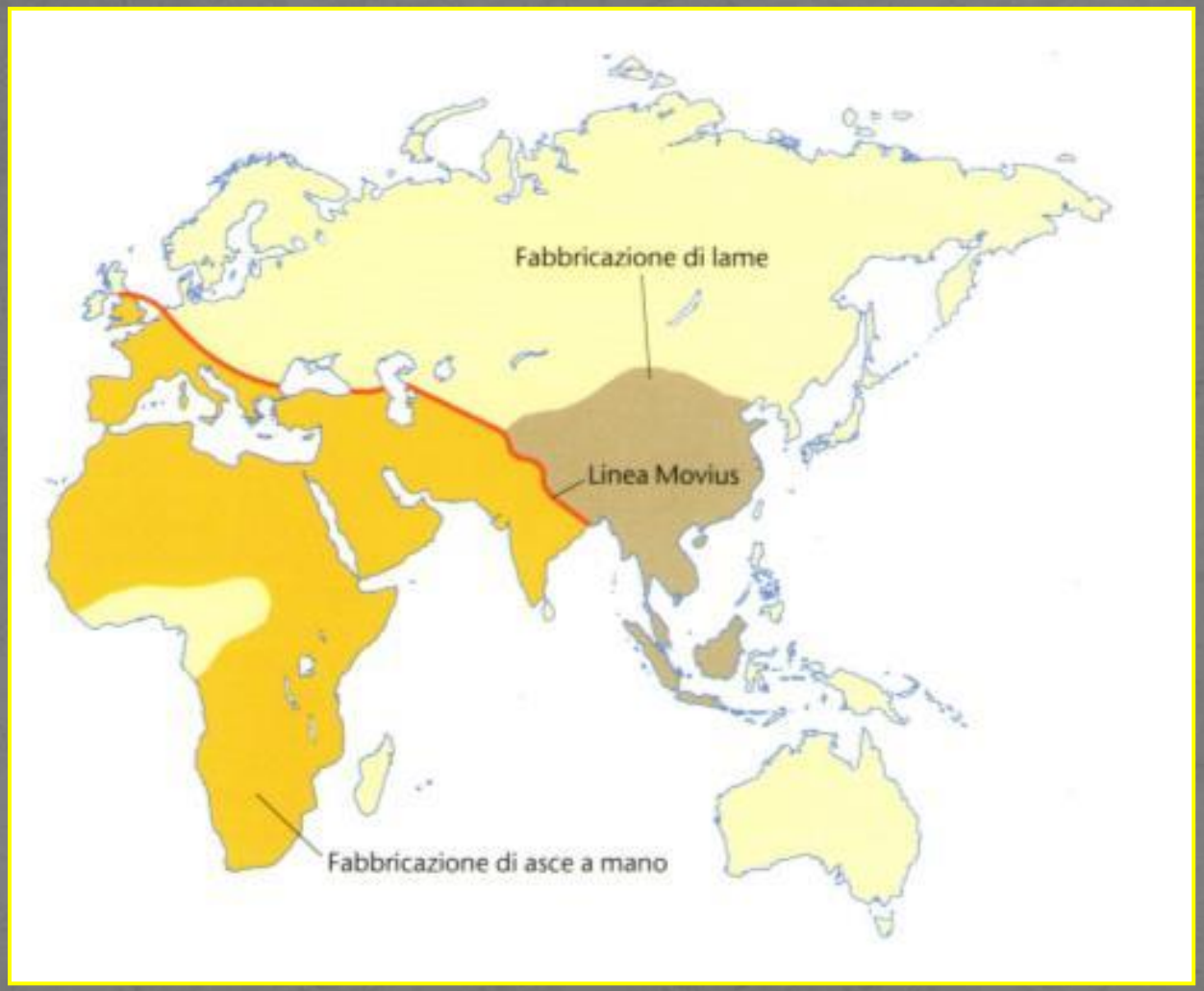
Western Europe during the Acheulian.

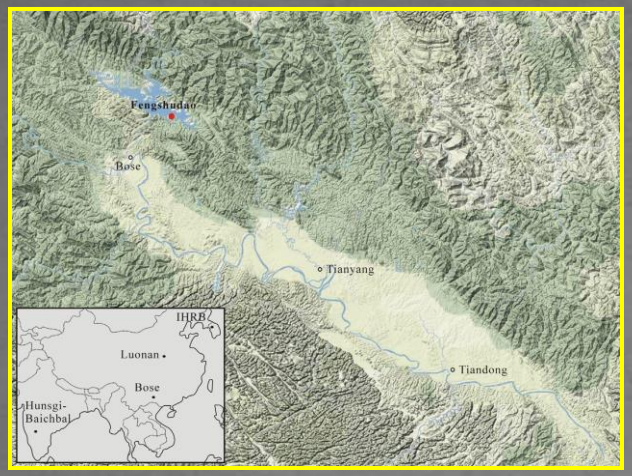


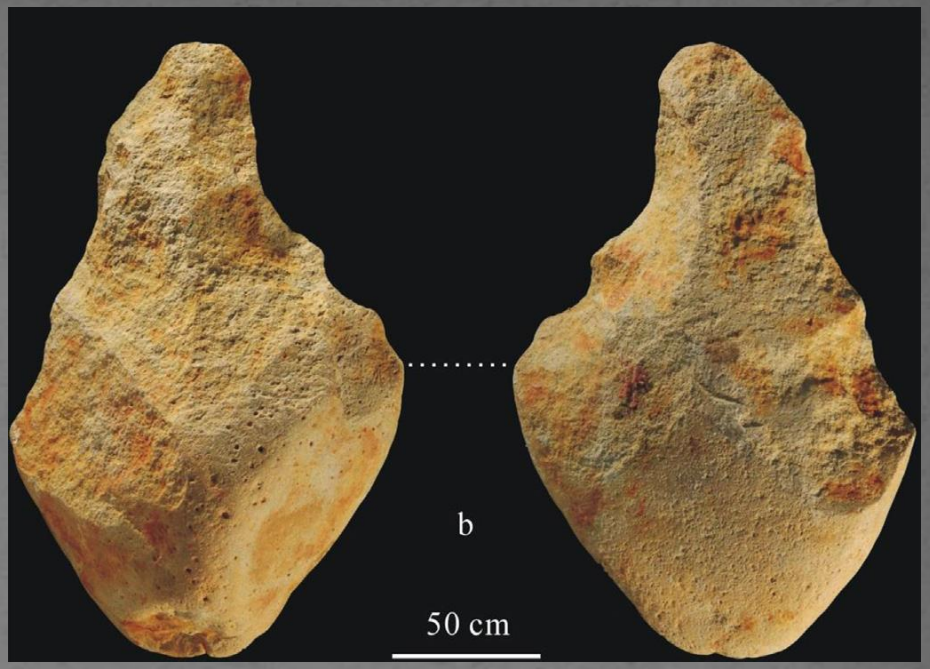
Distribution of the Acheulean cultural tradition



The Movius line separates industries with bifaces from flake-based industries

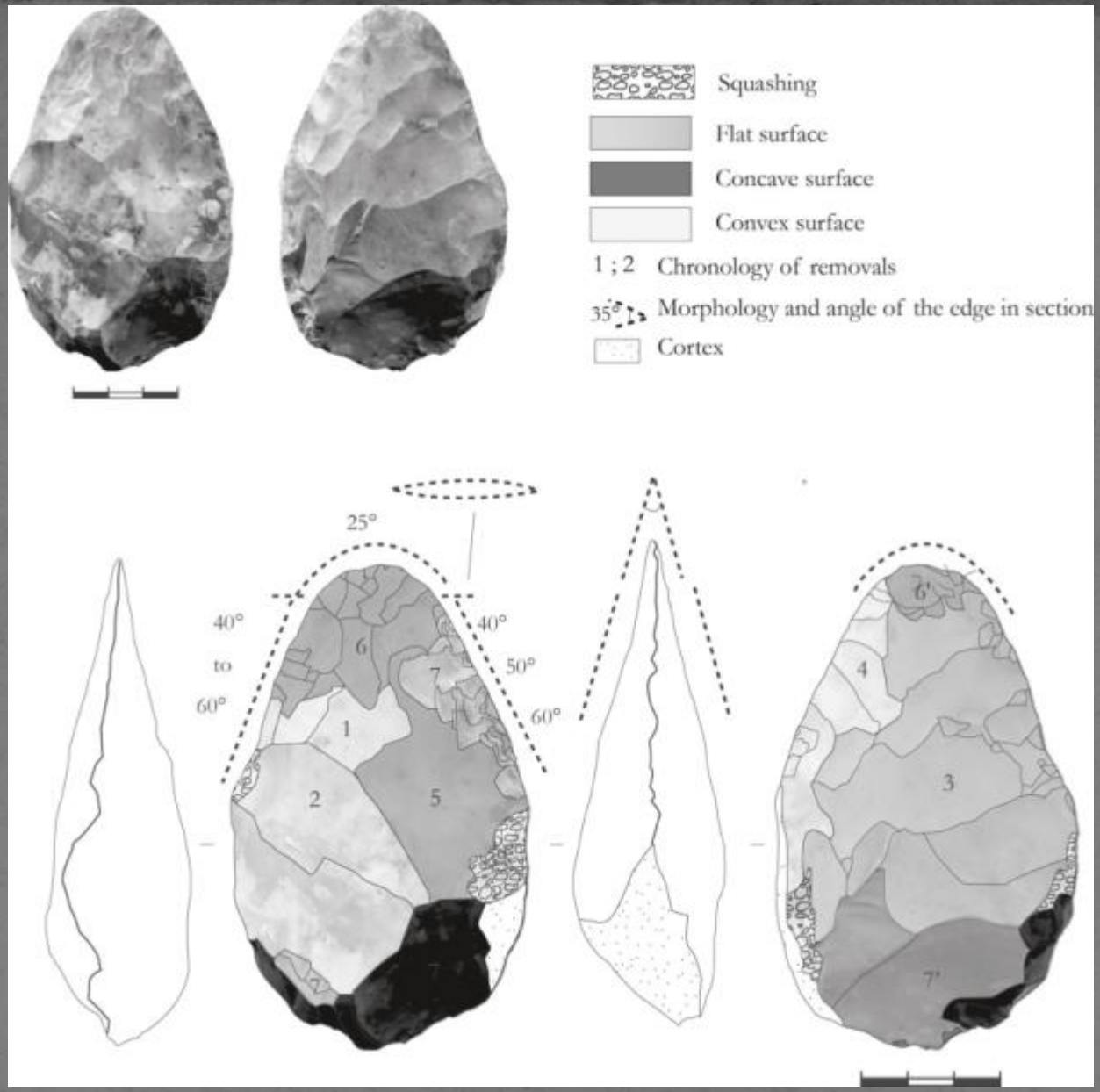




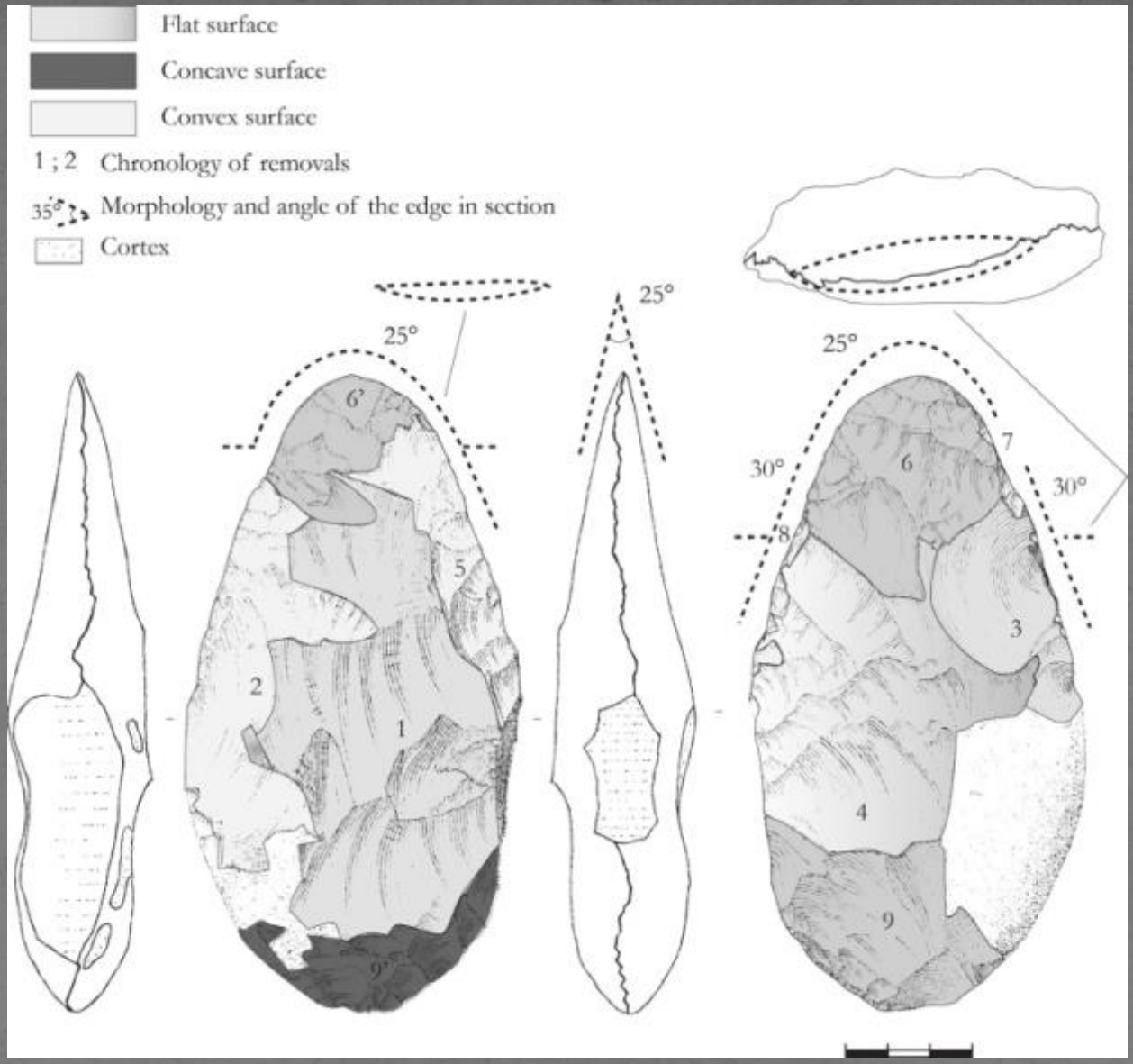


The Bose (also Baise) Basin in Guangxi, southern China is well known for the presence of Paleolithic bifacially worked implements: 1) the age at 803 ka, places it at the Early to Middle Pleistocene transition; 2) the presence of bifaces tests the validity of the Movius Line and whether it was time to simply discard the model.

Wang et al., 2014, Middle Pleistocene bifaces from Fengshudao (Bose Basin, Guangxi, China). Journal of Human Evolution 69, 110-122.

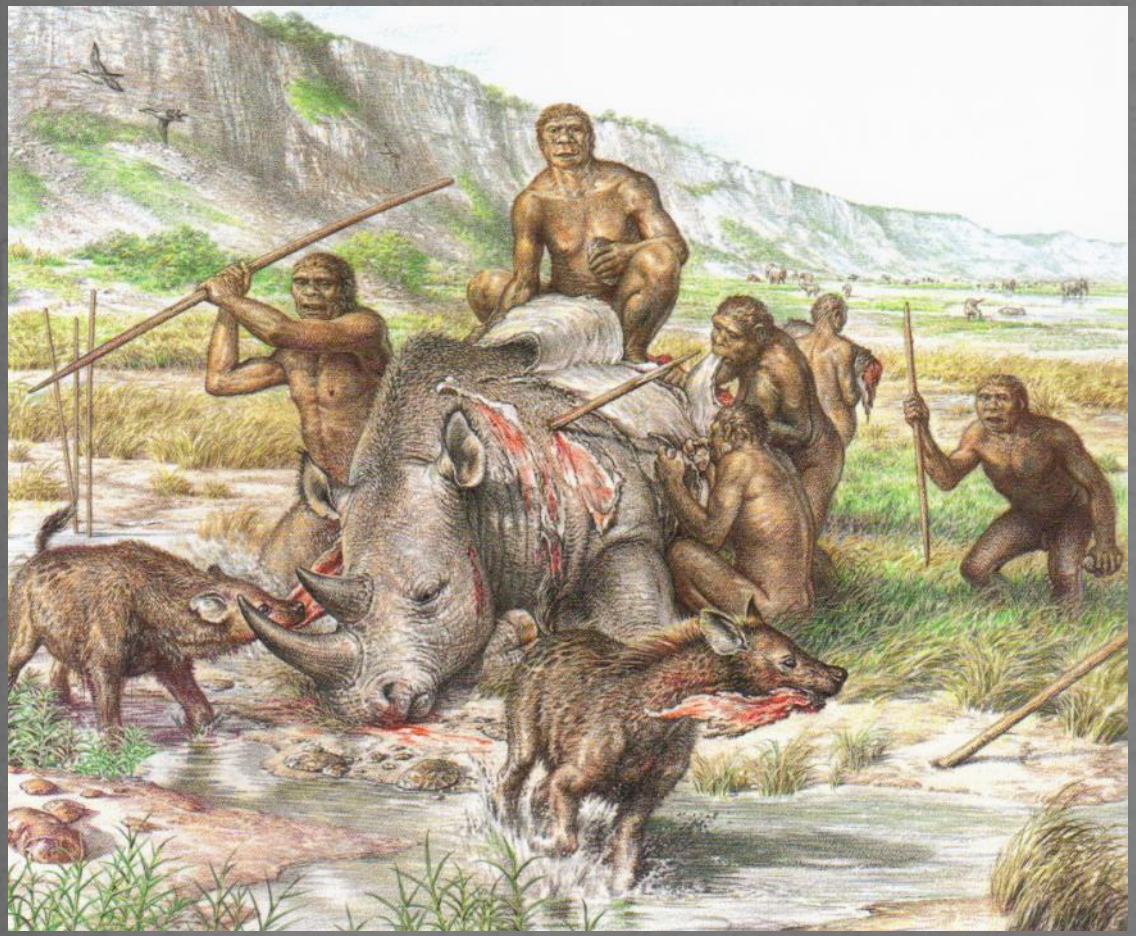


Example of a “biface as a tool” from Soucy 3P, Yonne.



Example of a “biface as a tool” from Soucy 3P, Yonne.


Excalibur



The site of Boxgrove 500.000YBP

Notarchirico (Venosa)

Partial skeleton of an adult male *Elephas antiquus* from Ambrona

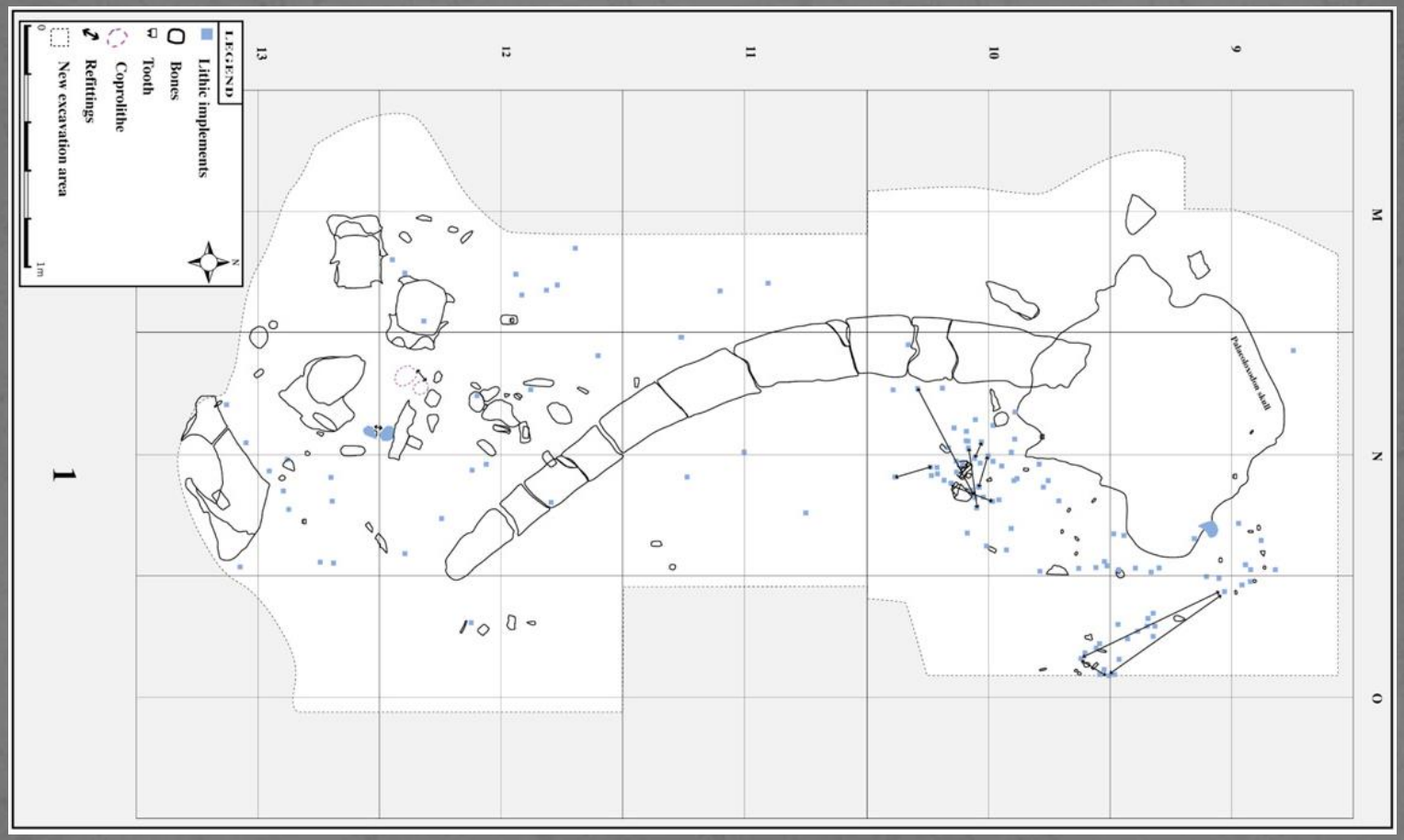
PLOS ONE

RESEARCH ARTICLE

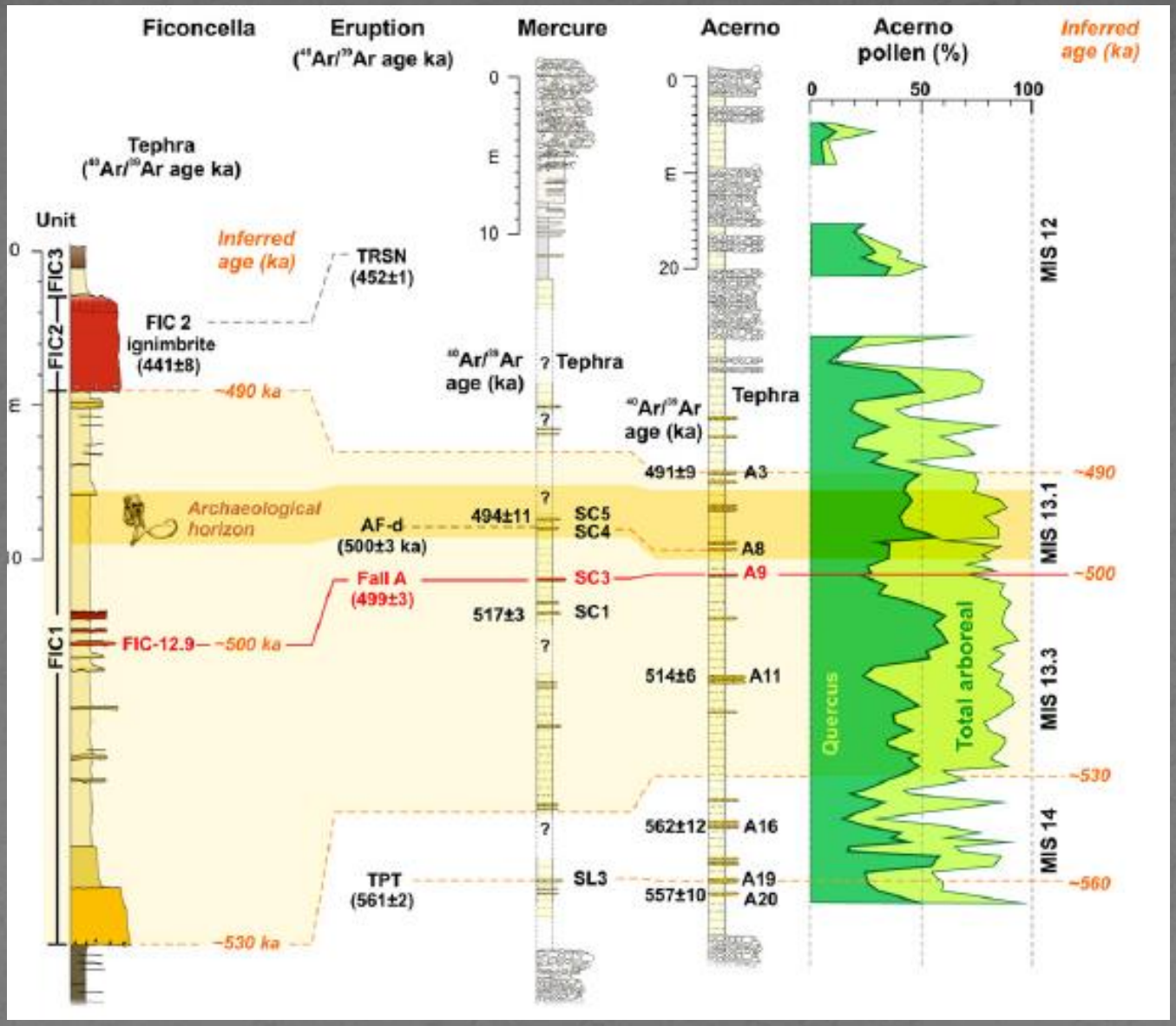
Palaeoloxodon and Human Interaction: Depositional Setting, Chronology and Archaeology at the Middle Pleistocene Ficoncella Site (Tarquinia, Italy)

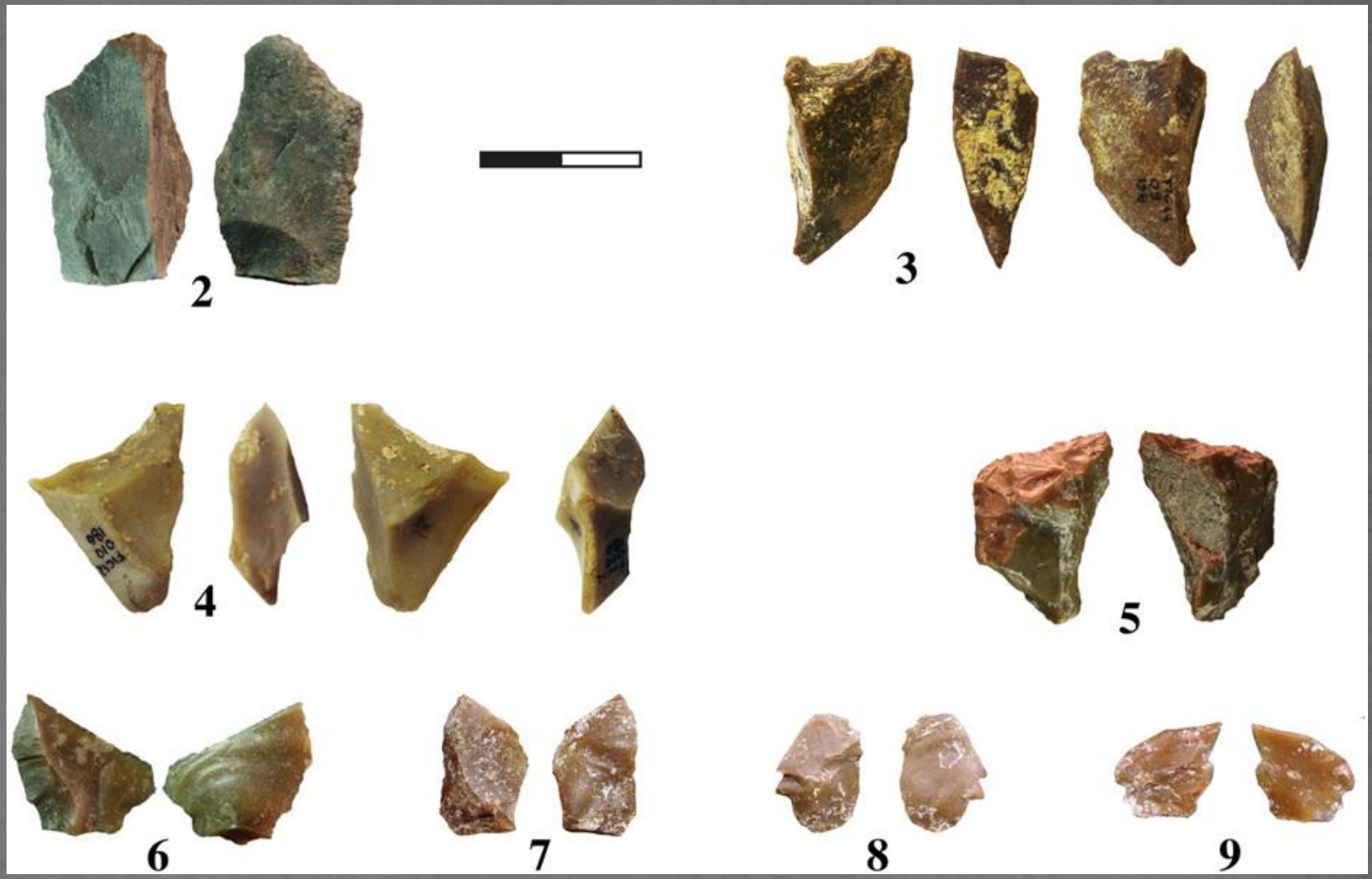
Daniele Aureli[1,9]*, Antonio Contardi[2], Biagio Giaccio[3], Brian Jicha[4], Cristina Lemorini[5], Sergio Madonna[6], Donatella Magri[7], Federica Marano[8], Salvatore Milli[8], Valerio Modesti[2], Maria Rita Palombo[8], Roxane Rocca[9]

Ficoncella



Plan of excavation with the artefacts found during the excavation campaigns 2010, 2011 and 2012


Ficoncella
Eruption
(40Ar/39Ar age ka)
Mercure
Acerno
Acerno pollen (%)
Inferred age (ka)
Tephra
(40Ar/39Ar age ka)
Unit
Inferred age (ka)
TRSN
(452±1)
FIC 2
ignimbrite
(441±8)
FIC3
FIC2
FIC1
~490 ka
Archaeological horizon
AF-d
(500±3 ka)
Fall A
(499±3)
FIC-12.9
~500 ka
~530 ka
TPT
(561±2)
40Ar/39Ar age (ka)
? Tephra
494±11
SC5
SC4
SC3
517±3
SC1
SL3
Tephra
491±9
A3
A8
A9
514±6
A11
562±12
A16
A19
557±10
A20
0
50
100
Quercus
Total arboreal
MIS 12
MIS 13.1
MIS 13.3
MIS 14
~490
~500
~530
~560


2
3
4
5
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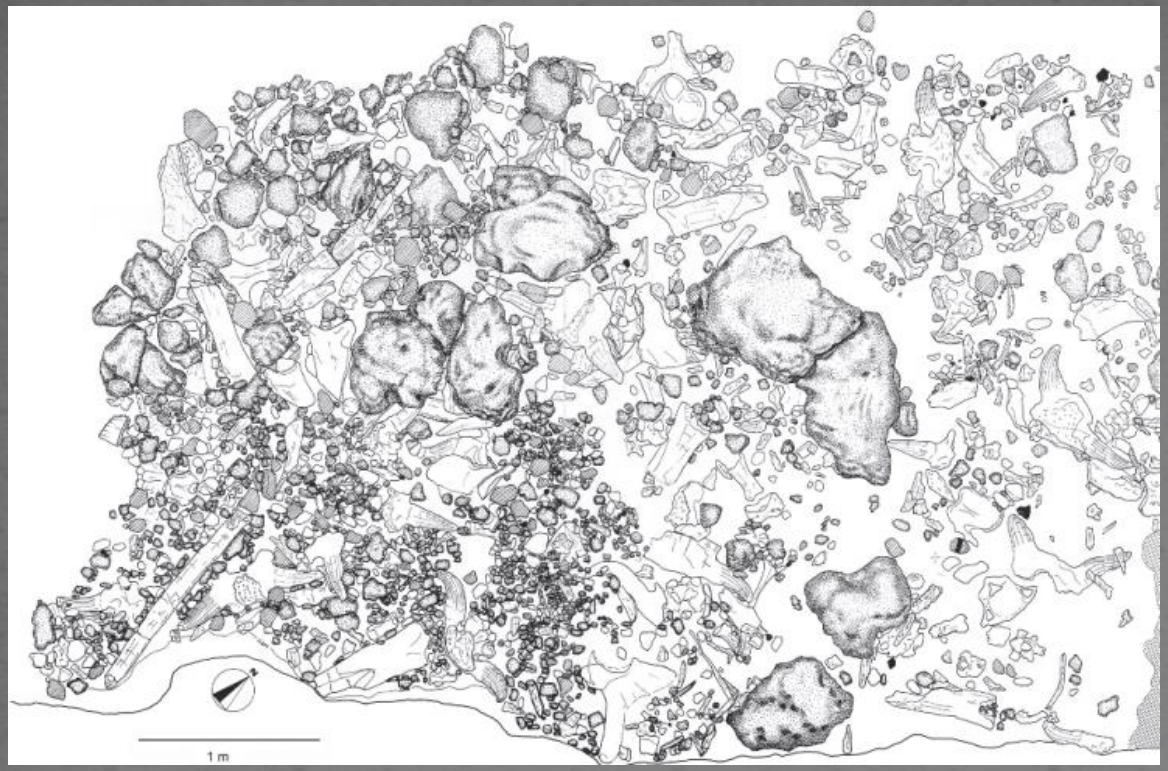
7
8
9

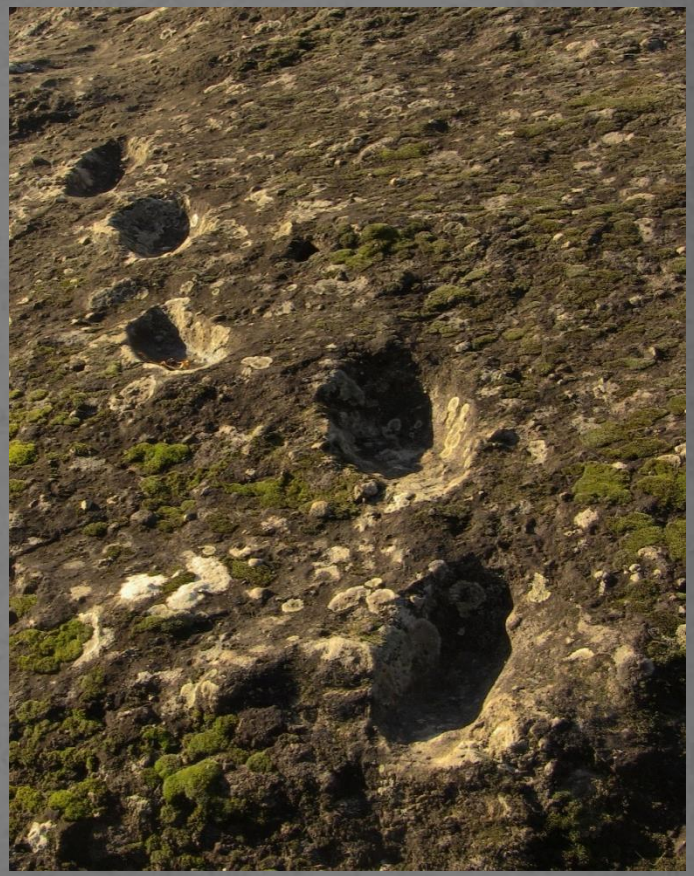
Isernia La Pineta (580-560 ky)



Isernia La Pineta. Plan of a portion of layer 3a. Note the large blocks of travertine forming a semicircle and many smaller natural cobbles, especially to the south of the distribution.

IS 42

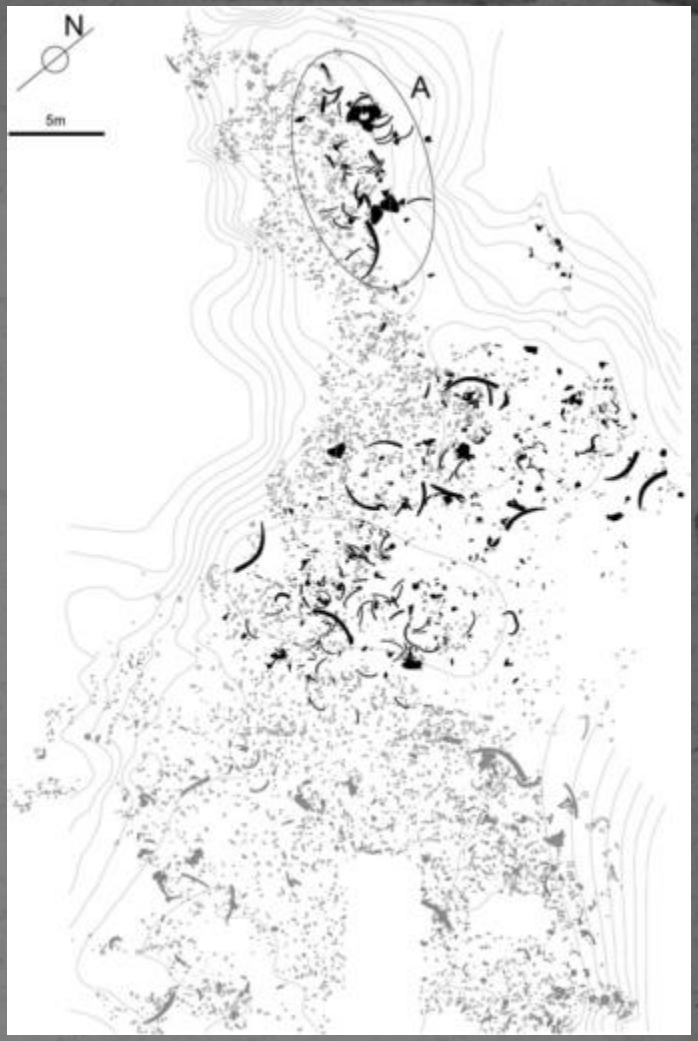
Volcanic complexes of the Italian peninsula and location of the acheulean sites.



Ciampate del diavolo (Roccamonfina) 360 ky

Castel di Guido (Italy)

Oblique photograph of a sector of the excavation area; the remain at the bottom centre is a bone biface. The frame width at the bottom of the image is about 2 m.



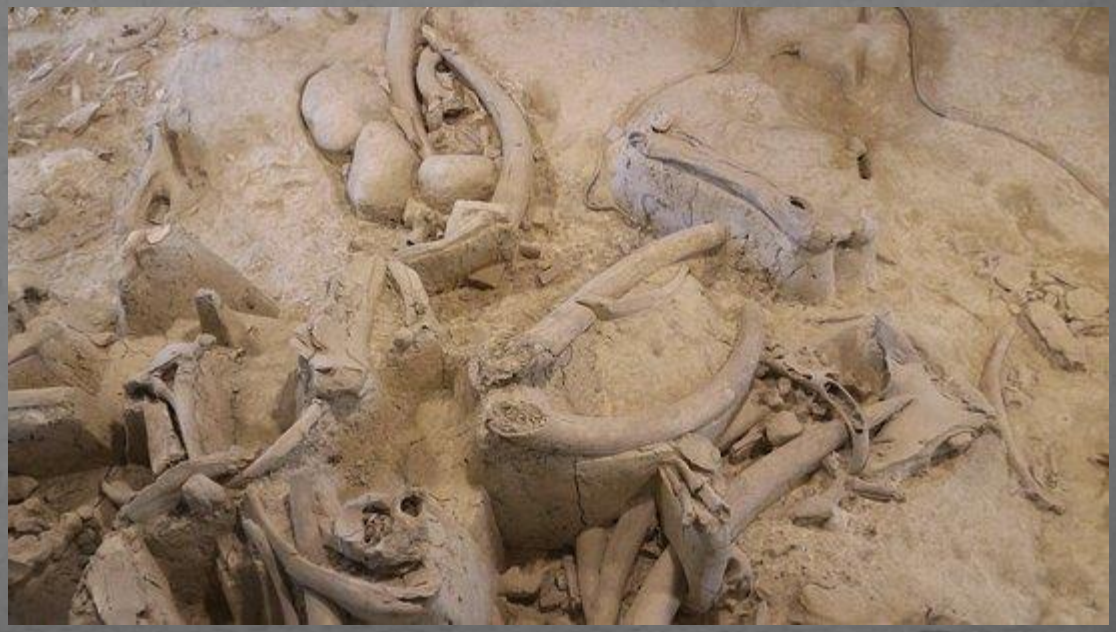
Combined U/Th and ESR dating carried out on auroch teeth indicate an age between **327 and 260 ka**, in accordance with estimates based on geological and biochronological studies and on the biostratigraphy of the faunal assemblage, which can be ascribed to the Early Postgalerian or toMIS9.

Outlined clusters (black) and isolated outlying (grey) large-size remains, checked against the null hypothesis of a fully random dispersion. A: elephant bones in possible sub-anatomical position. Contour map of the channel topography; distance between contour lines: 20 cm.

Castel di Guido (Italy)

Elephant tusks of similar size, lying in possible sub-anatomical position. A: field image (distance between lines: 1 m); B: excavation map.

Polledrara di Cecanibbio



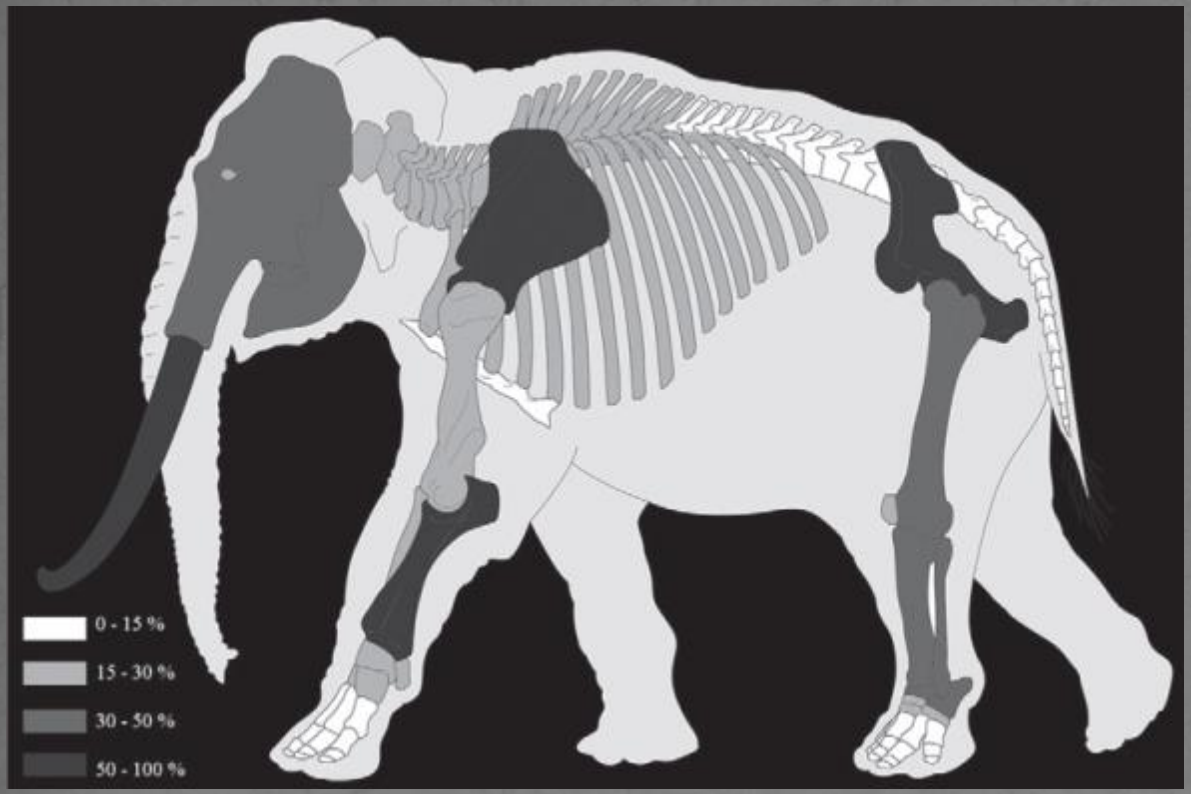
Tusks with multiples striations mostly produced during the life of the elephant. A. The tip of a tusk shown on display in a reconstruction of an area of the site at the Prehistoric National Museum “L. Pigorini”, Rome.

Castel di Guido (Italy)

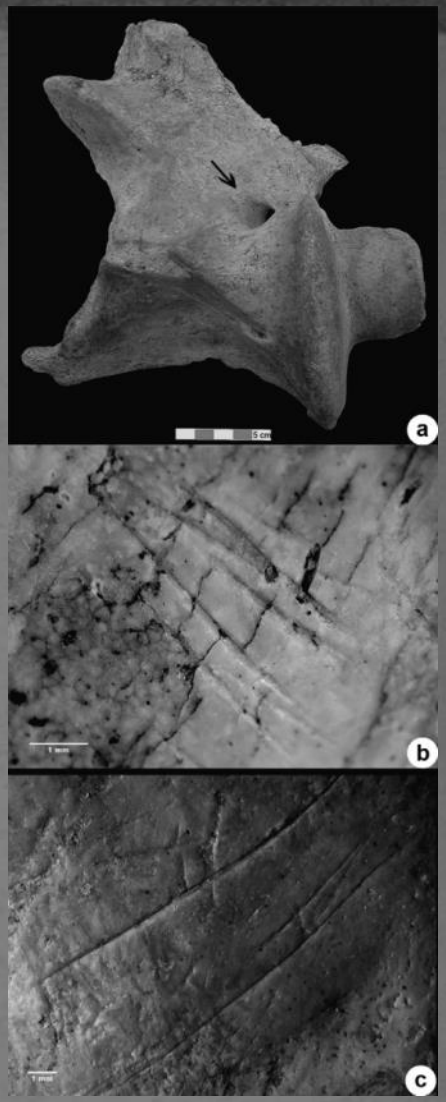
Gnawing marks (arrows) on the distal end of a metacarpal II.

Castel di Guido (Italy)

Proboscidean carcass exploitation in the Lower Palaeolithic

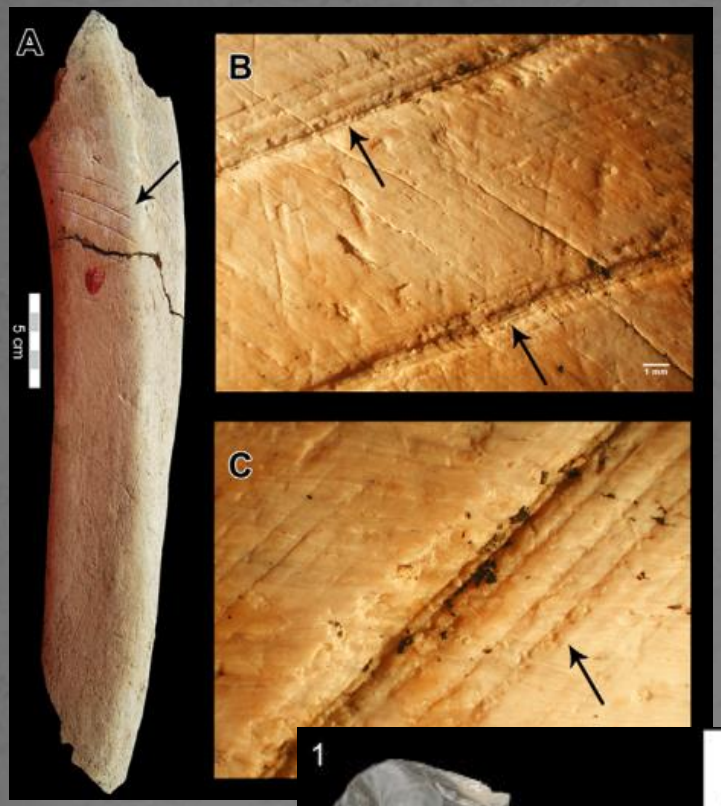


Percentage survival of *Palaeloxodon antiquus* body parts, presented both in a graph (above) and a skeletal representation (below).

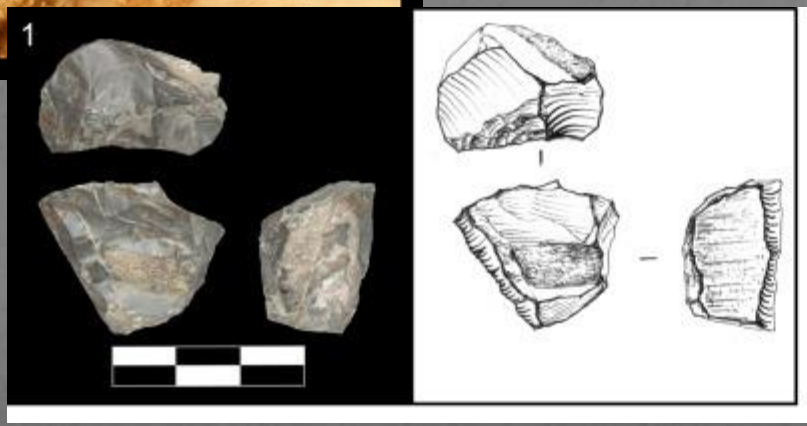


a: Cut marks (black arrow) on the lateral side an epistropheum of *Bos primigenius*. b: cut marks indicated in a, arranged in parallel bundles with evidence of repeated passages of the cutting edge. c: cut marks indicated in a, organized in parallel bundles and originated by single passages.

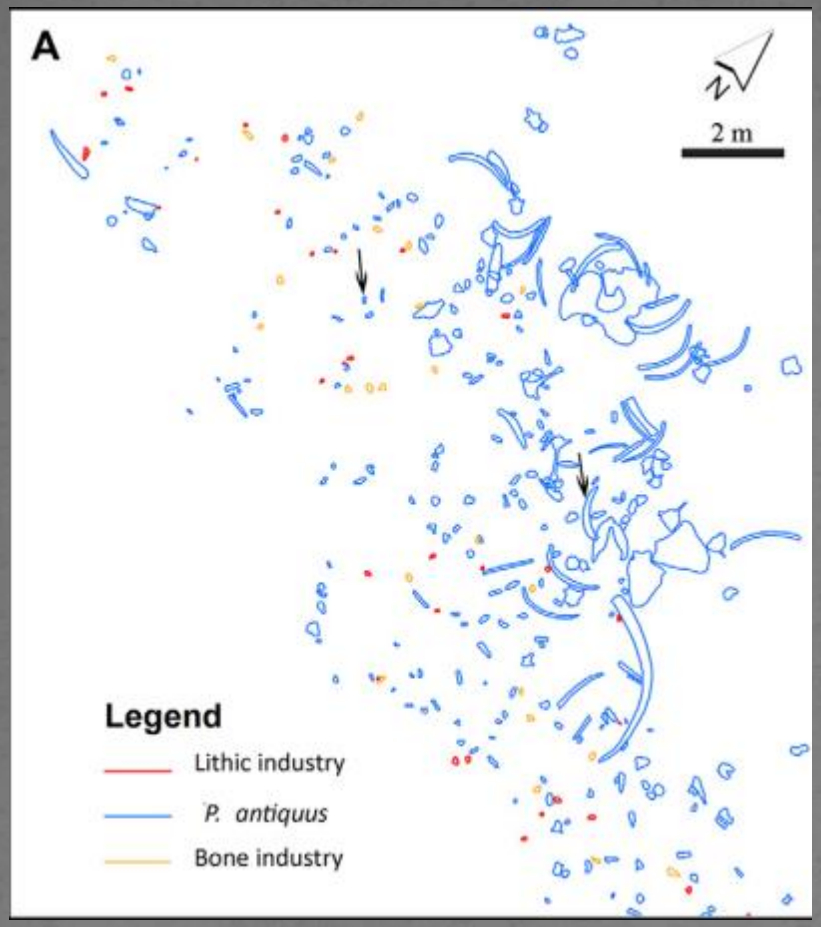
Castel di Guido (Italy)

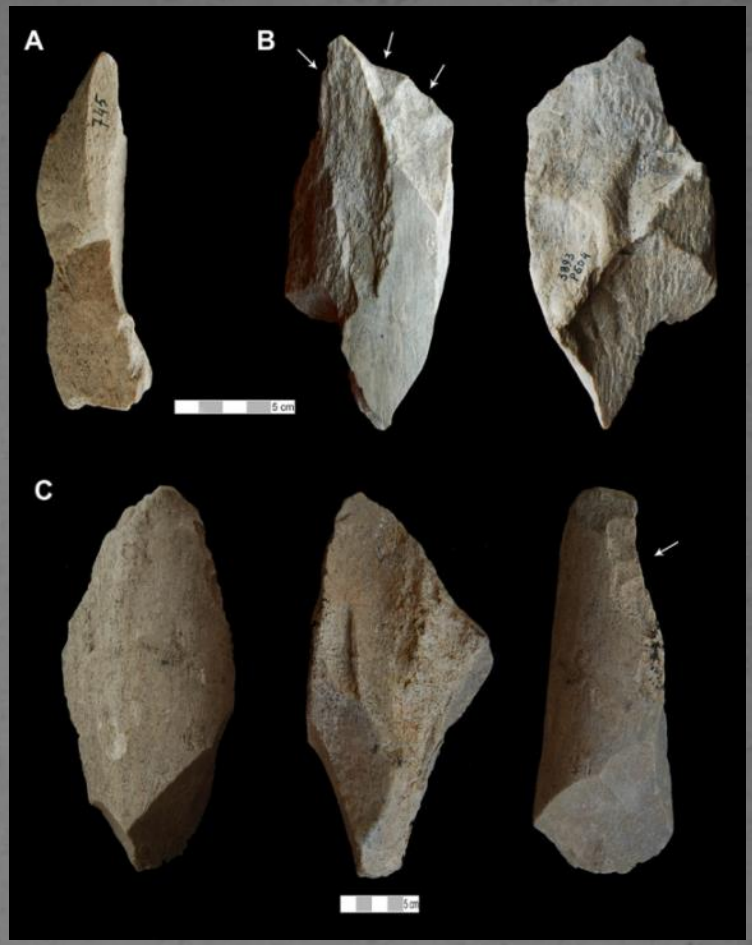


Cut marks on the elephant rib. A. The arrow points to this set of marks; B. Two deeper marks near the fracture, showing V-shaped sections and partially preserved microstriations (arrows); C. A closer view of the upper mark shown in B, displaying the shoulder effect deviates from the main groove (arrow). B and C are macrophotos taken by a stereomicroscope, showing that the bone surface are also modified by postdepositional taphonomic factors: scratches (sedimentary abrasion/trampling), weathering cracks and manganese impregnations.



Castel di Guido (Italy)



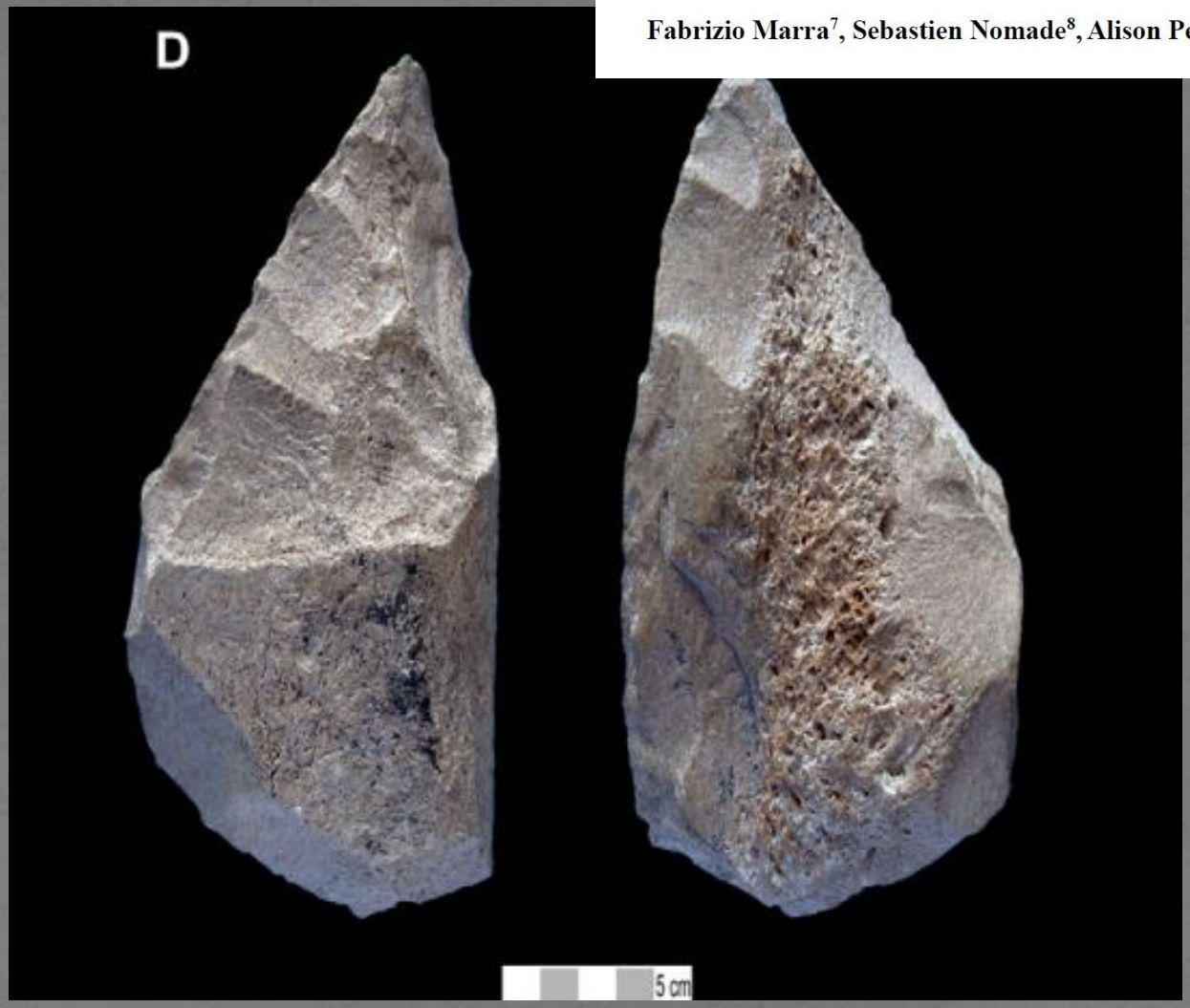


Elephant bone flakes with traces of intentional percussion. A. Flake removed from a loading point; B. Cortical and medullar views of a bone flake showing negative flake scars (arrows); C. Cortical, medullar and right later side views of a very thick long bone shaft fragment displaying multiple unifacial detachments on the right margin (arrow), it may be a low accurately fashioned tool.

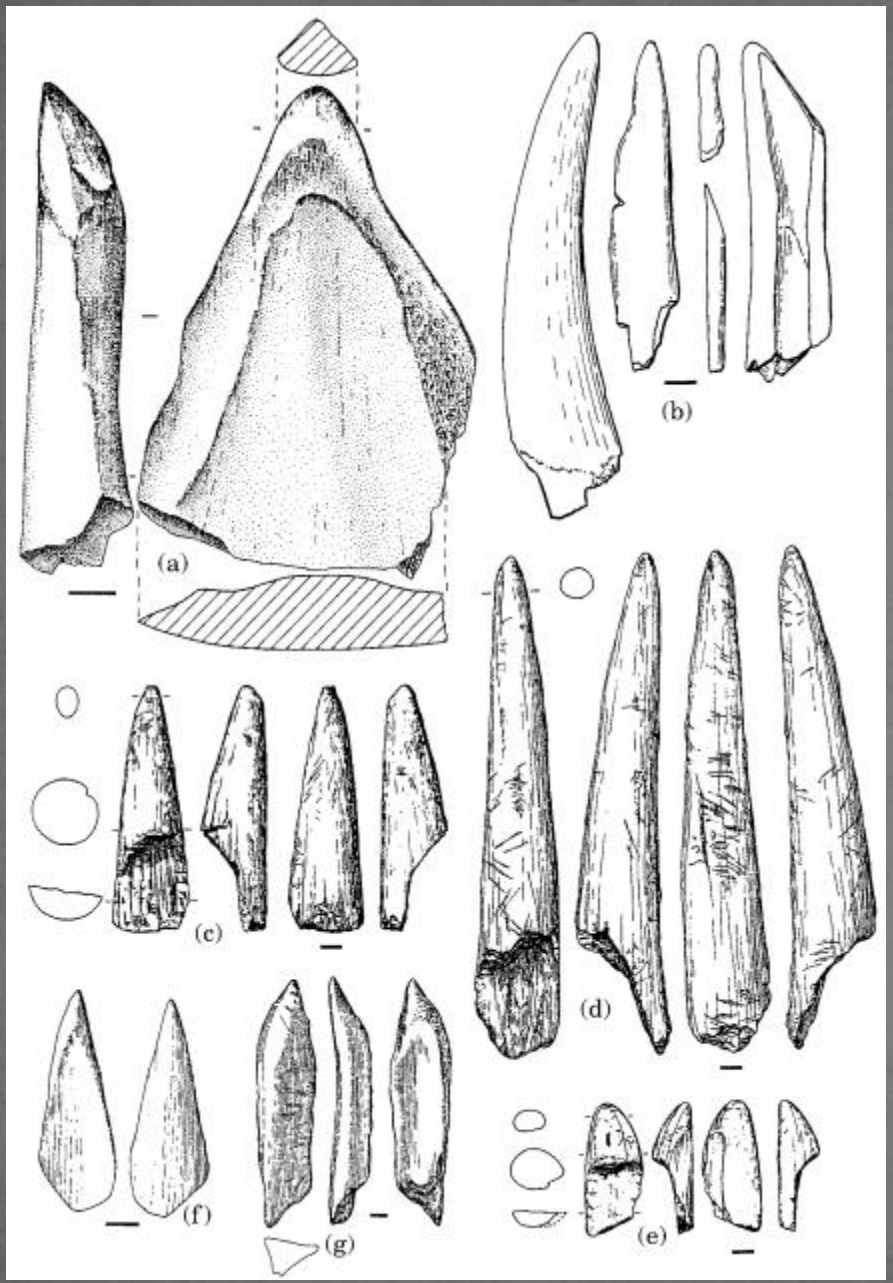
Castel di Guido (Italy)

Elephant bones for the Middle Pleistocene toolmaker

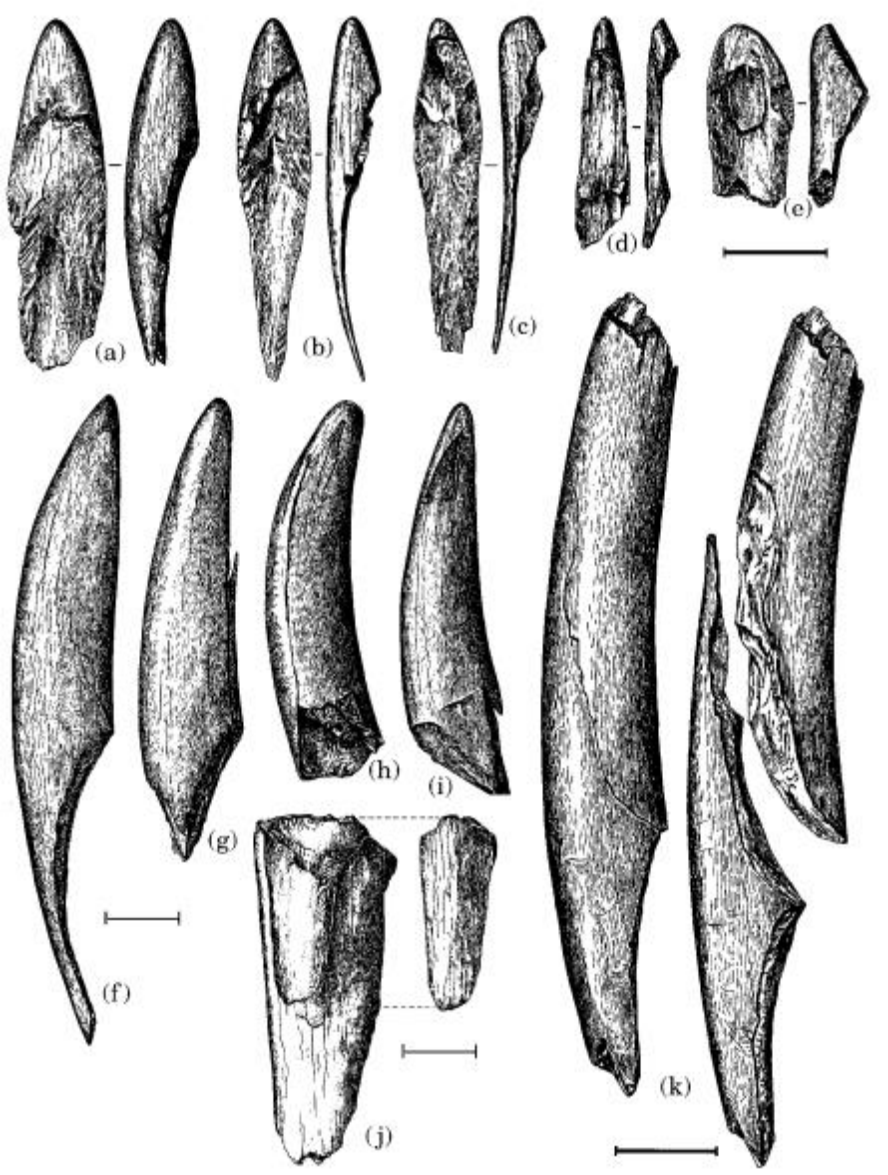
Paola Villa[1, 2*], Giovanni Boschian[3], Luca Pollarolo[4, 5], Daniela Saccà[6], Fabrizio Marra[7], Sebastien Nomade[8], Alison Pereira[8, 9, 10].



Cortical (dorsal) and medullar (ventral) views of a bone biface with numerous flake scars on each face.



Presumed Lower Paleolithic ivory and bone points. (a) Mesvin (Belgium); (b) Swartkrans and Sterkfontein (South Africa); (c), (d) Ambrona 40A/6 and Torralba Q 1258, Howell & Freeman's excavations; (e) Torralba 2644, Cerralbo excavations; (f) Lunel Viel (France); (g) Bilzingsleben (Germany).



Morphology of tusk fragments collected by Haynes in bone deposits originated and reworked by carnivores ; (a)–(d), (f) long stems, (e) short stems; (g), (i) dihedral ends, (h) fracture without a stem, (j) ivory flakes, (k) medial segment.

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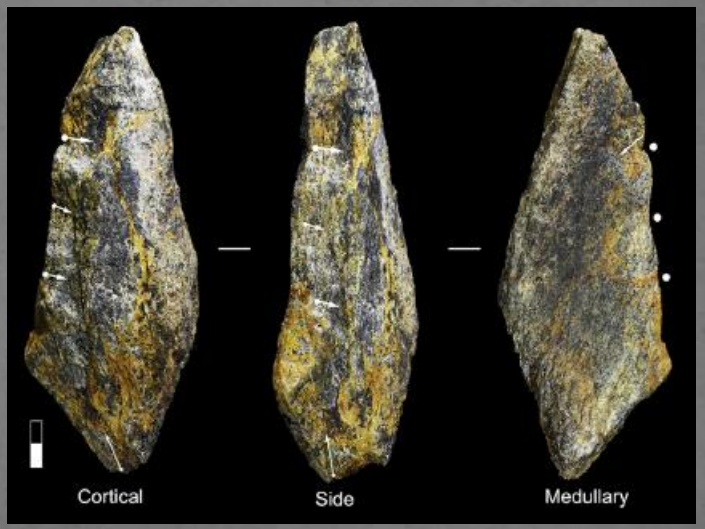
Bone tools from Beds II–IV, Olduvai Gorge, Tanzania, and implications for the origins and evolution of bone technology

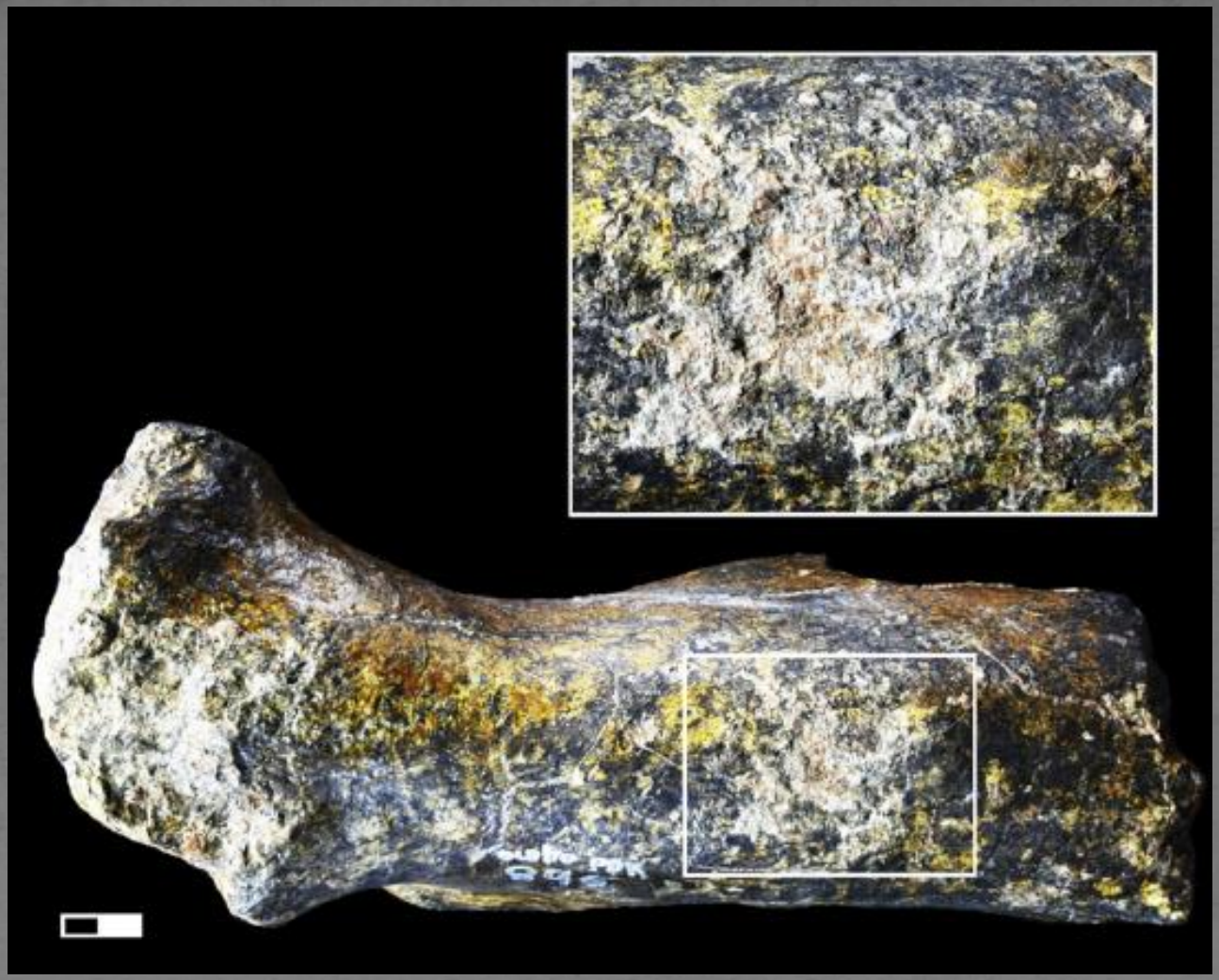
Michael Pante [a, *], Ignacio de la Torre [b], Francesco d'Errico [c, d], Jackson Njau [e, f], Robert Blumenschine [g]

Site	Stratigraphic location	Age (Ma)	Associated stone tool industry
HWK EE	Bed II	1.7	Oldowan
SC	Bed II	1.4–1.2	Developed Oldowan B/Acheulean
JK	Bed III	1.15	Acheulean
HEB	Bed IV	0.93–0.8	Acheulean
HEB West	Bed IV	0.93–0.8	Acheulean
PDK	Bed IV	0.93–0.8	Acheulean
WK	Bed IV	0.93–0.8	Acheulean
WK East A	Bed IV	0.93–0.8	Acheulean
WK East C	Bed IV	0.93–0.8	Acheulean
WK Hippo Cliff	Bed IV	0.93–0.8	Acheulean

Proboscidean limb bone from WK intentionally shaped



Proboscidean limb bone from HEB intentional shaped

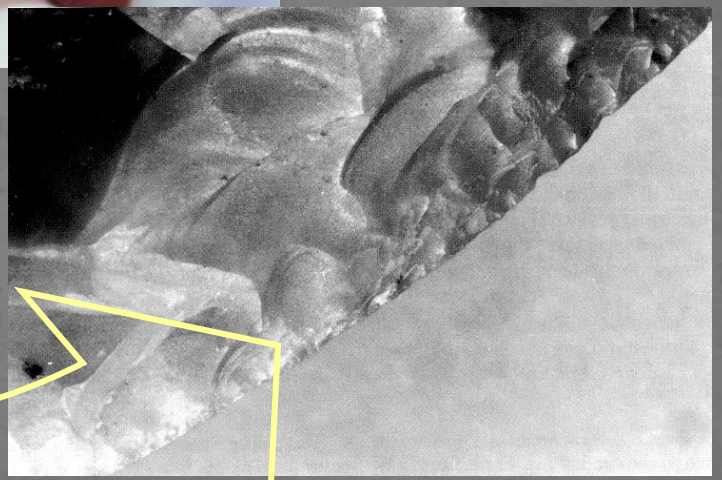


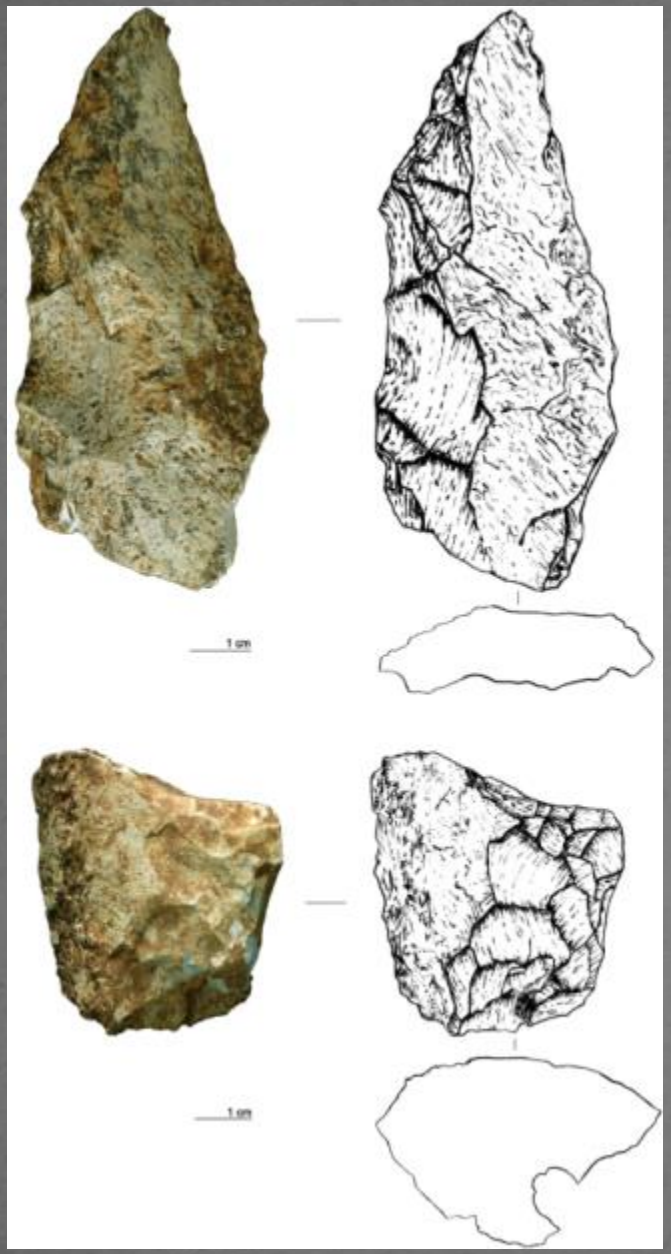
Hippopotamid humerus from PDK used as anvil or soft hammer

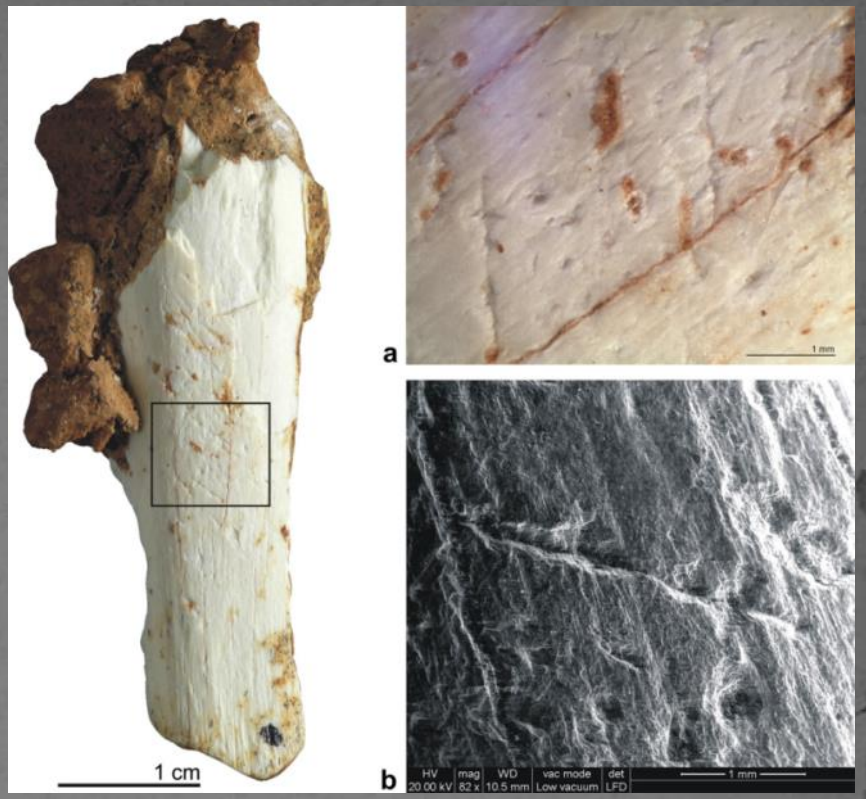
Site	Geographic location	Age	Associated stone technology	Type of bone technology
Drimolen	South Africa	2.0–1.5 Ma	Only six artifacts: 3 flakes and 3 cores	14 worn bones due to use in digging activities
Olduvai Gorge Beds I and II	Tanzania	1.8–1.15 Ma	Oldowan, Developed Oldowan, Acheulean	35 flaked bones and bone anvils mostly from large animals
Swartkrans	South Africa	1.8–1.0 Ma	Acheulean	85 worn bones due to use in digging activities, 6 intentionally shaped horn cores, and 1 shaped ulna
Sterkfontein	South Africa	1.4–0.8 Ma	Acheulean	1 worn bone used in digging activities
Konso	Ethiopia	1.4 Ma	Acheulean	Bone bifaces
Boxgrove	United Kingdom	MIS13	Acheulean	Retouchers
Gran Dolina	Spain	MIS 9	Acheulean-Mousterian transition	Retoucher and flaked from large bovids
Vertesszöllös	Hungary	MIS 13–9	Acheulean	>100 bone tools, many made from elephant bones
Revadim	Israel	500–300 ka	Acheulean	2 bone bifaces from elephant bones
Schoningen	Germany	478–424 ka	Pre-Mousterian—small flakes mostly scraper and points with no blanks	88 bone tools consisting of mostly retouchers made from the horse limb shaft and rib fragments, innominate used as an anvil in bipolar percussion, metapodial hammers
Fontana Ranuccio	Italy	450 ka	Acheulean	2 bone bifaces of elephant bone
Cueva del Angel	Spain	MIS 11–7	Acheulean	4 bone retouchers
Qesem cave	Israel	420–300 ka	Acheulo-Yabrudian Cultural Complex	24 bone retouchers
Bilzingsleben	Germany	412–320 ka	Acheulean	Bone bifaces from elephant bones and other bone tools
La Polledrara	Italy	340–320 ka	Acheulean	8 bone tools
Orgnac 3	France	MIS 9–8	Acheulean	4 bone retouchers
Cagny-l'Epinette	France	MIS 9	Acheulean	6 bone retouchers
Castel di Guido	Italy	327–260 ka	Acheulean	270 bone tools made mostly from elephant bones, and some are bifaces.

Lower and Middle Pleistocene bone tool sites and associated technology

Bone retouchers and shaping of scrapers







Bone hammer (ATA'01 M12/70) from TD10-1 of the **Gran Dolina** site under stereoscopic (a) and environmental scanning electron microscope (b).

Bone tools from TD10-1 of the **Gran Dolina** site: ATA'00 J19/19 (top) and ATA'01 N13/14 (lower).

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Bone tools from Beds II–IV, Olduvai Gorge, Tanzania, and implications for the origins and evolution of bone technology

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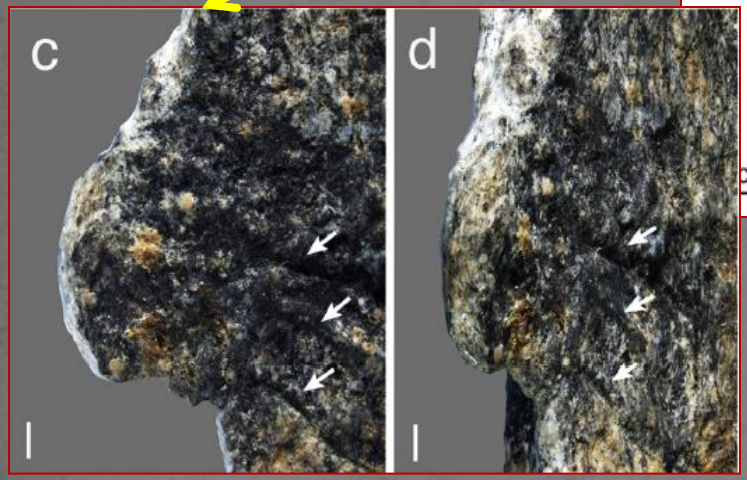

Preform of a barbed point from WK East A