Università degli Studi di Ferrara

ANTROPOLOGIA

Lezione 8

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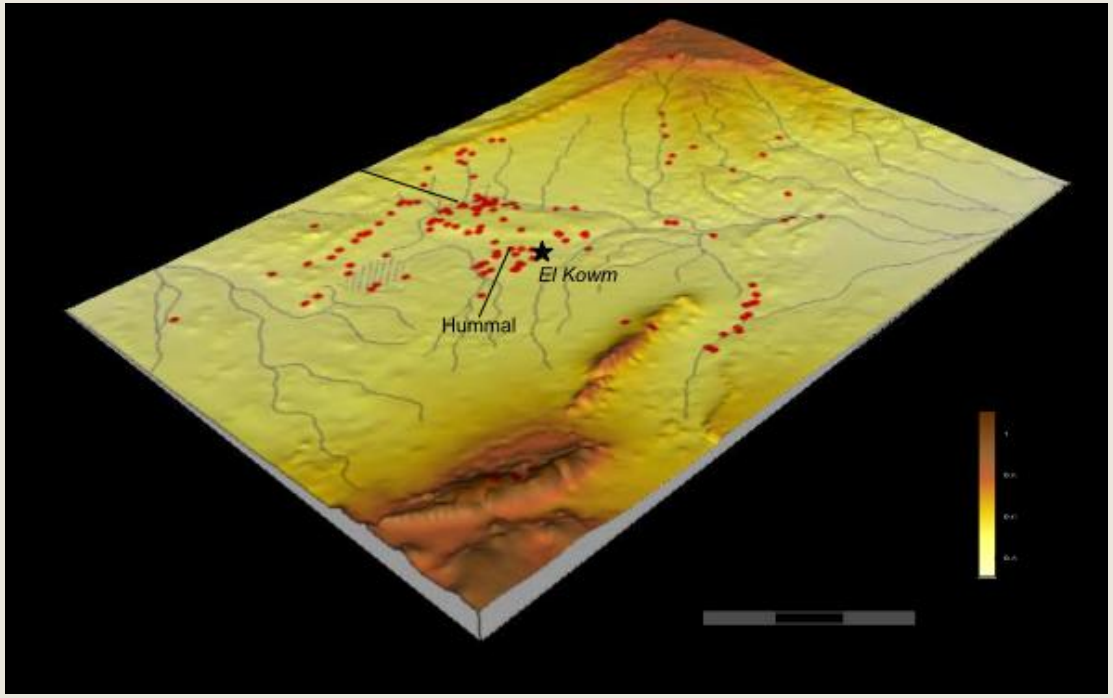
Middle Paleolithic

- In Europe: Mousterian
- In Near-Est: Hummalien (blade production); Yabrudian (sied scrapers with ..) Amoudien (blade industry), Mousterian….
- In Africa: MSA
- North Africa: Aterian (From Egypt to Niger) and “Mousterian”
- In Asia: slow evolution of Lower Paleolithic cultures, we have not the same technological changes that we can see in Europe and Africa

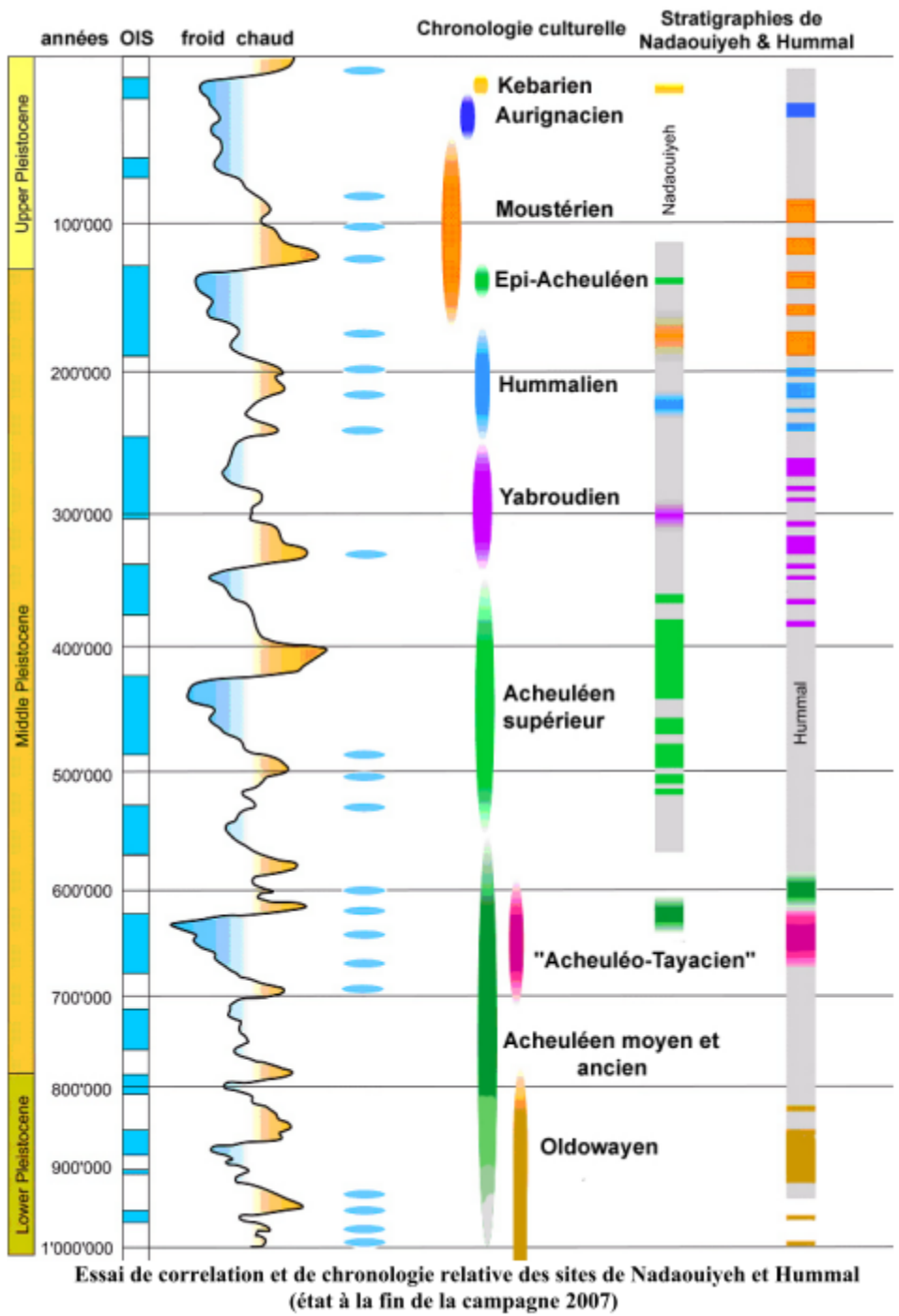
The Middle Paleolithic in the Near-Est

- Hummalien & Yabroudien: appeard simultaneously to the Acheulean

Beside the large amount of flint tools, has been found 3 human remains at Hummal. For the moment, the scanty evidence does not allow a clear determination of the species (Neanderthal or archaïc *Homo sapiens*). Moreover, the archaeological results are of outstanding importance. The study of transitional cultures such as Yabrudian and Hummalian between Old Paleolithic and Middle Paleolithic might certainly provide an answer to one of the most important question into which scientists have been looking for a certain time: the origins of Modern Man.



(Le Tensorer, Jagher et Muhesen, 2001)



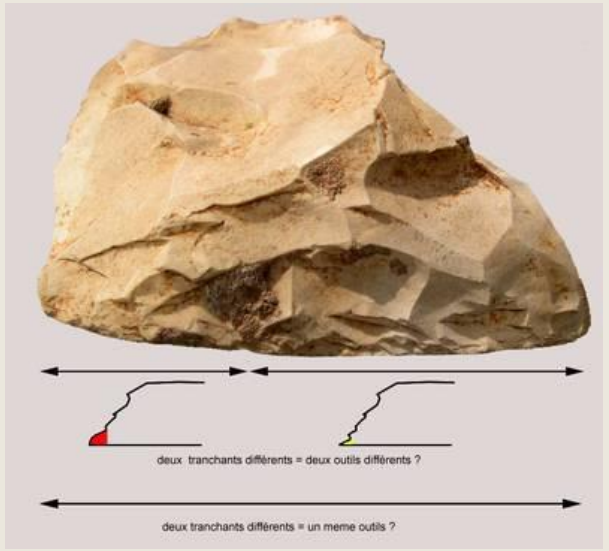
Essai de correlation et de chronologie relative des sites de Nadaouiyeh et Hummal
(état à la fin de la campagne 2007)

(Le Tensorer *et al.*, 2007)

The Middle Paleolitich in the Near-Est

- Yabudian: Early Middle Paleolithic

The Yaboudian sequence in Hummal is absolutely non-Levallois et non laminar and is charcterized by a high number of sied screapers



(Le Tensorer, 2005)

- Hummalian, **Chronology**: 220-150.000 BP

Hummal à la fin de 2007

Bir al Hummal

The knapping strategy aims at **producing numerous blades and very often extremely elongated points**. This period is particularly well represented in Hummal, which led Francis Hours in 1981 to define the Hummalian based on his initial study of unstratified finds from the site. It fits into blade-industries cultures which develop in the Middle East at the beginning of Middle Paleolithic as it is the case at Tabun D or at Hayonim in Palestina. This period in Hummal dates from 220,000 to 150,000 (first TL dates from D.Richter 2006).

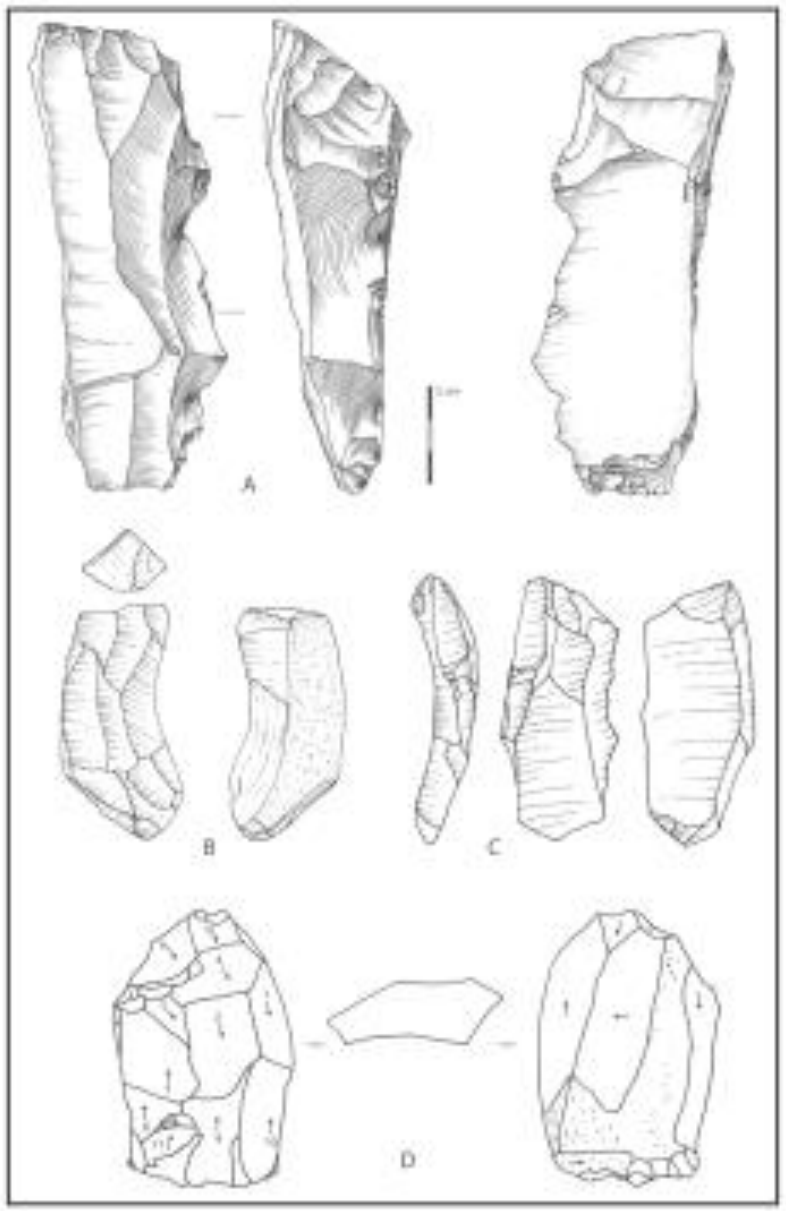


Fig. 3. Hummalian bidirectional cores: A, B, D made on block and C on flake.

Abb. 3. Bidirektionale Kerne aus dem Hummalien: A–D auf Block und C auf Abschlag.

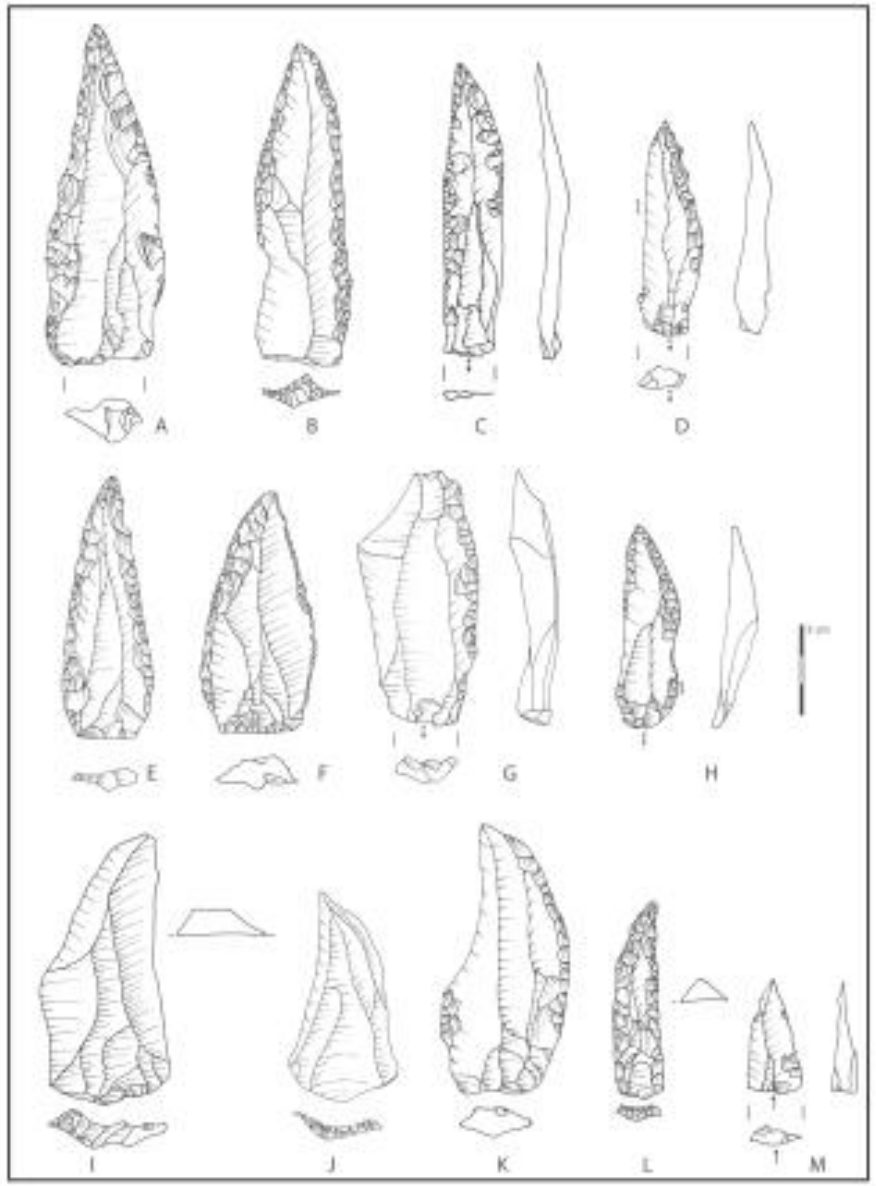


Fig. 4. Blades uncovered from layer 6b and 5h; A, B, C, D - convergent blades retouched on both lateral sides; E and G - blades retouched on one lateral side; F and H points with no retouch.

Abb. 4. Klingen aus Schicht 6b und 5h; A–D, beidseitig konvergierend retuschierte Klingen; E und G, einseitig lateral retuschierte Klingen; F und H, unretuschierte Klingen.

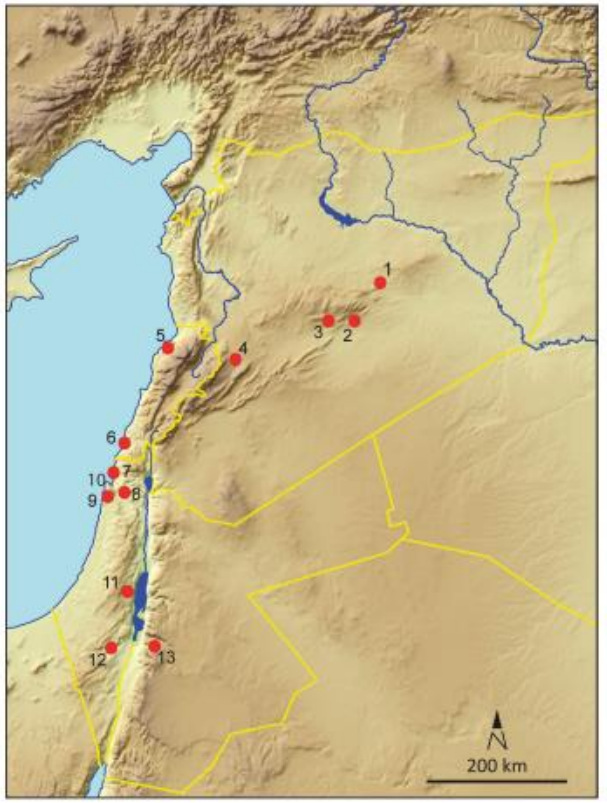


Fig. 1. Map showing the location of the Hummal site and other Palaeolithic sites with important blade components. 1 El Kowm (Hummal), 2 Jerf Ajla, 3 Duara Cave, 4 Yabrud, 5 Masloukh, 6 Adlun, 7 Hayonim, 8 Qesem, 9 Tabun, 10 Misliya Cave, 11 Abu Sif, 12 Rosh Ein Mor, 13 Ain Difla. Map by R. Jagher.

Abb. 1. Karte des Nahen Ostens mit Lage der Fundstelle von Hummal und weiteren paläolithischen Fundstellen mit Klingenindustrien.

Wojtczak et al., 2014

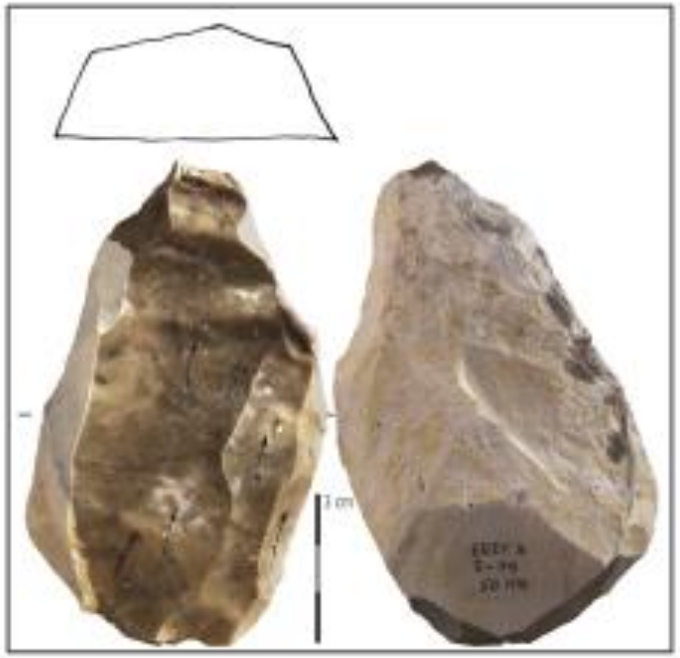


Fig. 11. Unidirectional blade core from layer 6c-2.
Abb. 11. Unidirektionaler Klingenkern aus Schicht 6c-2.

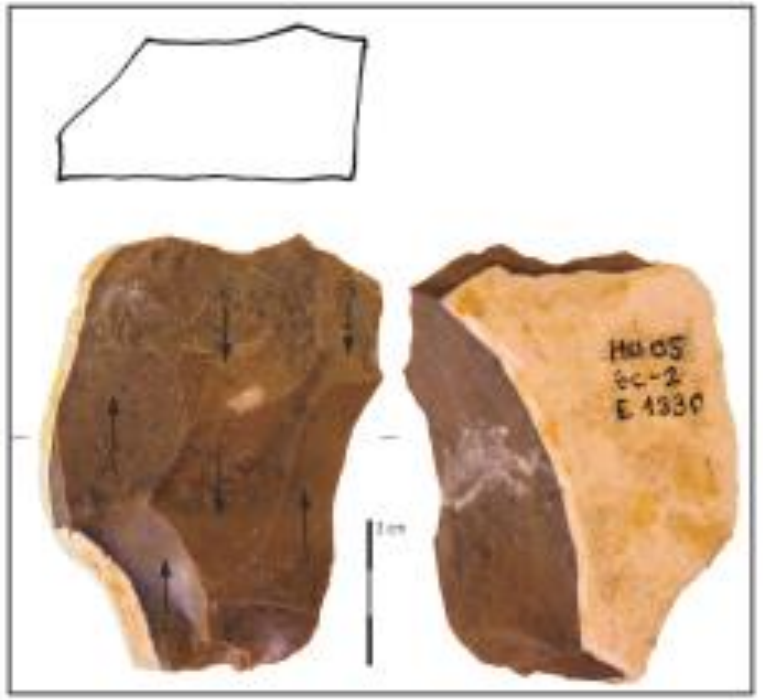


Fig. 12. Bidirectional core from layer 6c-2.
Abb. 12. Bidirektionaler Kern aus Schicht 6c-2.

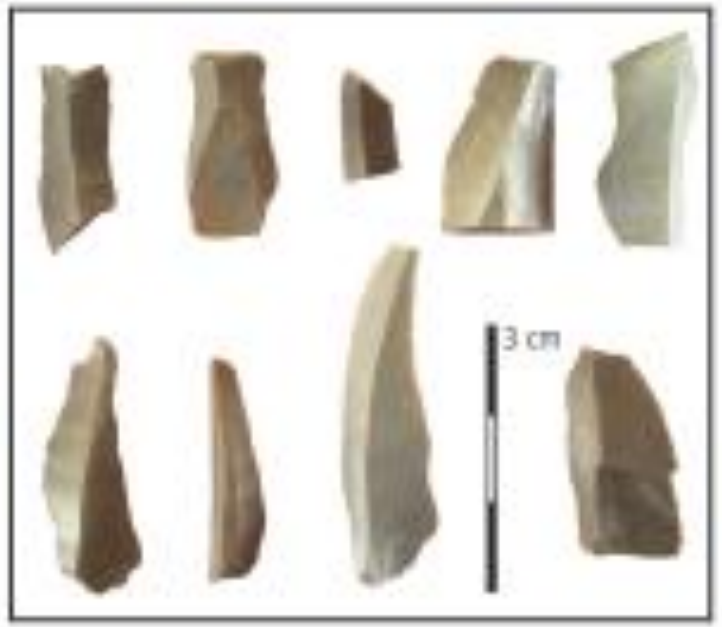


Fig. 28. Bladelets from layer 6c-2.
Abb. 28. Lamellen aus Schicht 6c-2.

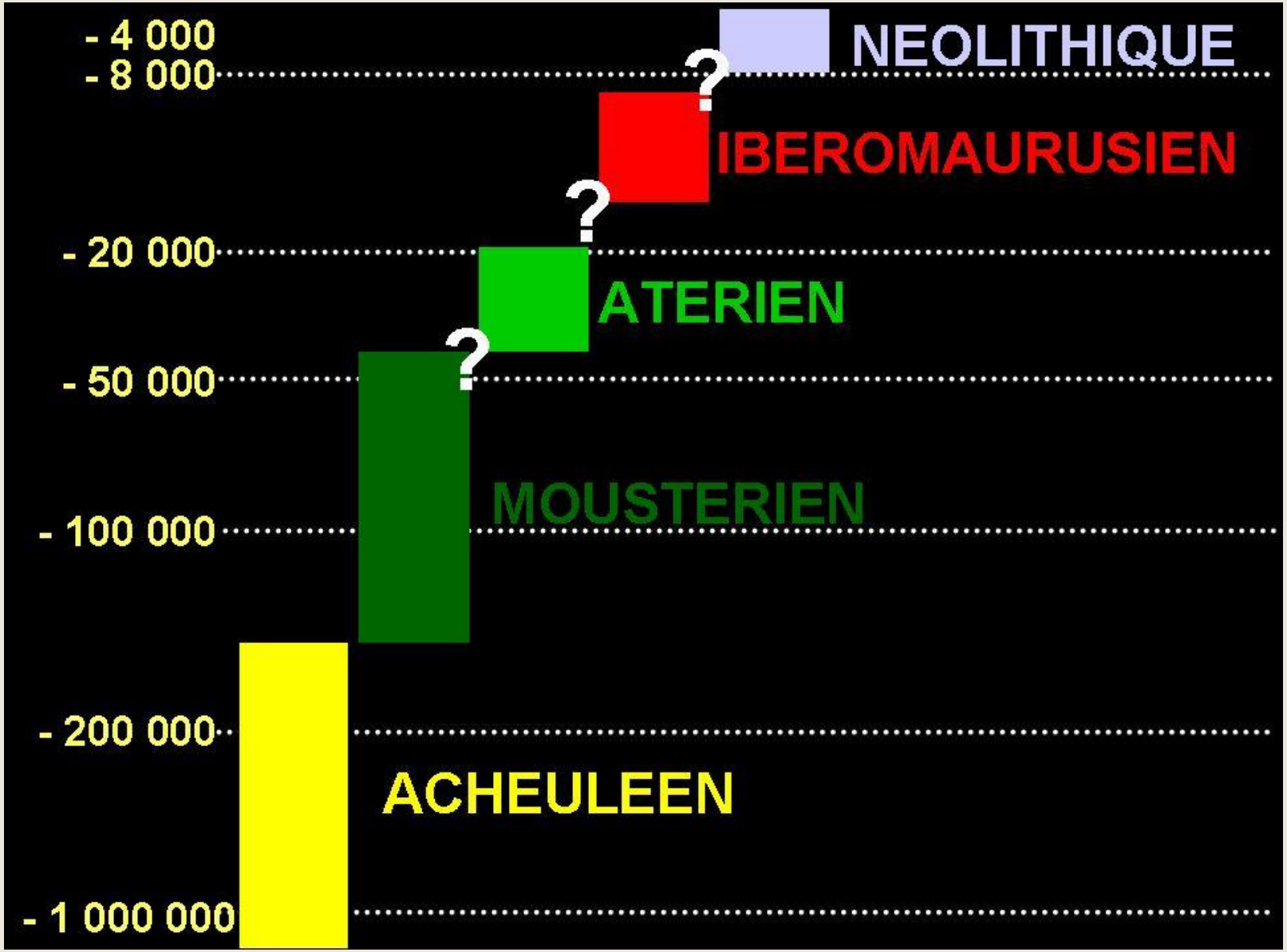
Fig. 14. Burin-core from layer 6c-2.
Abb. 14. Stichelartiger Kern aus Schicht 6c-2.

Hummalian industry (El Kowm, Central Syria): Core reduction variability in the Levantine Early Middle Palaeolithic

Grundformen-Produktion im Hummalien (El Kowm, Zentral Syrien): Kernreduktion-Variabilität im frühen Mittelpaläolithikum der Levante

The Middle Paleolitich in North Africa

- The Aterian
  - ✓ Taforalt
  - ✓ Rhafas (Oujda, Maroc)
  - ✓ Maghat al Alya (Tanger)
  - ✓EL Mnasra (Rabat, Maroc)
  - ✓ Contrebandiers (Témara, Maroc)
  - ✓ El Harhoura I (Témara, Maroc)


- 4 000
- 8 000
- 20 000
- 50 000
- 100 000
- 200 000
- 1 000 000
?
?
?
NEOLITHIQUE
IBEROMAURUSIEN
ATERIEN
MOUSTERIEN
ACHEULEEN


Tunisi
Ain Hanech
Provincia di M'Sila
Provincia di Batna
Tebessa
Bir el Ater, Algeria
Provincia di Biskra
a di Djelfa
Golfo di Gabès
Tunisia
US Dept of State Geographer
© 2011 Google
Map Data © 2011 AND
© 2011 Europa Technologies
35°06'30.30"N 7°47'26.48"E elev 1007 m
Google earth
Alt 665.15 km

Aterian: ~170.000 – 20.000 BP

The Aterian is Northen Africa Culture chronologically situated between 130.000 (80.000) and 20.000 years ago. It is characterized by a “Mousterian type” debitage (including Levallois method) and by pedunculated pieces

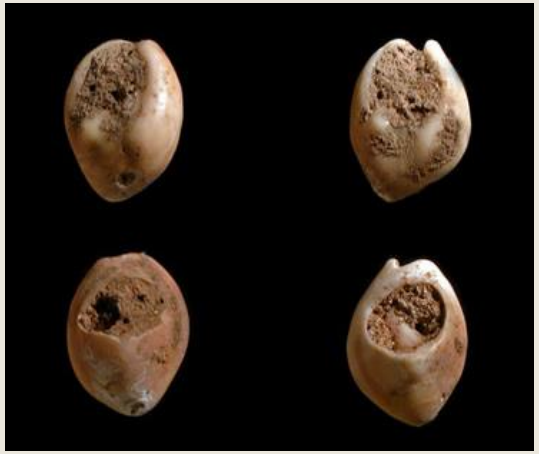
Les premiers restes squelettiques des artisans atériens ont été découverts en 1956 par J. Roche dans les grottes, de Taforalt (Est du Maroc) et des Contrebandiers au Sud Ouest de Rabat.

Grotte de Tafoughalt : Plus de 35 couches archéologiques identifiées

- (1) : niveau cendreux : Ibéromaurusien (12 000 ans)
- (2) : niveau calcaire : Atérien (30 000 ans)

Aterian lithic artefacts. Left: Pedunculate (tanged) point, dorsal and ventral views; Right: Bifacially flaked foliate point

Perforated Nassarius gibbosulus shells from Aterian layer dating to 82,000 years ago

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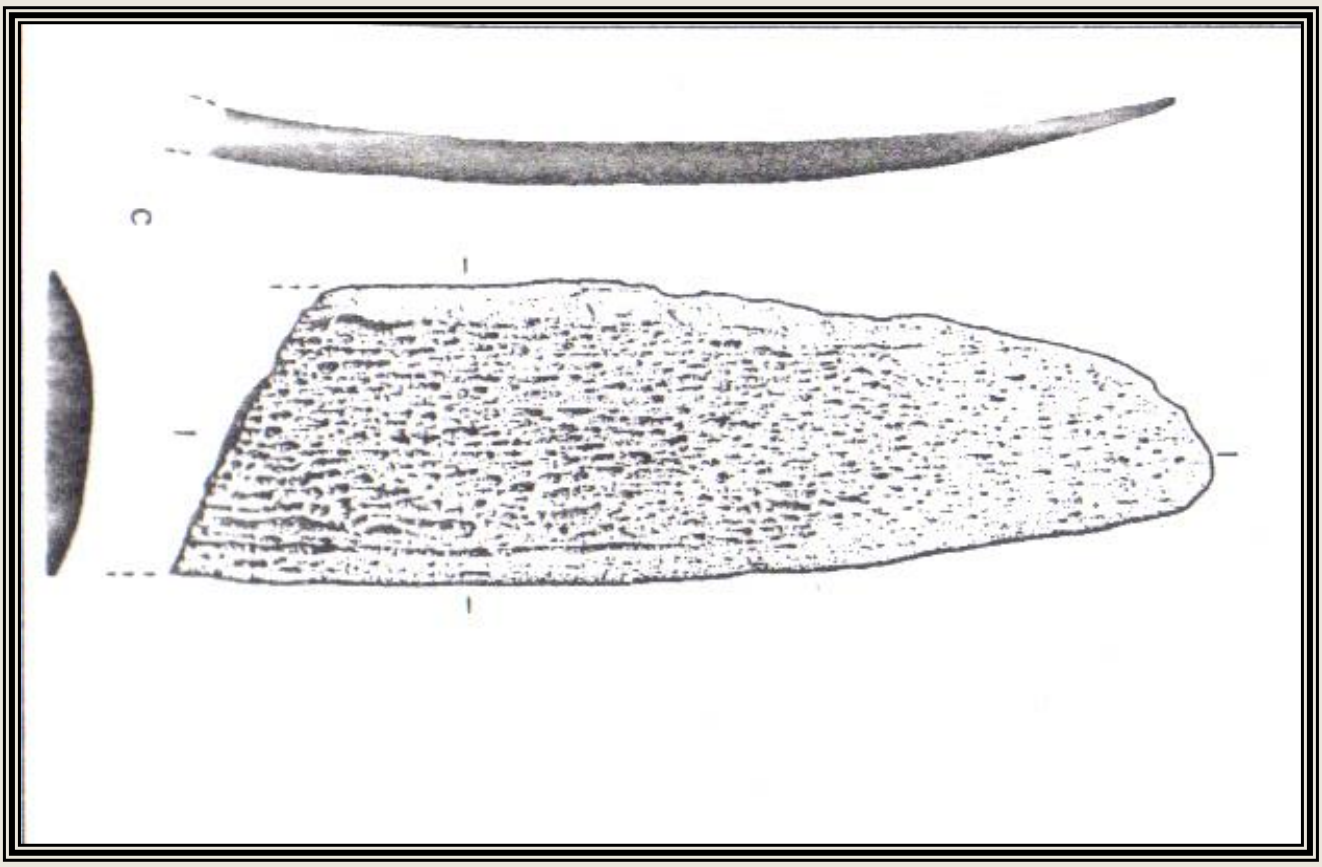
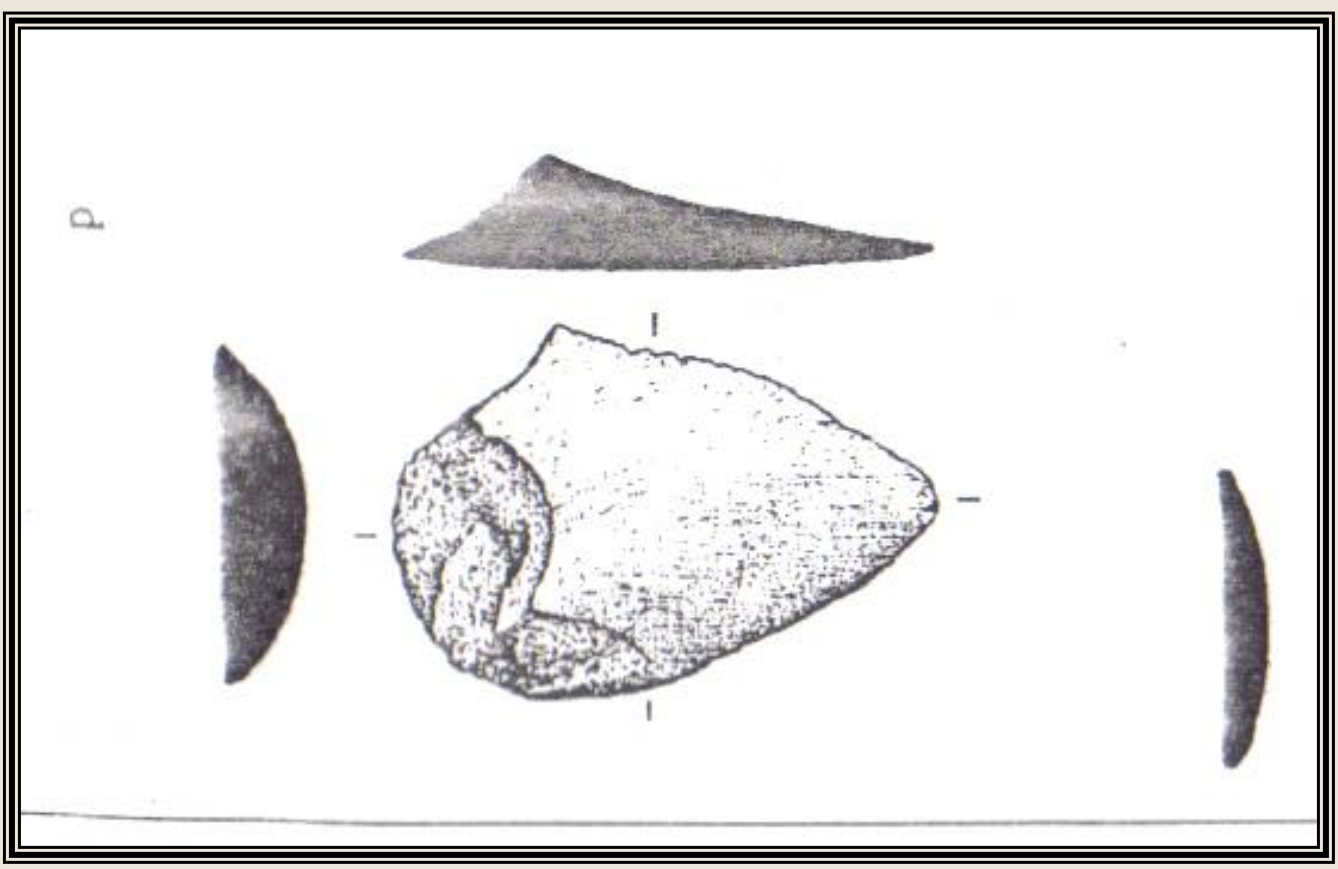
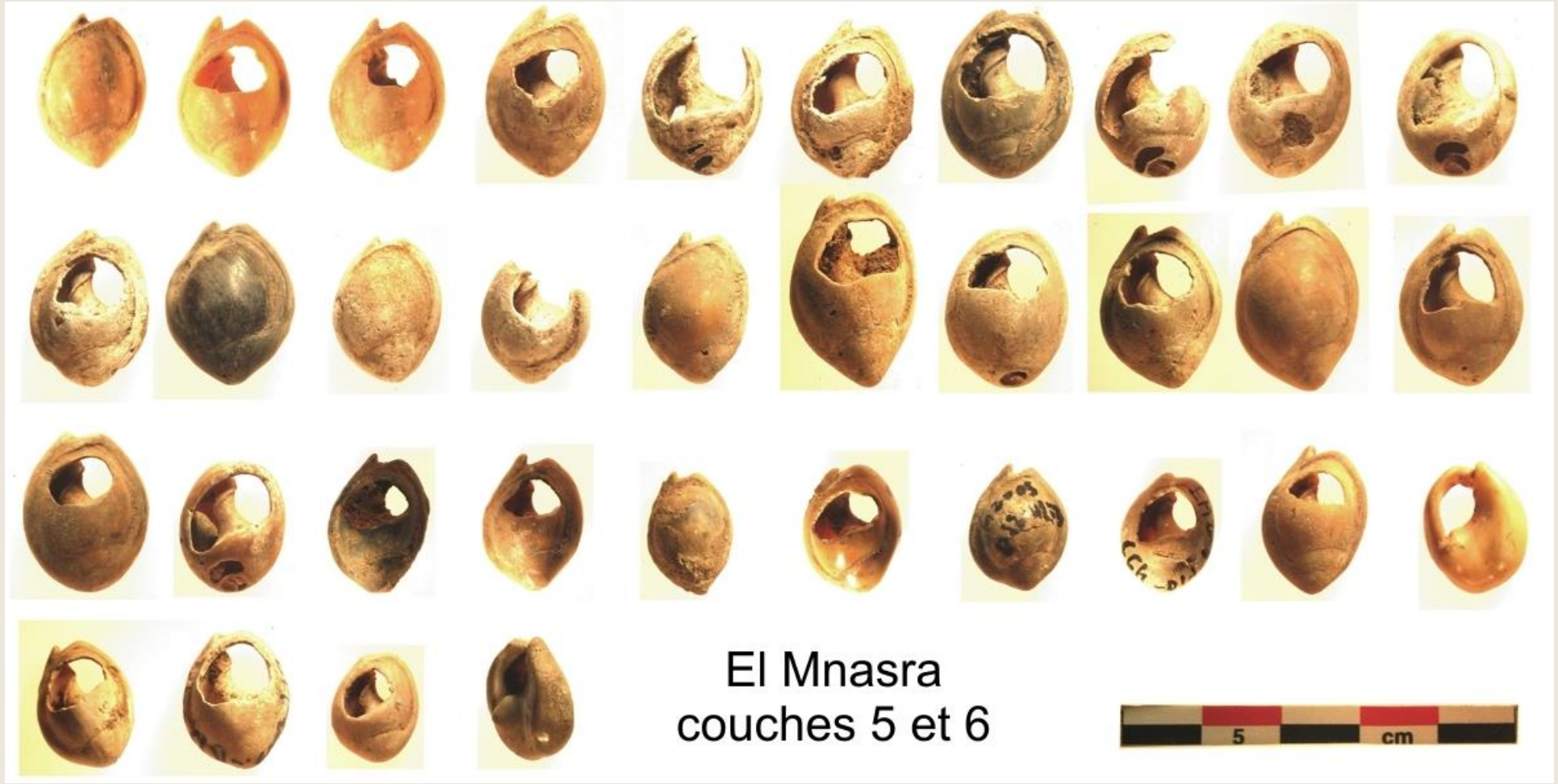




El Mnasara - Atérien


El Mnasra
couches 5 et 6
5
cm

Initial insights into Aterian hunter–gatherer settlements on coastal landscapes: The example of Unit 8 of El Mnasra Cave (Témara, Morocco)

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ABSTRACT

Coastal adaptations and the exploitation of marine resources are important topics in the study of the human evolution as certain other human behaviors may be linked to them: large group size, low mobility, complex technology and wide-ranging gifting or exchange. It is therefore essential to characterize the socio-economic organization of Aterian hunter–gatherers in coastal landscapes. The example of Unit 8 of El Mnasra Cave provides some initial insights into the economic organization of Aterian groups living on the Atlantic coastal landscapes of Morocco through a combination of zooarchaeological and stone tool industry data. The lithic industries include tanged tools, which in fact encompass a mosaic of tools (points, scrapers, unmodified edges, etc.) having a long use-life and high mobility. The lithic industries also present a fragmented reduction system associated with a large range of mainly local raw materials. The lithic assemblages are thus very flexible and include multifunctional-tools. Aterian hunter–gatherers consumed a broad range of terrestrial resources (small, medium and large ungulates, tortoises) as well as coastal ones (mollusks). The artifacts (faunal remains, lithic and osseous industries, hearths, ornaments in *Nassarius* sp. shells pigments) reflect diverse activities, showing that El Mnasra Unit 8 is not a single-activity site. The low density of archaeological artifacts, the small number of faunal species exploited by humans and the fragmented lithic reduction system indicate brief occupations.

Fig. 1. North Africa main Middle Stone Age sites (1: Bizmoune, 2: Djebel Irhoud, 3: Casablanca Region [Felins Cave; Gazelle Cave], 4: Rabat-Témara Region; 5: Mugharet el Aliya, 6: Benzu Rockshelter, 7: Ifri n'Ammar, 8: Taforalt, 9: Rhafas, 10: Les Phacochères; 11: Oued Djebbana; 12: Aïn el Guettar, 13: Jebel Gharbi; 14: Haua Fteah).

Fig. 2. Examples of tanged tools from Unit 8 of El Mnasra (Photo

Table 1
Typological list of the Unit 8 of El Mnasra.

Type	N
Chopper	10
Chopping tool	4
"Couteau à dos naturel"	5
Retouched flake	8
Retouched blade	3
Retouched bladelet	3
Denticulate/Notched	14
Side scraper	35
Perforator	1
End-scraper	4
Burin	1
Composite tool	1
Tanged flake	11
Tanged end-scraper	1
Tanged point	3
Tanged side scraper	5
Total tanged	**20**
Flake core	38
Discoid core	2
Laminar core	3
Levallois core	8
Micro-levallois core	7
Total core	**58**
Hard hamer	4
Levallois flake	21
Levallois blade	3
Levallois point	3

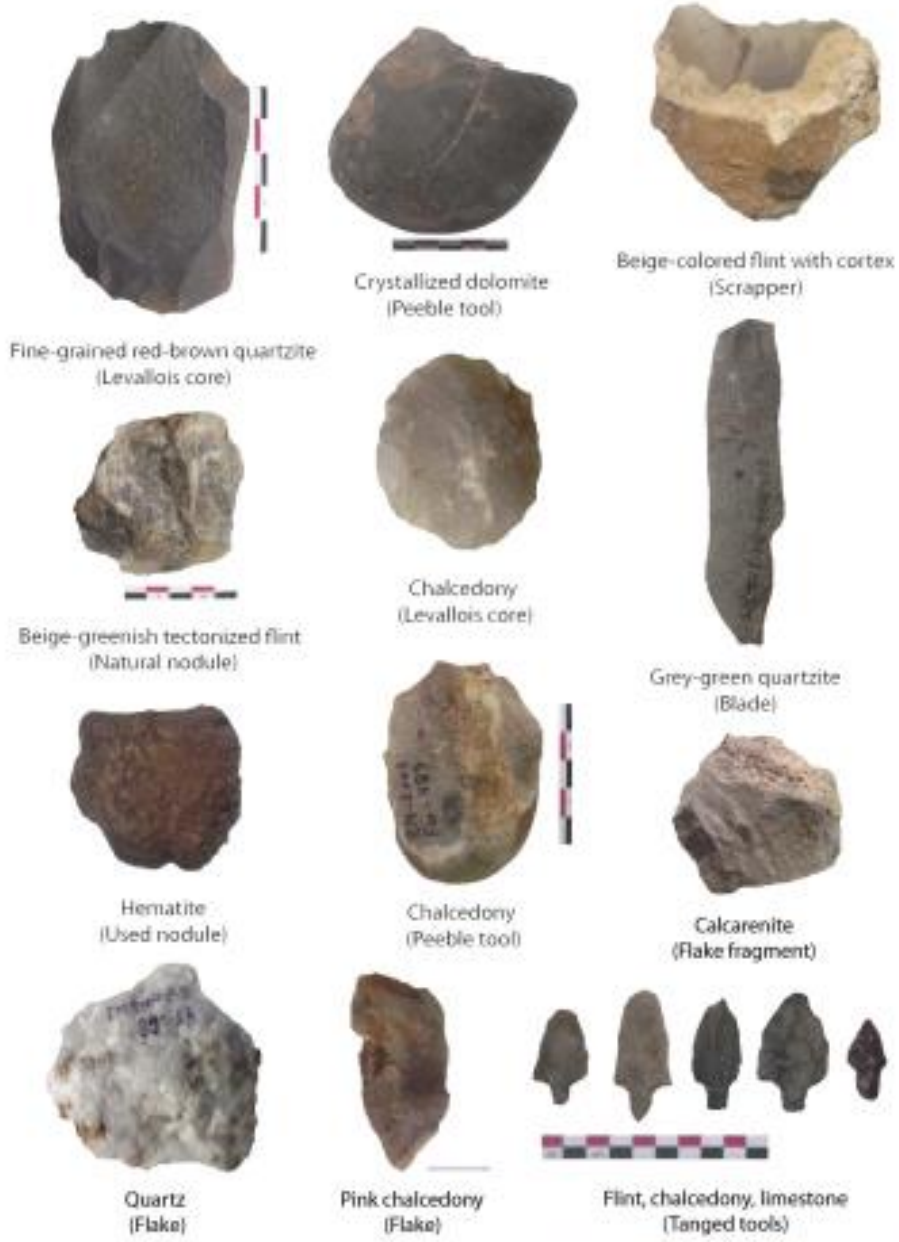


Fig. 3. Raw material diversity in the Aterian lithic industry of El Mnasra (modified from Morala et al. (2012) or El Amrani El Hassani and Morala (2012)).

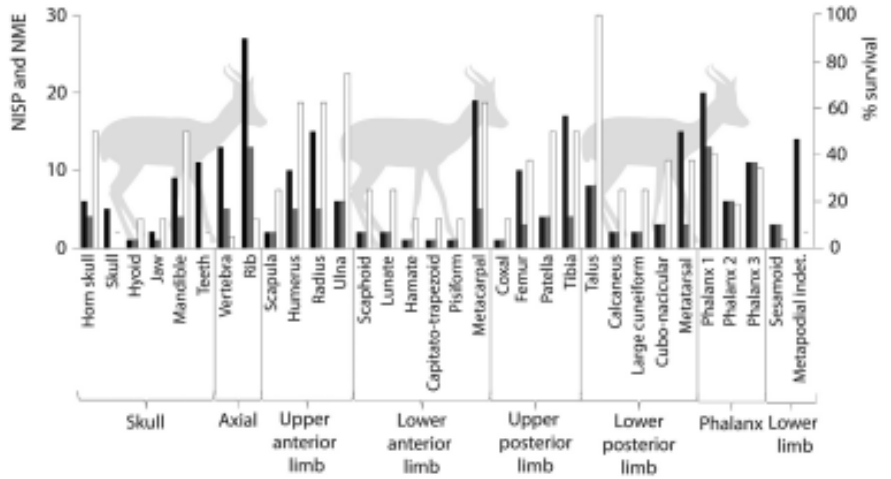


Fig. 4. Anatomic skeletal profiles of mammals size 1 cf. ungulates size 1 in NISP, NME and survival % (very young individuals not included) (black: NISP; grey: MNE; white: % of survival).

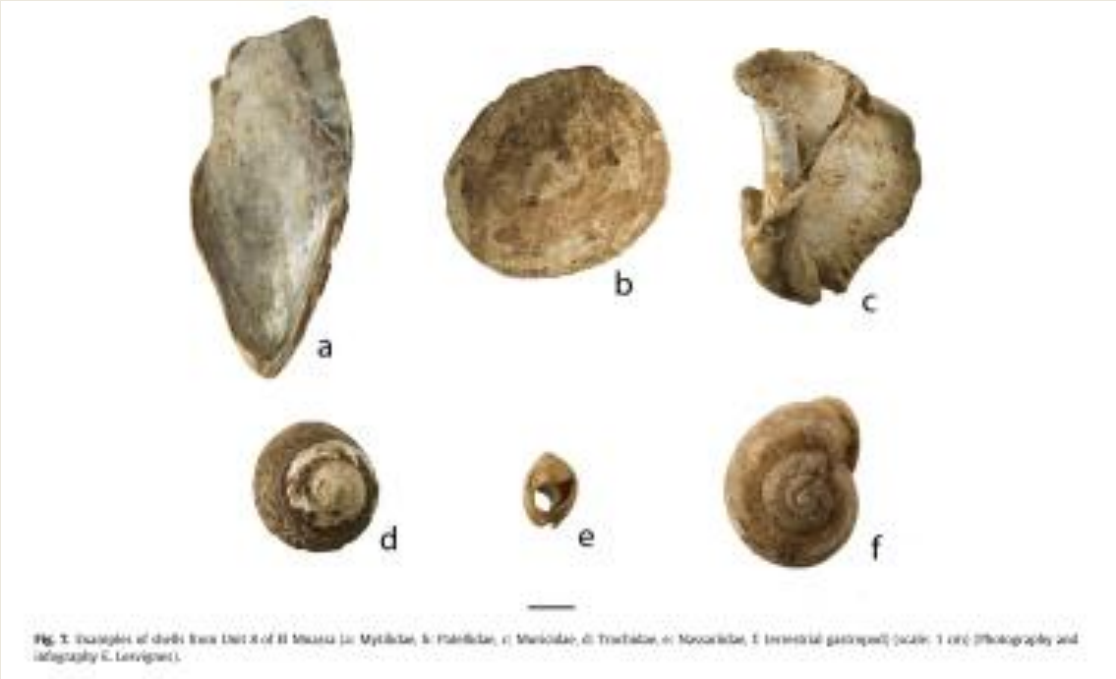


Fig. 3. Examples of shells from Unit II of El Mnasra (a: Mytilidae, b: Patellidae, c: Muricidae, d: Trochidae, e: Nassariidae, f: terrestrial gastropod) (scale: 1 cm) (Photography and infography E. Lemignan).

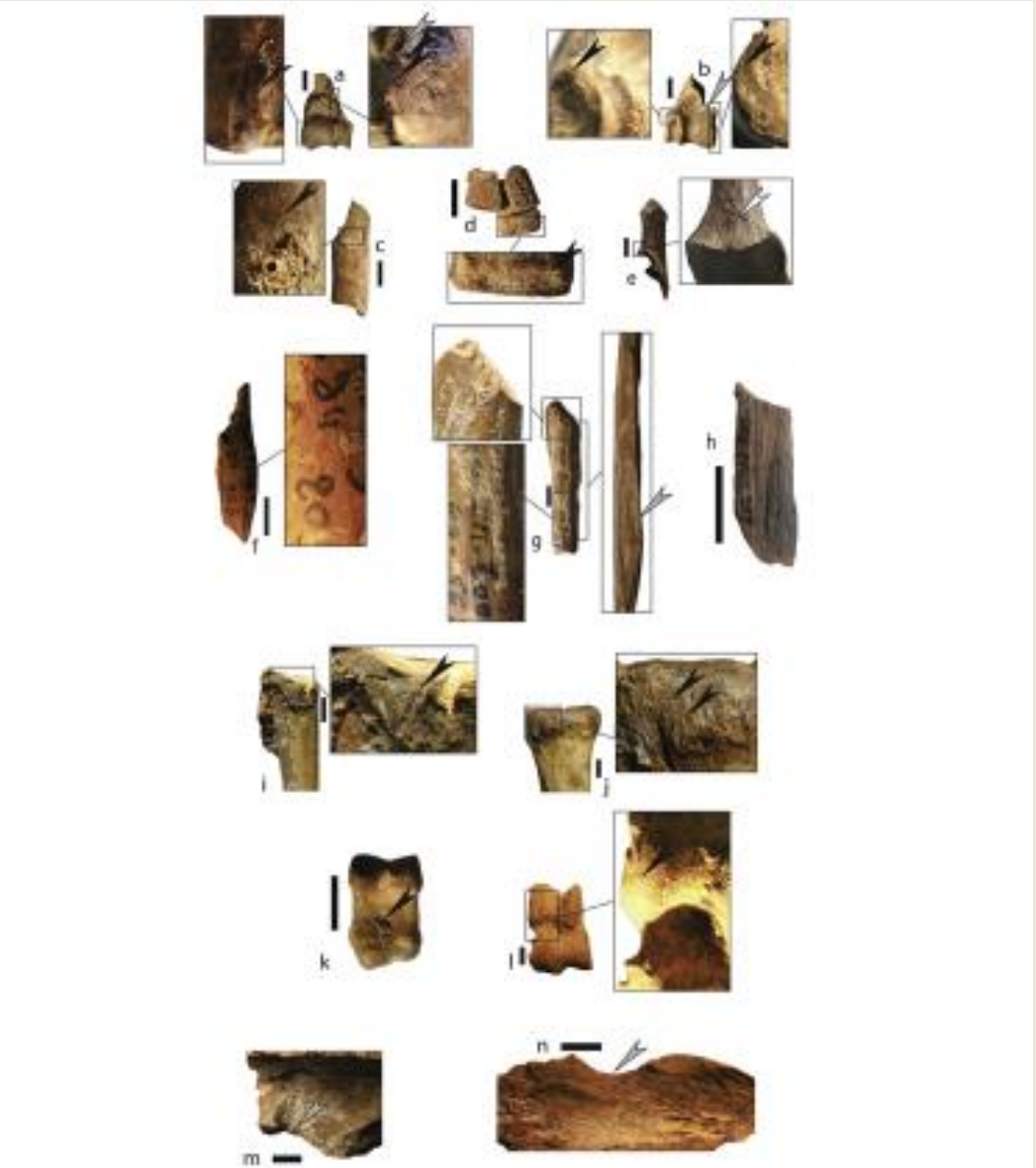
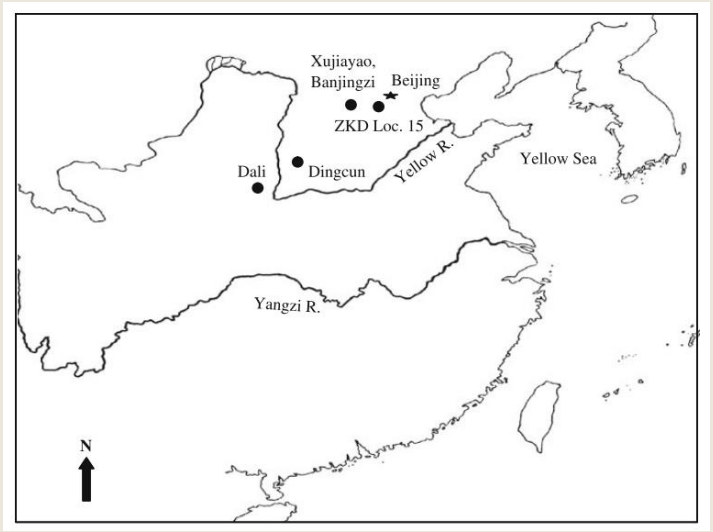


Fig. 5. Anthropogenic marks observed on bones of Unit II of El Mnasra (black arrow: cut-marks; grey arrow: notches; white arrow: hyperextension marks) (a, b: humerus distal portion of gazelles; c: humerus shaft "cylinder" of gazelle; d: carpal bones of gazelles; e: ulna of gazelles; f: bone fragment with scraping marks; g: bone tool on a gazelle tibia shaft fragment with scraping marks, large notch and removal of material; h: bone fragment with scraping marks; i, j: metapodial of hevids; k: phalanx of rabbit; l: talus of rabbit; m, n: long bone of large ungulates) (scales: 1 cm) (Photography and infography E. Campmas).

The Middle Paleolithic in Asia

Abstract The criteria to define the Middle Paleolithic in East Asia have traditionally been presence/absence of archaic *Homo sapiens* fossils, biostratigraphy, lithostratigraphy, the Middle-Late Pleistocene transition, and lithic technology. In this paper,

Norton *et al*., 2009



When Western paleoanthropologists began working in East Asia in the early part of the 20th century, they applied the three-stage system to the Paleolithic archaeological record, where it came into standard usage (Gao and Norton 2002). However, Western scientists, and most Chinese scholars who studied directly under them, never took into account the characteristics that were distinctive of the eastern Old World Paleolithic record (Gao 2000; Gao and Norton 2002). Traditionally, the transitions between the Lower, Middle, and Upper Paleolithic in East Asia have been based on biostratigraphic and/or geologic ages and the presence/absence of distinct hominin taxa. For instance, the Middle Paleolithic in China is associated with archaic *Homo sapiens,* particularly in northern China (Gao 1999; Gao and Norton 2002). The Middle Paleolithic in South China is more difficult to define because of the paucity of transitional fauna, poor chronometric dating sequences, and the presence of only a few hominin fossil localities dating to that time period. Nevertheless, more than 40 sites in China and a few in Korea have been assigned to this cultural category (Bae 1997; Norton 2000; Gao and Norton 2002).

Nevertheless, as we have argued elsewhere (e.g., Gao 2000; Gao and Norton 2002), defining a distinct Middle Paleolithic period primarily depends on the archaeological evidence, with biostratigraphy, chronology, lithostratigraphy, and presence/absence of archaic *H. sapiens* only indirectly related. Results of previous lithic analyses found little evidence for a distinct Middle Paleolithic in East Asia (Gao and Norton 2002). For instance, most lithic specialists originally considered the ZKD Loc. 1 stone toolkit to be typologically representative of the Chinese Lower Paleolithic, and the ZKD Loc. 15 lithics to be Middle Paleolithic (e.g., Zhang 1987). However, comparative analysis of the lithics from these two sites indicated that even though there were general trends in the composition of the assemblages, they were not distinct enough to be considered technochronologically separate (Gao 2000; Gao and Norton 2002).

Conclusions

The Middle-Late Pleistocene shift cannot be used as evidence for distinguishing between the Lower and Middle Paleolithic in East Asia. Furthermore, the three-stage transitional model for the Paleolithic is not applicable in this region of the Old World. The "Early" and "Late" Paleolithic are more apropos designations to provisionally describe the behavioral history of Pleistocene hominins in East Asia.

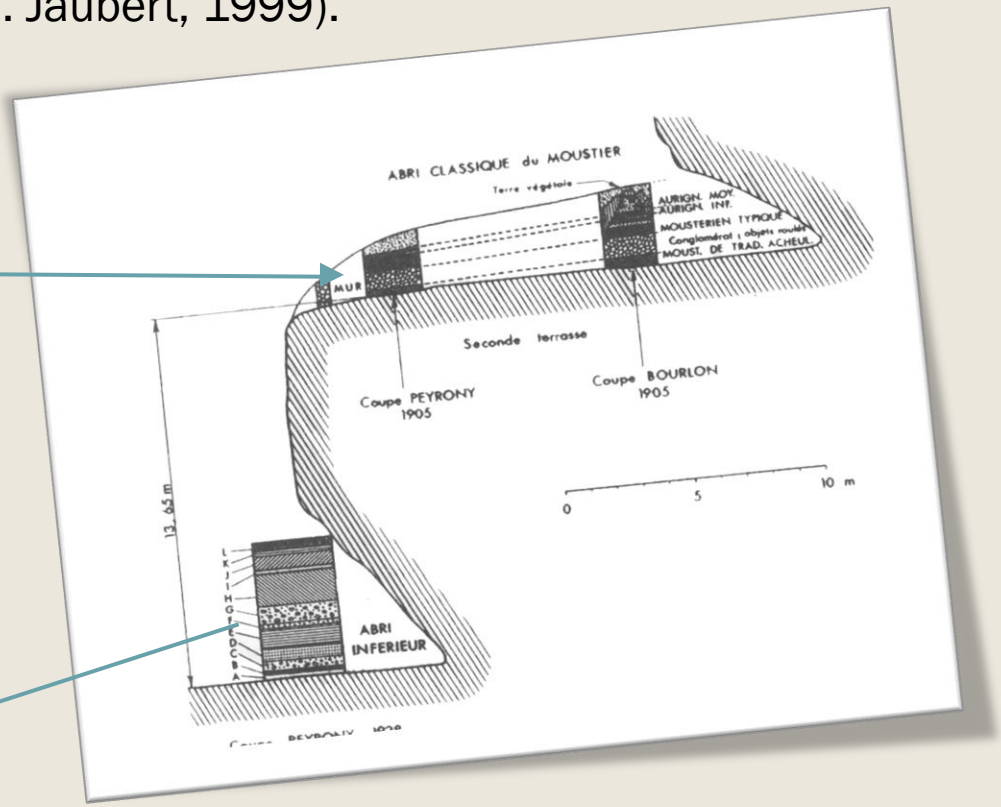
tical and methodological approaches. As such, it should be clear that terminology and cultural constructs that were applicable when paleoanthropological research began in East Asia (in the early part of the 20th century) are often not appropriate now given the current state of knowledge. The focus of this paper, using the Middle-Late Pleistocene transition as a criterion for the East Asian Middle Paleolithic, is a case in point. Hopefully, our conclusions will prompt scientists

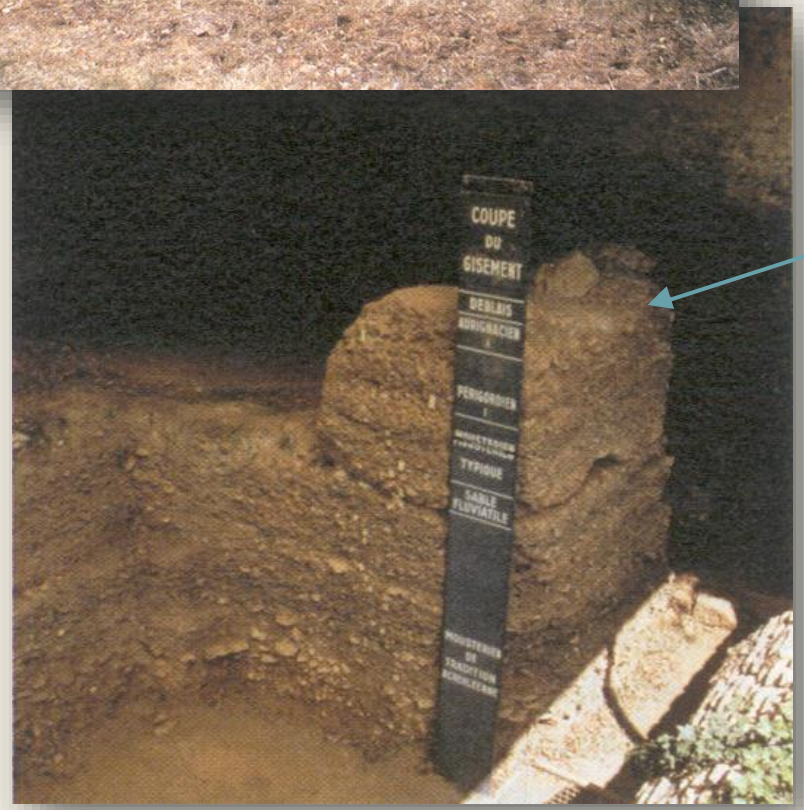
Norton *et al.*, 2009

The Middle Paleolithic of northern Asia is better documented, including actual finds of archaic *Homo sapiens*. The transition to the Upper Paleolithic seems to involve the survival of earlier cultural traits, but the mechanisms and processes are not well understood. Further significant knowledge concerning these periods awaits the development of common methodologies for classification and analysis (Larikev *et al.*, 1987)

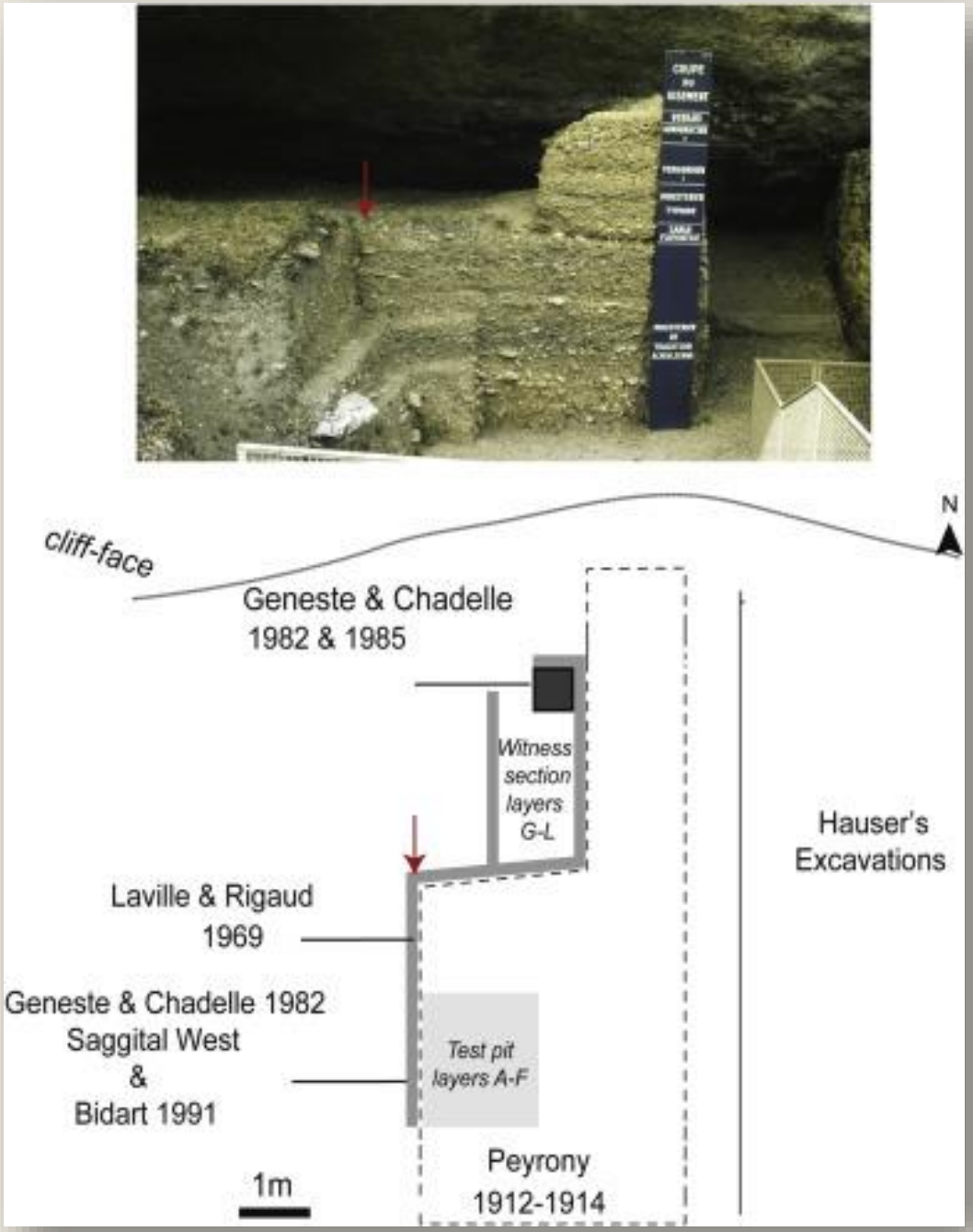
The widespread appearance of prepared core–based industries during the Middle Pleistocene has been argued to represent a significant step in cognitive evolution. Yet recent research has indicated that prepared core technology develops in the Acheulean industries of Africa and Eurasia. Here, the evidence for a similar, in situ development of prepared core technology is described within a number of sites from the Indian subcontinent. The implications for our understanding of the role of hominin cognitive evolution and dispersals during the Acheulean to Middle Paleolithic transition are discussed (James & Petraglia, 2009).

Le Moustier – Dordogne, France
(J. Jaubert, 1999).

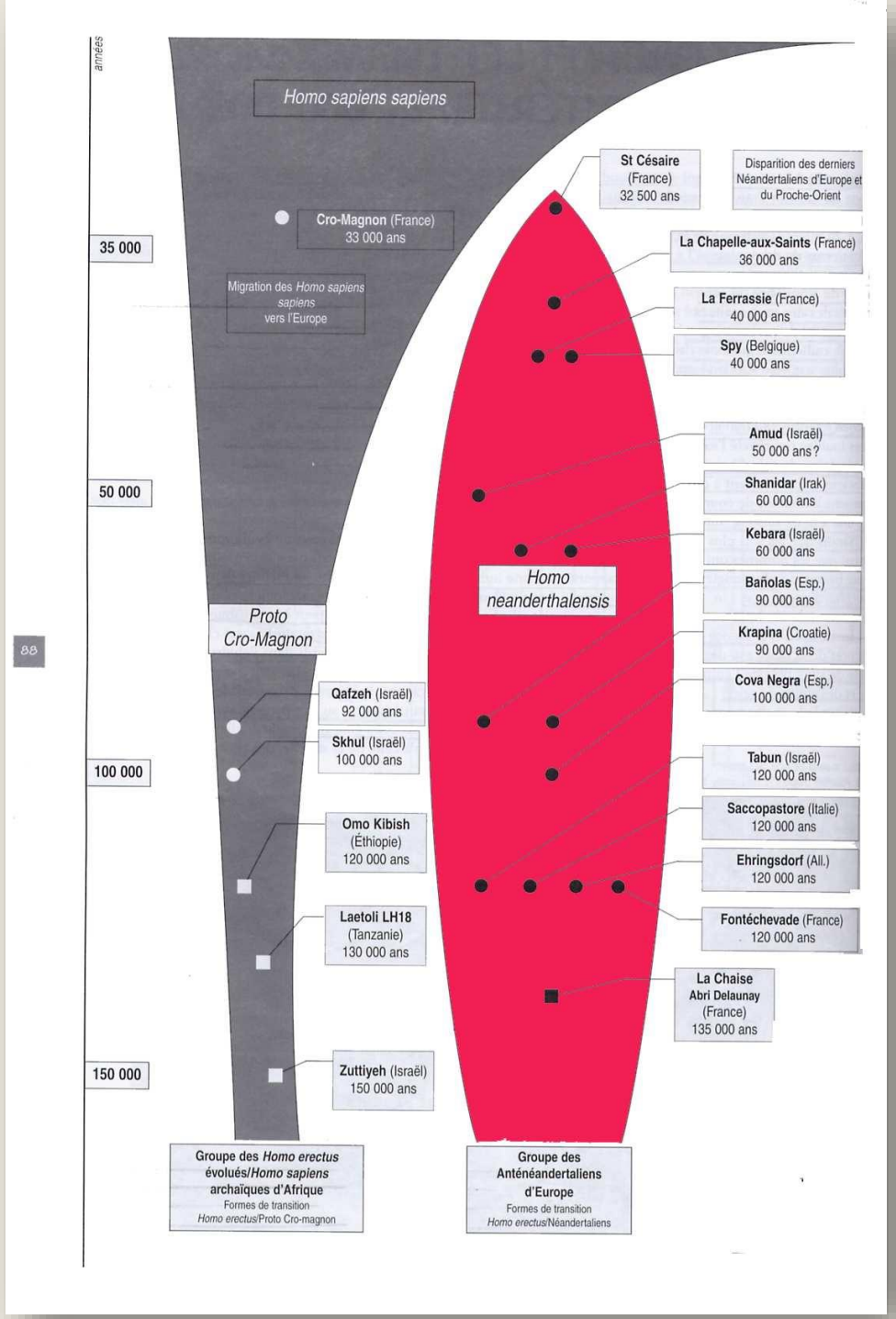


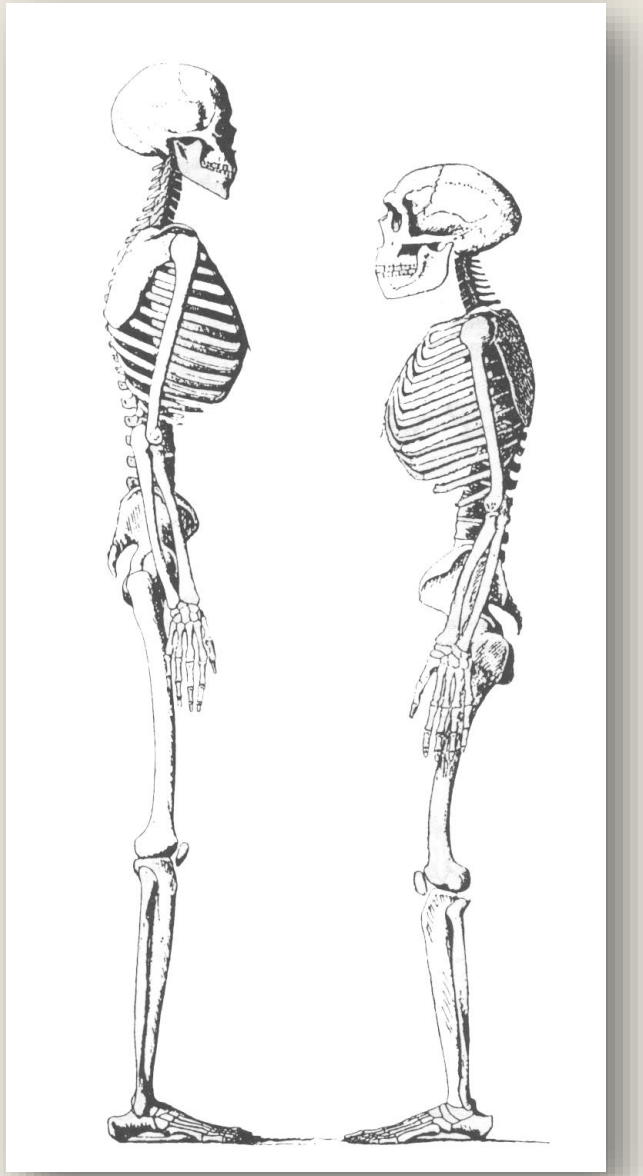


The Mousterian is a Middle Paleaeolitich's *facies*, named by the lithic industries form the « Le Moustier » shelter.



Plan of the site showing the locations of the various samples from Le Moustier analysed here. The red arrows on the plan and photo indicate the same corner of the frontal and sagittal sections. The light grey area indicates the sections straightened by Laville and Rigaud. The photo, reproduced with the kind permission of Ofer Bar-Yosef, was taken during the INQUA visit shortly after the straightening of the sections by Laville and Rigaud. The empty zone in front of the exposed sections is the area excavated by Peyrony (B. Gravina, 2017)

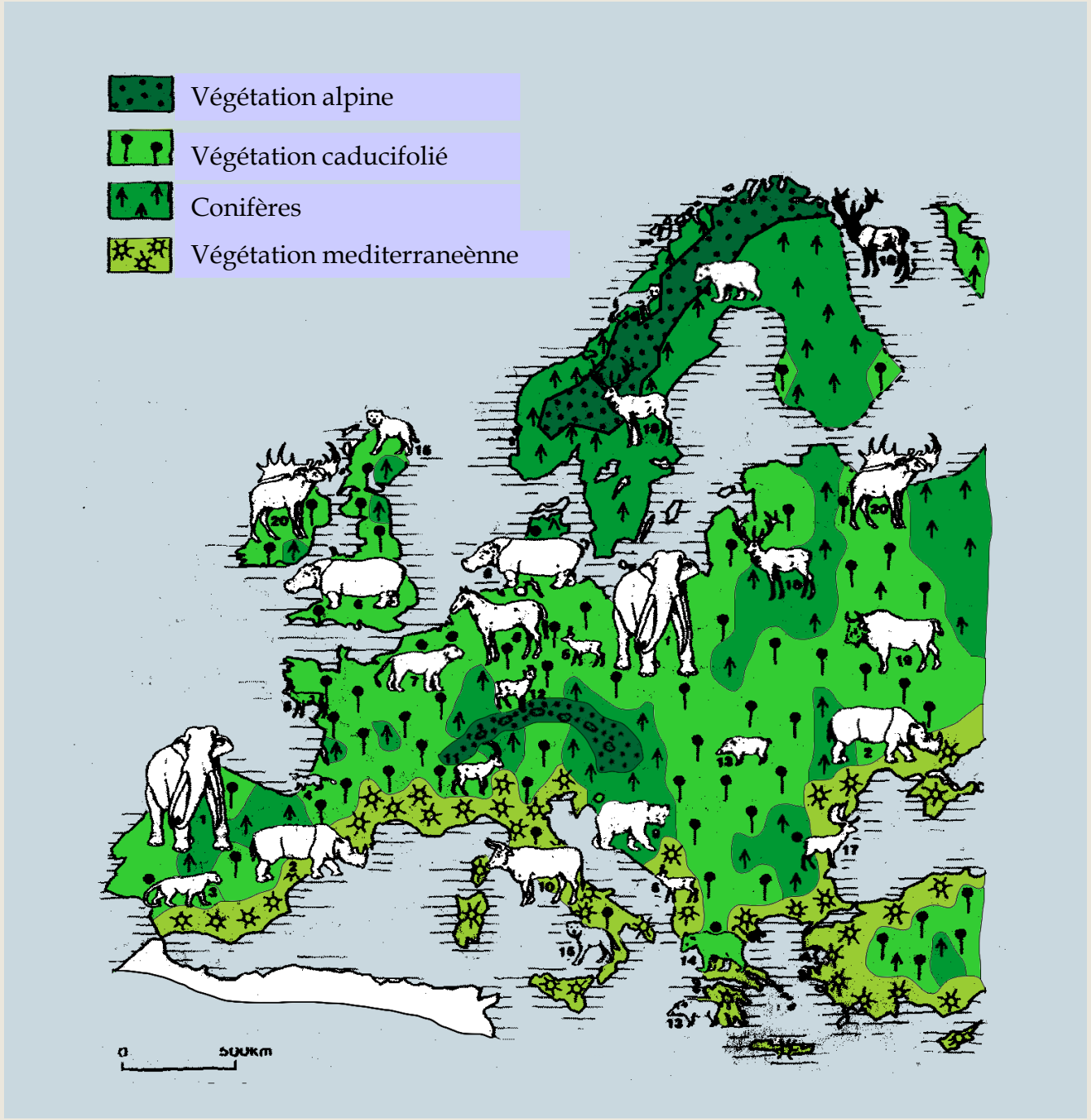




D'après D. Grimaud-Hervé *et alii*, 2001

Distribuzione dei principali resti di *Homo neanderthalensis* e di *Homo sapiens* arcaico (d'après J. Jaubert, 1999).

Distribuione dei principali siti musteriani d'Europa (d'après J. Jaubert, 1999).


Végétation alpine
Végétation caducifolié
Conifères
Végétation mediterraneènne
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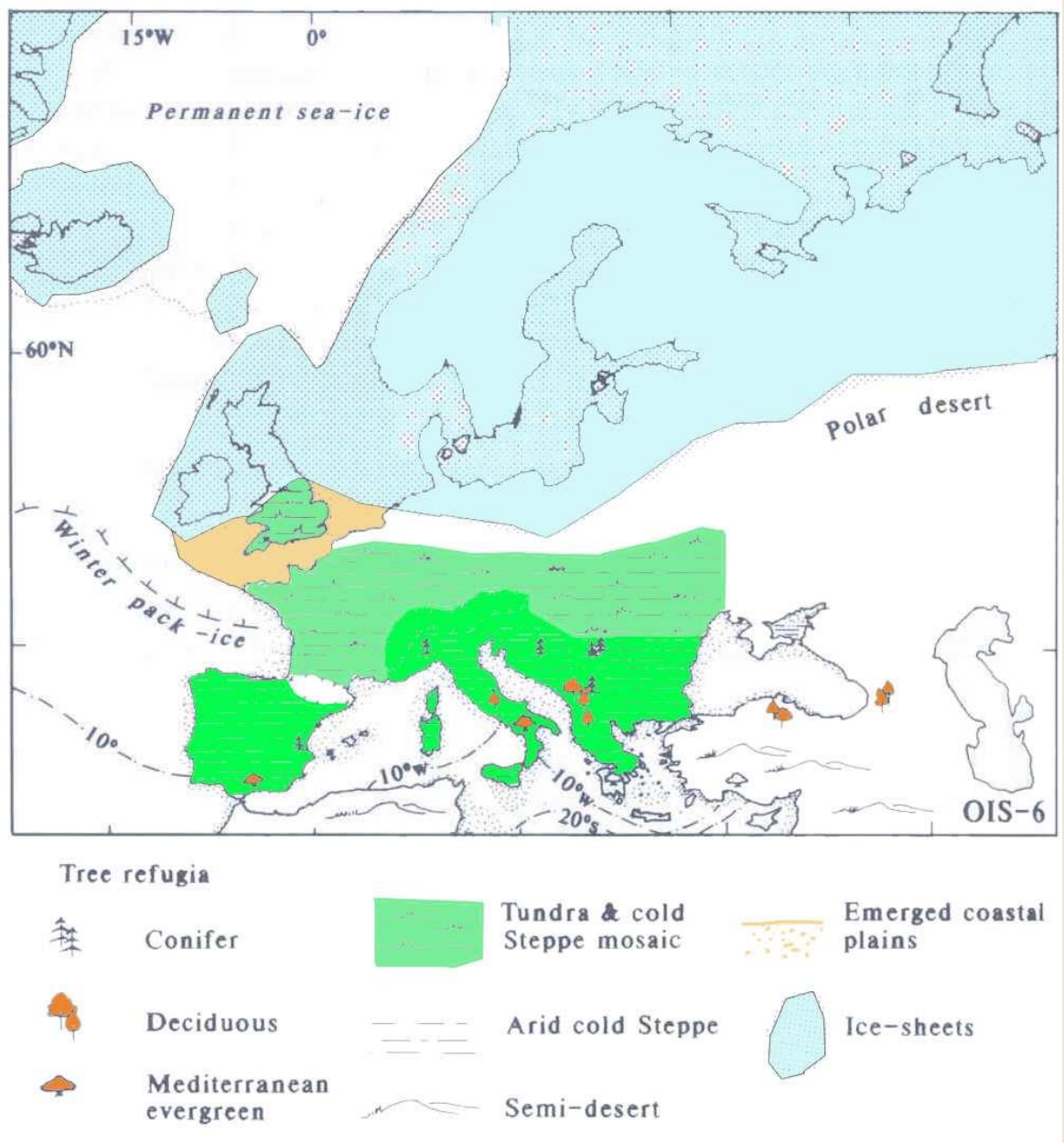
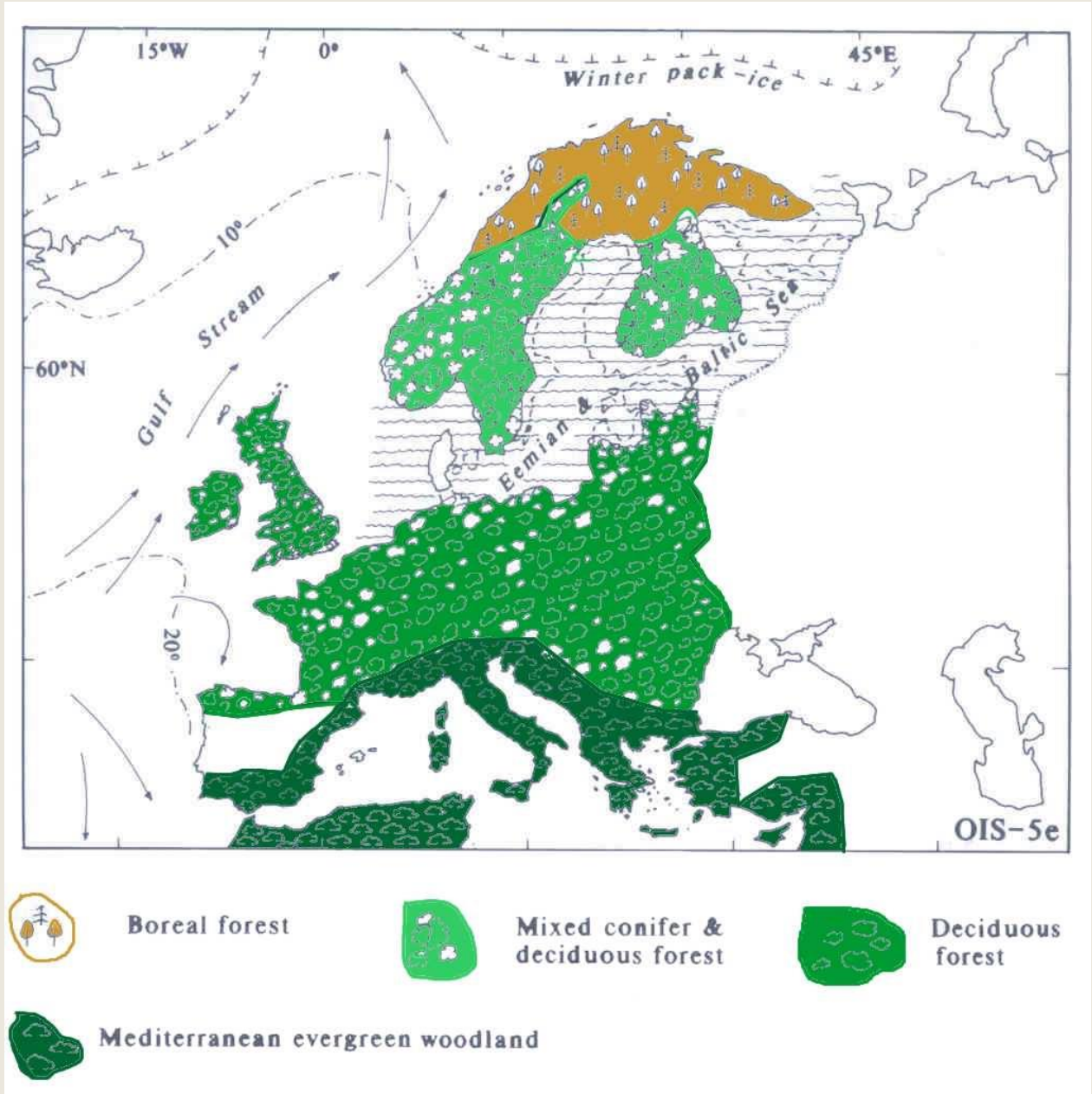
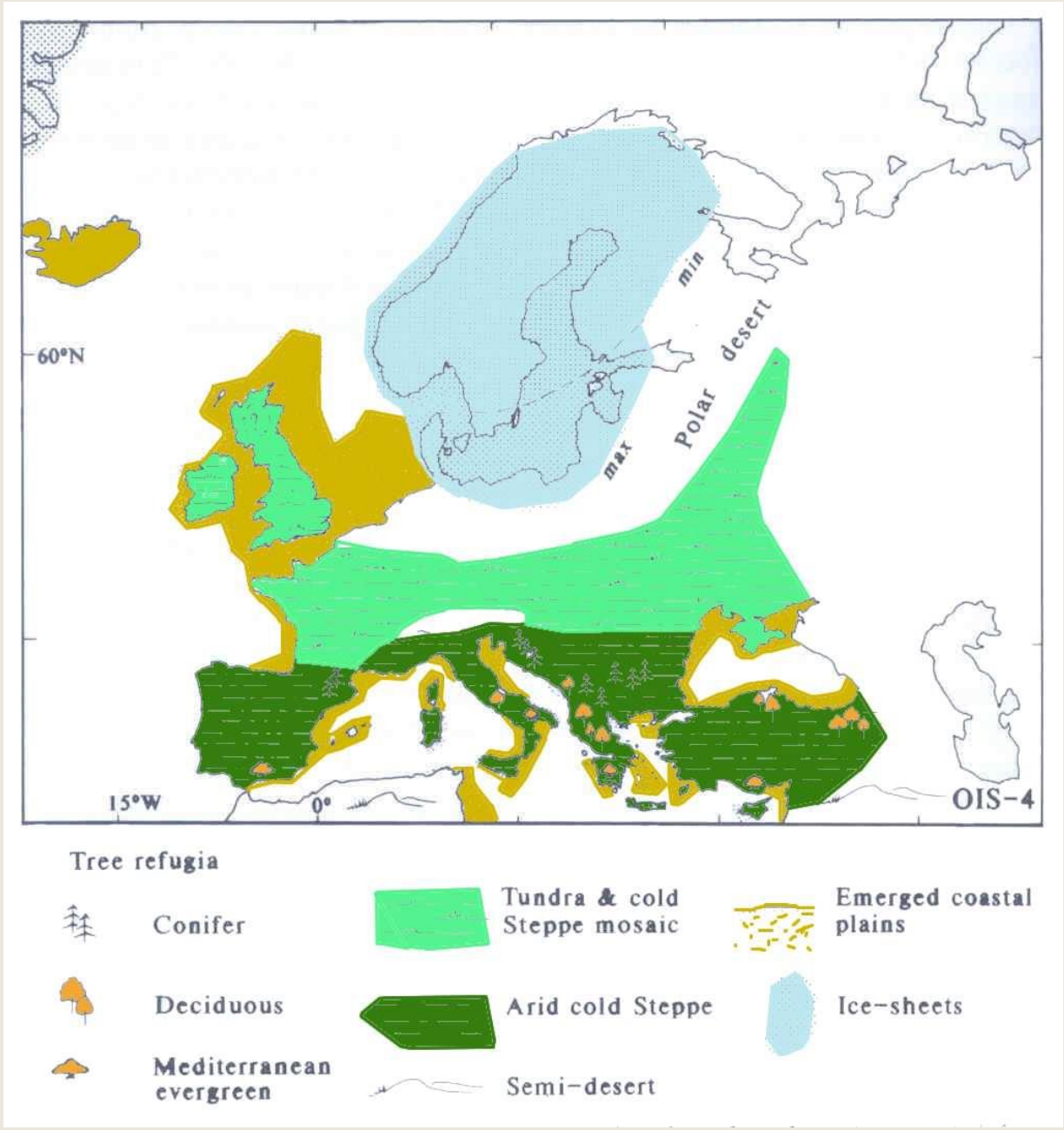
500km



MIS 6, circa150.000 anni fa (d'après Van Andel 1996)



MIS 5e, circa120.000 anni fa (d'après Van Andel 1996)



MIS 4, circa 65.000 anni fa (d'après Van Andel 1996)

I PRINCIPALI METTODI D SCHEGGIATURA DEL MUSTERIANO e del PALEOLITICO MEDIO EUROPEO

SSDA (Forestier, 1993)
Levallois (Boeda, 1994)
Discoide (Boeda, 1998)
Quina (Bourguignon, 1996)

PALÉO – N° 2 - Décembre 1990

IDENTIFICATION DE CHAINES OPERATOIRES LITHIQUES DU PALEOLITHIQUE ANCIEN ET MOYEN

Eric Boëda[1], Jean-Michel Geneste[2], Liliane Meignen[3]

Résumé : La variabilité des systèmes de production lithique du Paléolithique ancien et moyen demeure, tout au moins pour l'Europe occidentale, encore largement fondée sur la succession linéaire, très réductrice, des industries à galets aménagés puis à bifaces (cf. Acheuléen) et, enfin, à débitage d'éclats (cf. Moustérien).
L'approche systémique des chaînes opératoires de cette longue période autorise, dans l'état actuel des recherches, l'identification de plusieurs principes fondamentaux de production d'outillages basés sur le façonnage et/ou le débitage. A des degrés d'analyse différents sont décrites, successivement, des chaînes opératoires de façonnage dont les bifaciales sont les mieux détaillées ; des chaînes opératoires de débitage avec une attention particulière pour les diverses méthodes Levallois et enfin des chaînes opératoires trifaciales, originales, décrites pour l'instant dans le sud-ouest de la France.

Abstract : In Western Europe at least, the variability of Lower and Middle Palaeolithic production systems is founded still largely on the linear succession of pebble tool industries followed by bifaces industries (see the Acheulean) and those characterized by the debitage of flakes (see the Mousterian), though this succession, as a highly reductory scope.
In the present state of the researches, the systemic approach of the processing sequences that occured during this long time span permits to identify several fundamental principles ruling tool production that are based on the use of the and/or of the debitage.
In this paper, the different operating sequences are described in succession at different levels of analysis. The operating sequences among which the differents stages of biface knapping are most detailed, are first dealt with ; they are followed by the debitage operating sequences with a particular focus on the various Levallois methods ; the original trifacial operating sequences that have been described so far in South West France assemblages, are studied finally.

Laminare

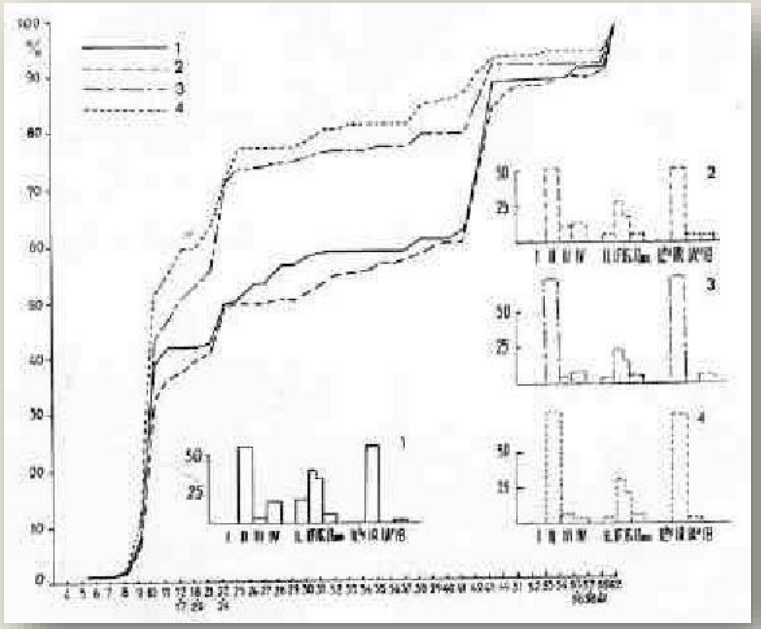
Kombewa

Façonnage bifacciale

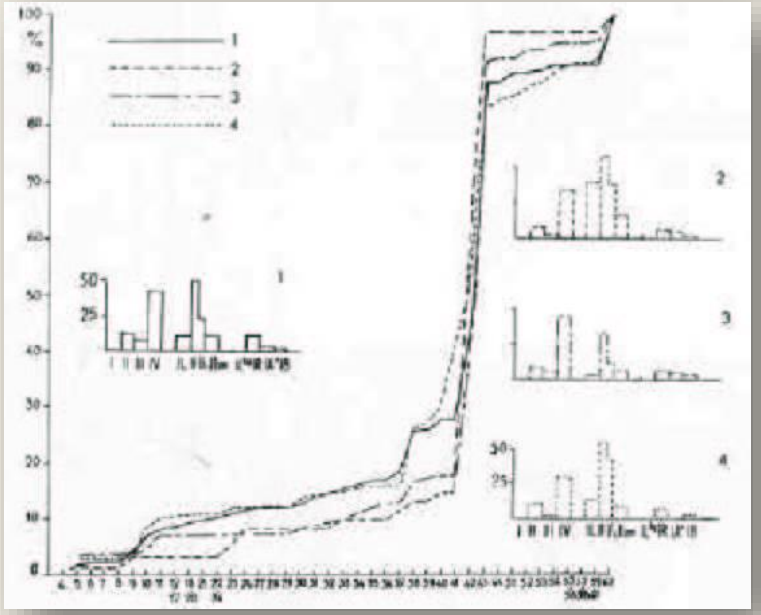
Matrici Trifacciali

MUSTERIANO di TRADIZIONE ACHEULEANA

Tipo A: · percentuale variabile di raschiatoi(20¸45%)
· consistente presenza di denticolati
· raschiatoi tipo Quina rari o assenti
· percentuale di bifacciali in genere > 8% (5¸40%)
· grande varietà di strumenti e buono sviluppo relativo degli strumenti di tipo Paleolitico superiore (grattatoi, bulini,perforatori, troncature)
· percentuale variabile di coltelli a dorso
· percentuale variabile di supporti Levallois

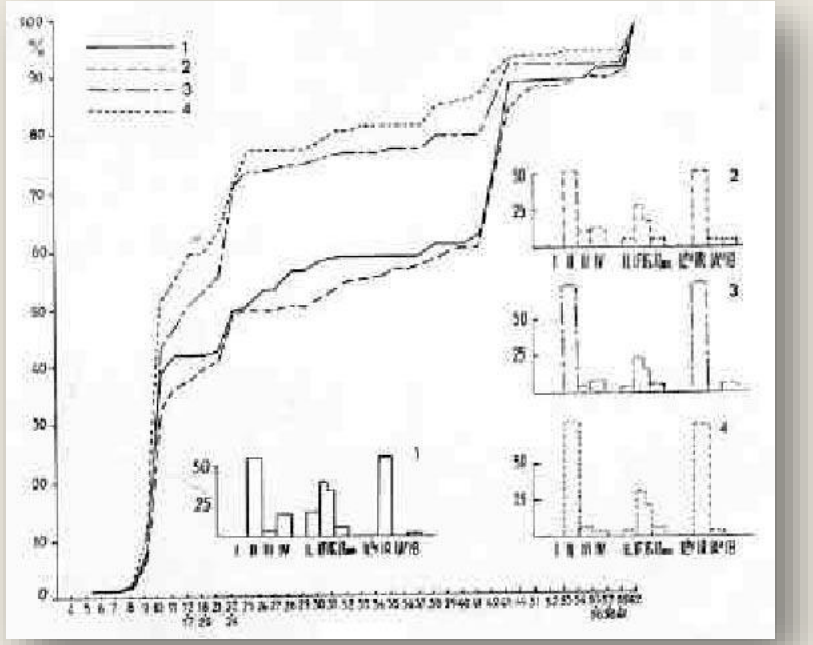


Tipo B: · bassa percentuale di raschiatoi
· percentuali elevate di denticolati
· bassa percentuale di bifacciali, di fattura modesta e di piccole dimensioni
· grande sviluppo dei coltelli a dorso e di strumenti tipo Paleolitico superiore
· percentuale variabile di supporti Levallois
· sviluppo del *débitage* laminare

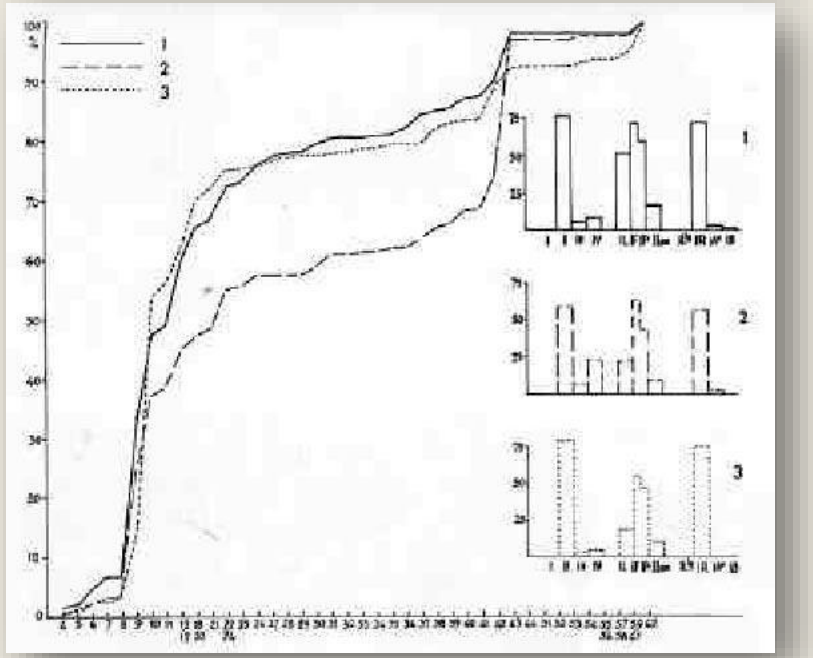


MUSTERIANO CHARENTIANO

Tipo Quina · manufatti ben scheggiati, con tipi ripetitivi
- alta percentuale di raschiatoi (>50% cfr. diagramma cumulativo)
- molti raschiatoi trasversali e di tipo Quina
- percentuali variabili di denticolati
- rari strumenti di tipo Paleolitico Superiore
- bifacciali rari o assenti
- coltelli a dorso rari o assenti
- percentuale molto bassa di supporti Levallois
- talloni lisci di tipo Clactoniano

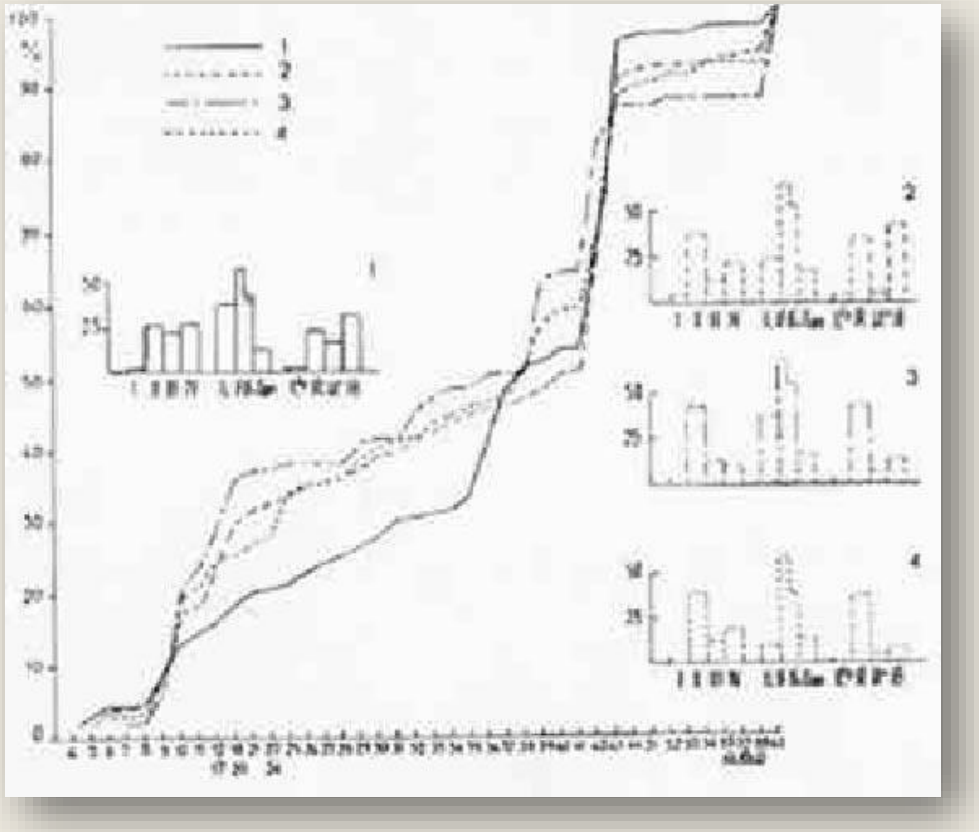


Tipo Ferrassie · Alta percentuale di raschiatoi
- Scarsa presenza di raschiatoi trasversali e di tipo Quina (6¸12%)
- Debole presenza di denticolati
- Bifacciali rari o assenti
- Coltelli a dorso rari o assenti
- *Débitage* Levallois



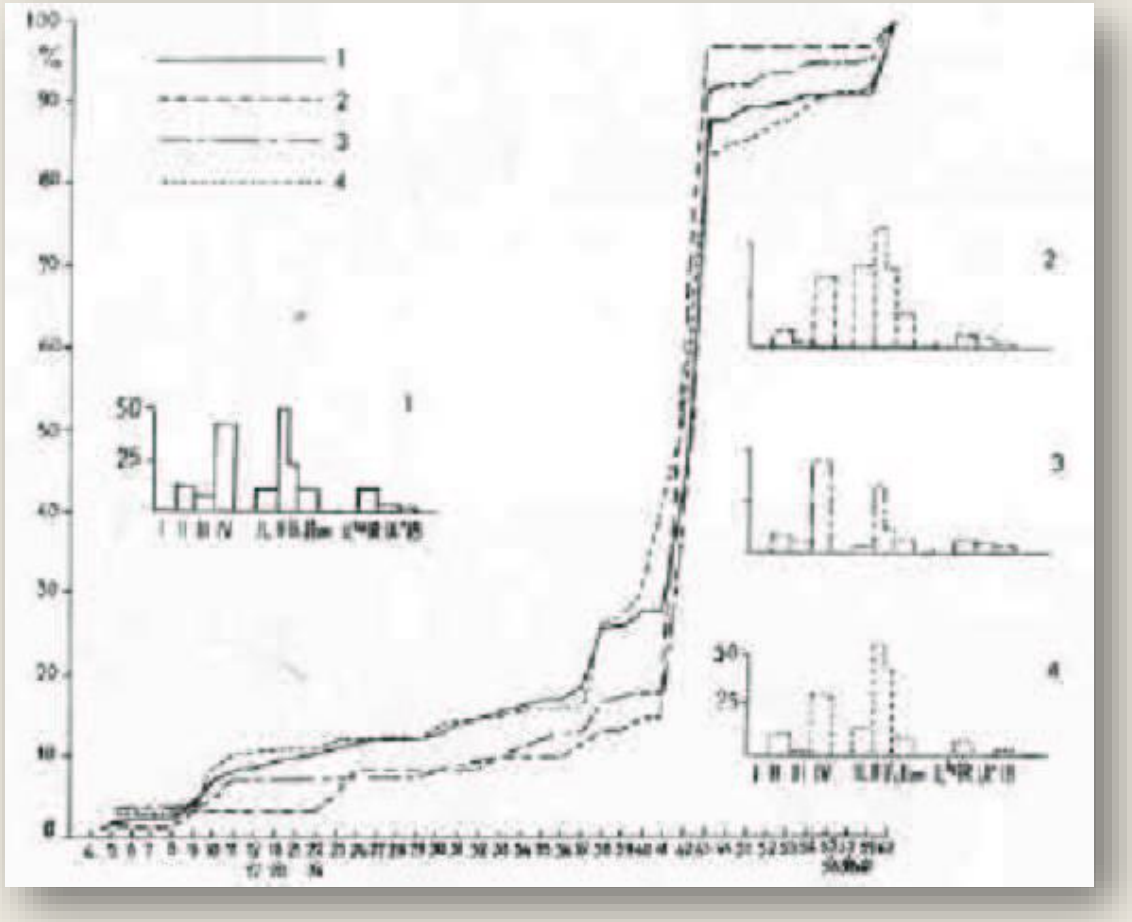
MUSTERIANO TIPICO

- percentuale variabile di raschiatoi (30¸65%)
- rari o assenti i raschiatoi trasversali e tipo Quina
- bifacciali rari o assenti, spesso atipici
- coltelli a dorso rari o assenti, spesso atipici
- frequenti le punte musteriane
- ruolo poco rilevante dei denticolati
- percentuale variabile di supporti Levallois



MUSTERIANO a DENTICOLATI

- bassa percentuale di raschiatoi
- bassa percentuale di raschiatoi tipo Quina
- abbondante presenza di incavi e denticolati
- bifacciali rari o assenti
- coltelli a dorso rari o assenti
- percentuale variabile di supporti Levallois



BORDES: i diversi Musteriani corrispondono a diverse etnie in possesso di tradizione tecnologiche e culturali differenti, coesistite nella stessa regione per millenni ma senza reciproche interferenze.
Questa mancanza di contatti potrebbe essere dovuta a: basso popolamento, ridotti spostamenti stagionali, attaccamento a tradizioni tecnologiche antiche, scarsa predisposizione all'omogeneizzazione culturale.

BINFORD & BINFORD: la varietà delle industrie rappresenta una diversificazione delle attività praticate. Industrie contemporanee differenti sono espressione di attività differenti.
Per lo studio delle industrie del Paleolitico medio propongono una analisi fattoriale:

Fattore = gruppo di tipi che risultano statisticamente collegati tra loro e che variano in modo correlato. Ciascun fattore corrisponde a un certo tipo di attività, generalmente ripartite in:
Maintenance tasks = attività di sussistenza
Extractive tasks = attività volte al procacciamento

Un esempio di ridefinizione……

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Intra-level technological change and its implications for Mousterian assemblage variability. The example of Le Moustier, layer G

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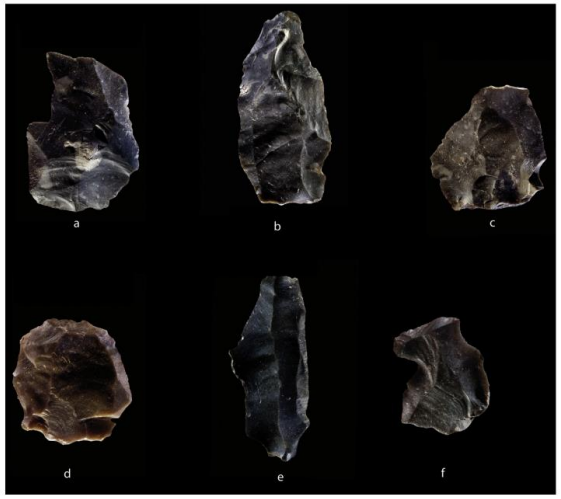

Fig. 5. Levallois flakes from the different G1/G2 samples. a) G2 1991, b) G1 1985, c) G1 1995, d) G2 1991, e) Test-pit 1982 G2, f) Sagittal West 1982 G1. Photos Philippe Jugie, Musée national de la Préhistoire, Les Eyzies.

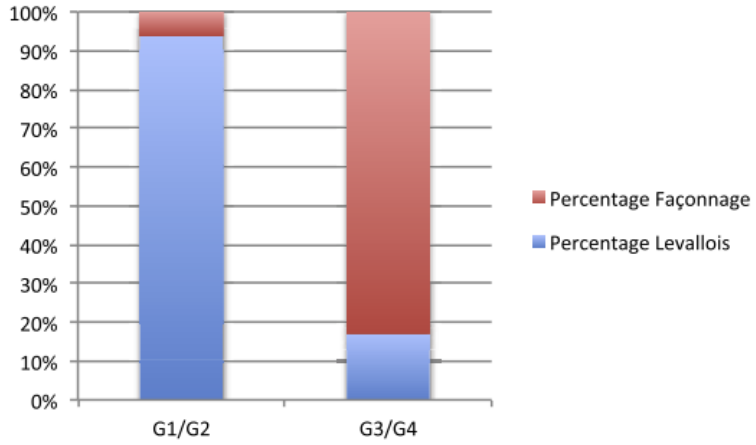

Fig. 4. Percentages of Levallois products and evidence for the resharpening and maintenance of bifaces by grouped sublevels (G1/G2 and G3/G4).

While the patterns of technological change documented here for layer G appear robust, statistically supported, and involve two samples separated by 8 m, new excavations (Dirs. B. Gravina and E. Discamps) at this important site aim to recover a larger sample of both lithic and faunal material, as well as investigating site formation processes and producing a new multi-method chronology. This revision of the Le Moustier sequence forms part of a larger, on-going project to revise well-excavated assemblages attributed to the "MTA" in order to address the issues raised here concerning the definition and interpretation of Mousterian assemblages with bifaces. Only by incorporating their use-context (Claud, 2008, 2014, 2015; Sorresi and Hays, 2003; Turq, 2001; Brenet et al., 2016) and a more refined analysis of various associated blank production methods from well-defined contexts (e.g. Soressi, 2002; Deschamps, 2016; Faivre et al., 2016), can a fuller understanding of the role of bifacial tools and their implication in Neanderthal techno-economic behaviour as well as mobility and subsistence strategies be achieved. The continued use of the designation "MTA" to describe assemblages serves simply to conflate clearly different techno-economic contexts and perpetuate the image of a homogeneous archaeological entity. Given these issues, especially the likely under-identification of evidence for bifacial shaping due to recovery biases as well as research history and analytical focus, is the abandonment of the culturally charged designation Mousterian of Acheulean Tradition not altogether overdue?

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Timescales, space and culture during the Middle Palaeolithic in northwestern France

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Three glacial phases are contemporaneous with the Middle Palaeolithic, as well as the significant climatic deterioration dividing MIS 7. According to available data, human incursions were limited during these periods. Moreover, the erosive dynamics linked to the Pleniglacial phases had a considerable impact on site conservation, and the number of recorded sites only very partially reflects Pleistocene human occupation. It is mainly for these reasons that the Saalian phase of the Middle Palaeolithic is less well known than the Weichselian phase. The situation in northwestern France can only be considered on a very broad scale. From the beginning of the Upper Pleistocene, archaeological sites are more abundant and portray a more complex situation. They point to a degree of cultural consistency during the Early Weichselian, over nearly 40,000 years. During the Lower and Middle Pleniglacial, different cultural groups seem to intermingle or follow each other (Fig. 15). Between 70,000 and 40,000 years, the archaeological data imply that the end of the Middle Palaeolithic was a dynamic and eventful period, just like the rest of this long period of human history.

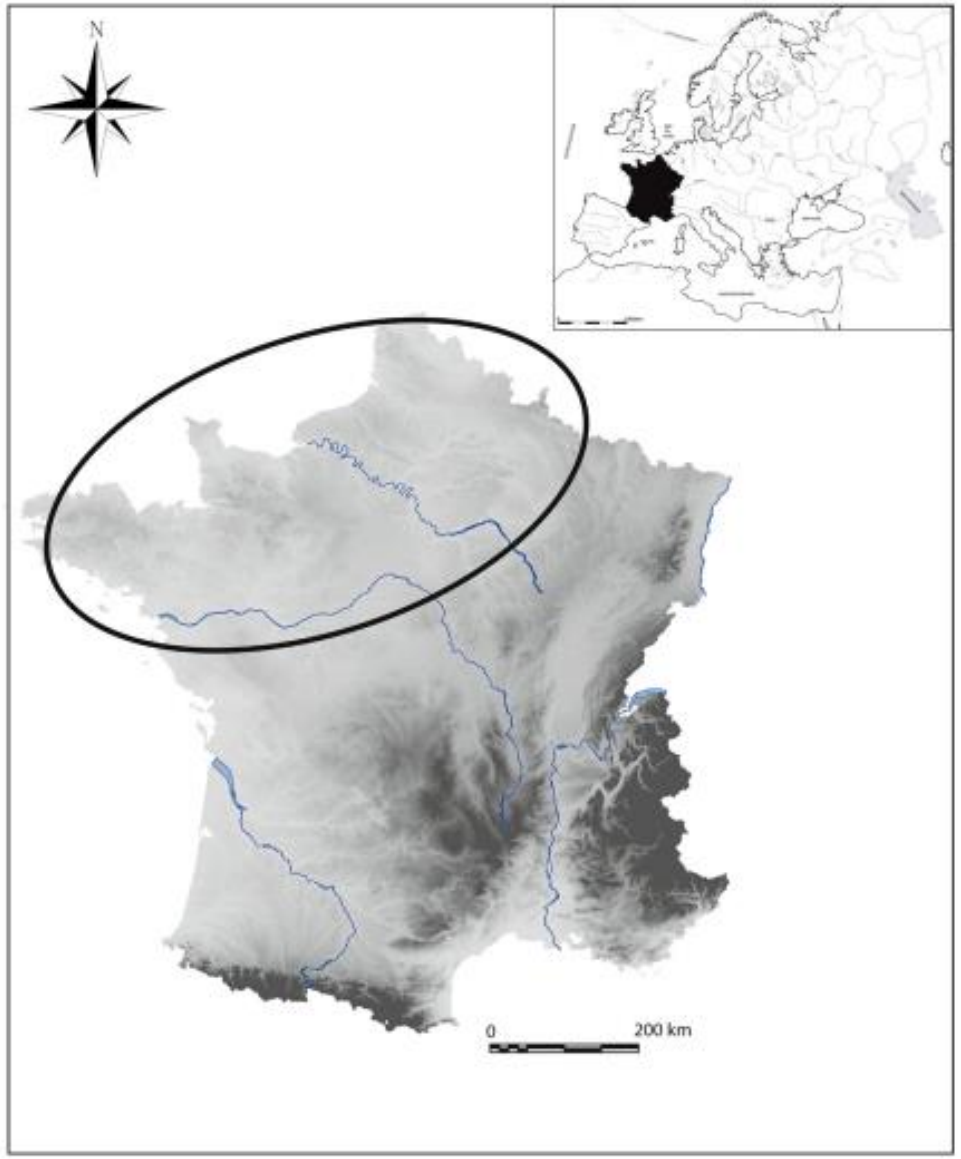
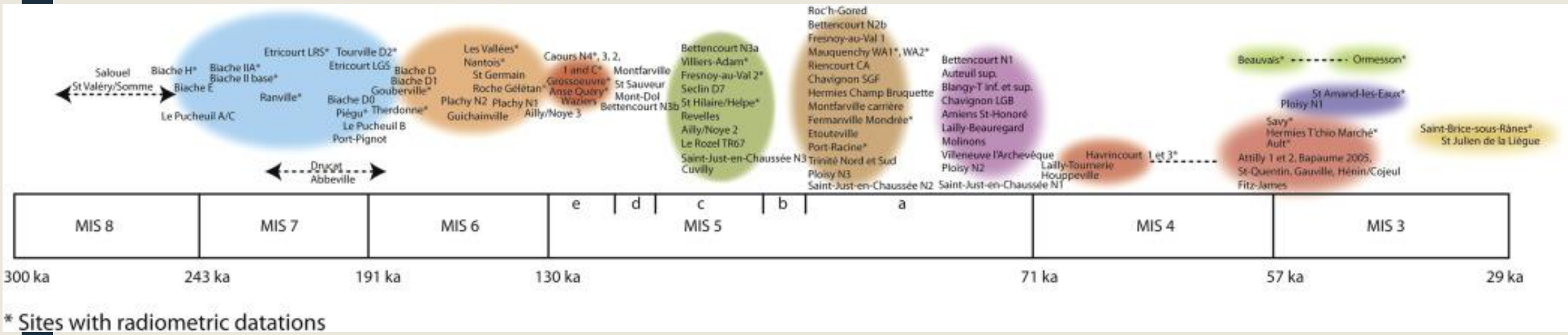
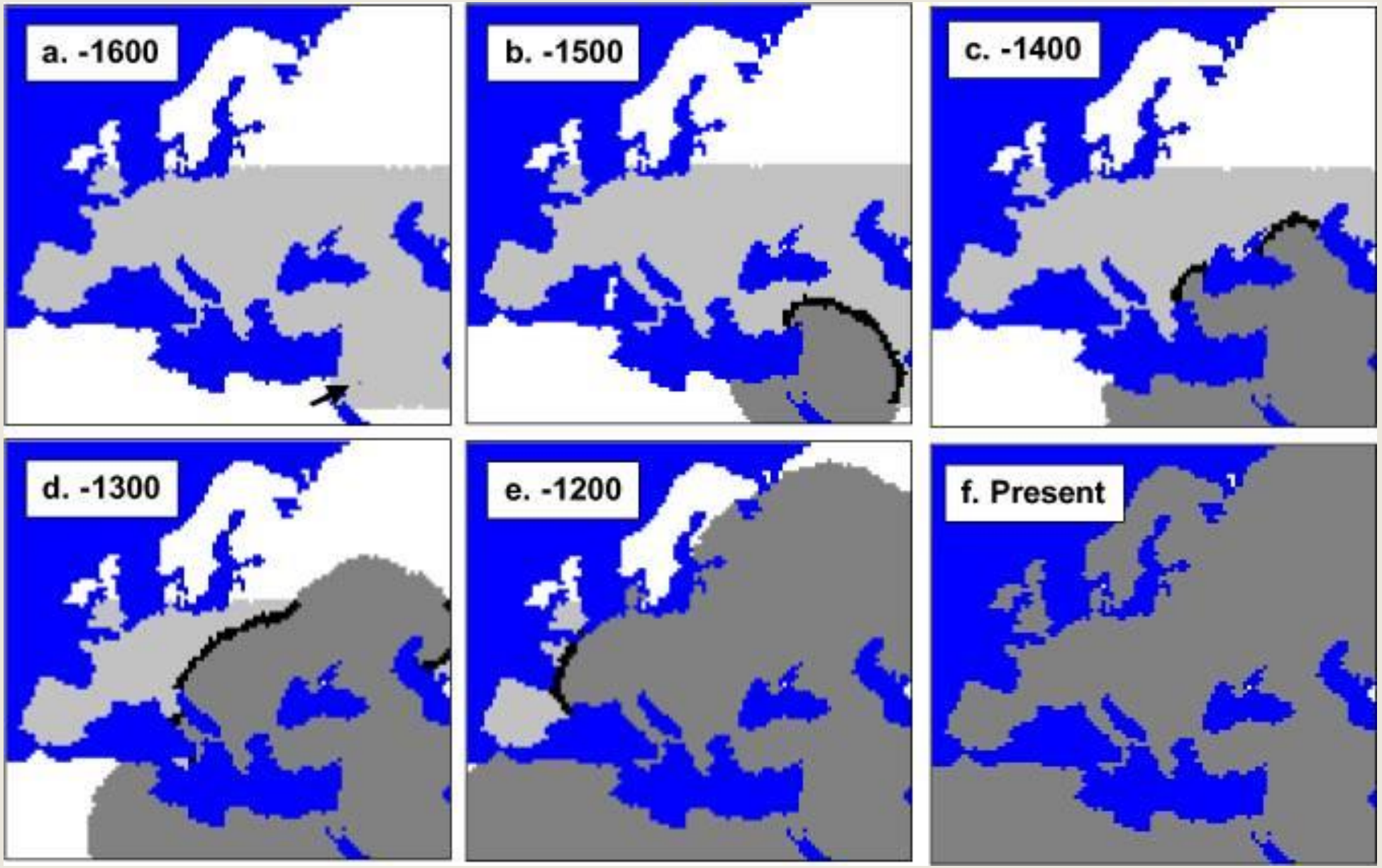


Fig. 1. Location of the zone studied in this paper.



Possible distribution of the different cultural groups during the Middle Palaeolithic in northwestern France.

- Levallois points and flakes
- Levallois points and flakes, blades
- Discoid and Levallois
- Laminar and Levallois
- Levallois points and flakes, blades
- Levallois, laminar and bifaces
- Preferencial Levallois flakes
- Discoid
- Mousterian of Acheulean tradition
- Final Mousterian with bifaces



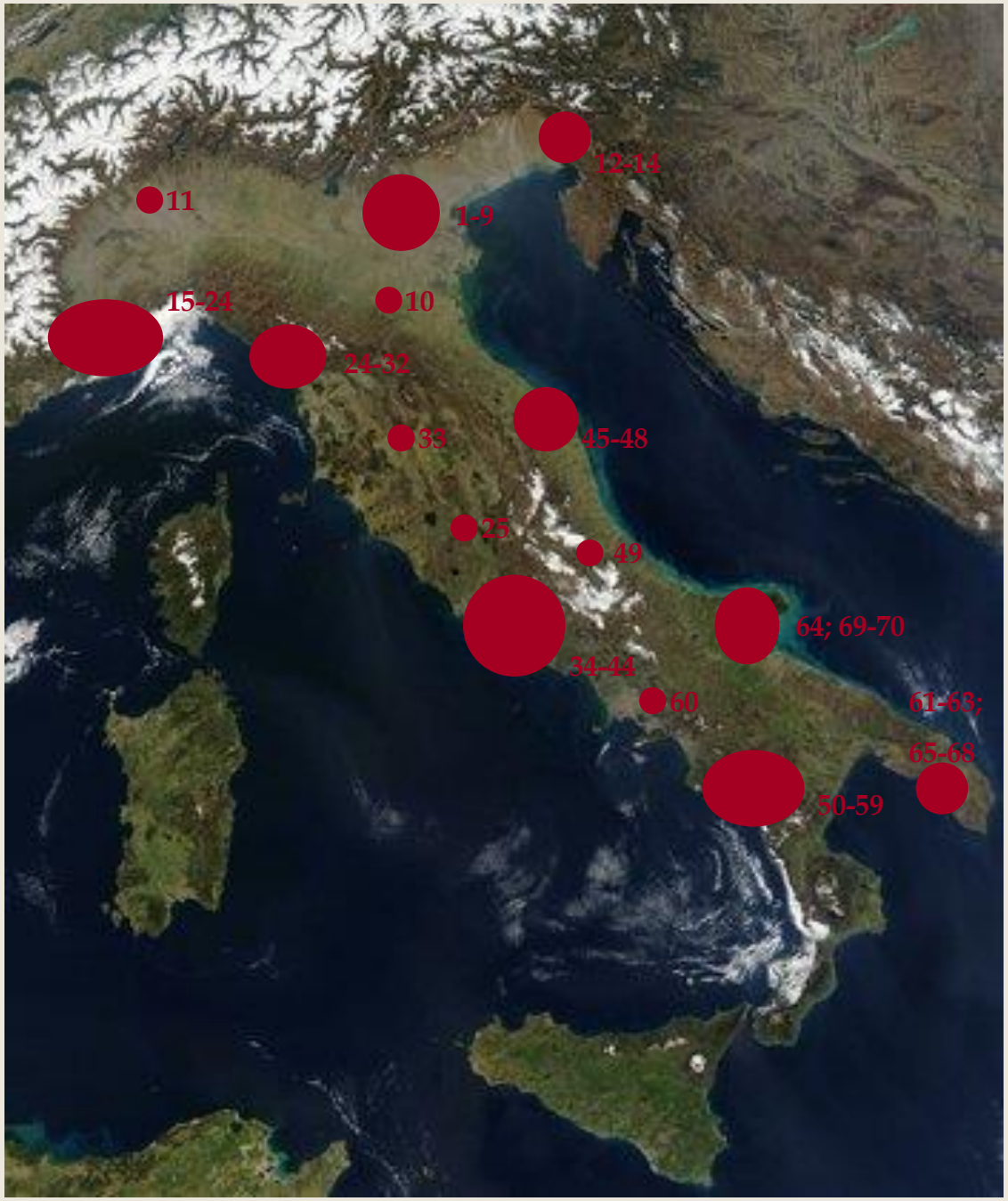
Range Expansion of Modern Humans into Europe from the Near East
Simulations begin 1,600 generations ago, with the area of Europe already colonized by Neanderthals shown in light gray, and an origin of modern human expansion indicated by a black arrow (lane A). Lanes (B–F) show the progression of the wave of advance of modern humans (dark gray) into Europe at different times before present. The black band at the front of the expansion wave represents the restricted zone of cohabitation between modern humans and Neanderthals. (CURRAT & EXCOFFIER, 2004).

IL MUSTERIANO IN ITALIA

1.Grotta A di Veia
2. Riparo di Fumane
3. Riparo Mezzena
4. Riparo Zampieri
5. Riparo Tagliente
6. Grotta della Ghiacciaia
7. Grotta del Broion
8. Grotta Maggiore di S. Bernardino
9. Grotta Minore di S. Bernardino
10. Cava Iecme
11. Grotta Ciota Ciara
12. Grotta della Pocala
13. Grotta di S. Leonardo
14. Grotta di Cotariova
15. Grotta Madonna dell'Arma
16. Barma Grande
17. Grotta del Principe
18. Caverna delle Fate
19. Grotta S. Lucia
20. Grotta del Colombo 21. Riparo Mochi
22. Arma delle Manie
23. Riparo Bombrini
24. S. Francesco
25. Grotta del Gosto
26. Grotta del Capriolo
27. Buca del Tasso
28. Grotta dell'Onda
29. Buca della Iena
30. Grotta di Equi
31. Calceti
32. Impruneta
33. Santa Lucia
34. Grotta Guattari
35. Grotta dei Moscerini
36. Grotta della Cava
37. Grotta del Fossellone

38. Grotta Breuil
39. Canale Mussolini
40. Grotta S. Agostino
41. Pianoro di Monte Gennaro
42. Carpineto
43. Selva dei Muli
44. Poggio Mileto
45. Erbarella
46. Ponte di Crispiero
47. Monte Conero
48. Colonia Montani
49. Svolte di Popoli

50. Grotta e Riparo del Poggio
51. Grotta Grande di Scario
52. Riparo del Molare
53. Grotta di Porto Infreschi
54. Grotta di Castelcivita
55. Riparo di Torre Talao
56. Grotta Torre Nave
57. Grotta della Cala
58. Grotta Tina
59. Grotta Taddeo
60. Cave di Monte Mileto
61. Grotta del Cavallo
62. Grotta di Uluzzo C
63. Grotta Romanelli
64. Riparo esterno di Grotta Paglicci
65. Grotta dell'Alto
66. Grotta di Capelvenere
67. Grotta M. Bernardini
68. Grotta di Serra Cicora
69. Piani di S. Vito
70. Grotta Spagnoli



MANIFESTAZIONI SIMBOLICHE E ARTE DEI NEANDERTHAL

PNAS

A rock engraving made by Neanderthals in Gibraltar

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Significance

The production of purposely made painted or engraved designs on cave walls is recognized as a major cognitive step in human evolution, considered exclusive to modern humans. Here we present the first known example of an abstract pattern engraved by Neanderthals, from Gorham's Cave in Gibraltar. It consists of a deeply impressed cross-hatching carved into the bedrock of the cave older than 39 cal kyr. The engraving was made before the accumulation of Mousterian layer IV. Most of the lines composing the design were made by repeatedly and carefully passing a pointed lithic tool into the grooves, excluding the possibility of an unintentional or utilitarian origin. This discovery demonstrates the Neanderthals' capacity for abstract thought and expression.

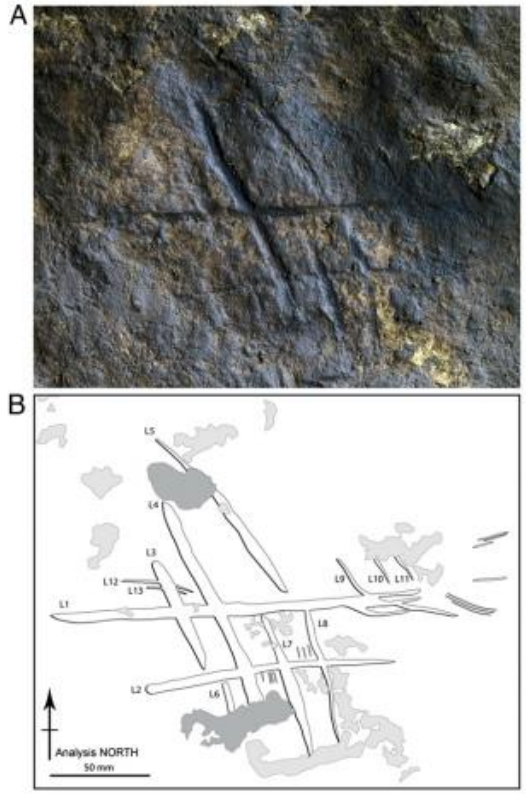

Fig. 2. (*A*) Engraving from Gorham's Cave. (*B*) Engraved lines L1–L13. Dark gray and light gray identify old and recent breaks, respectively. (*SI Appendix*, Fig. S21 shows the order of the engraving lines, breaks, and formation of the duricrust.) Note that the "Analysis North" shown here was used only to describe the order of the engraving lines.

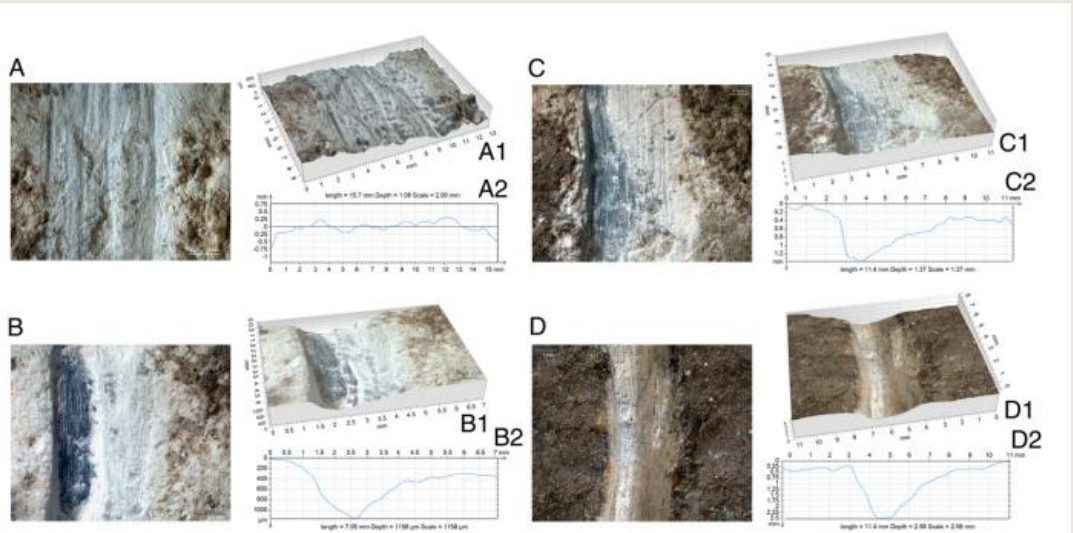

Fig. 4. Microphotographs (*A–D*), 3D reconstructions (*A1–D1*), and sections of lines (*A2–D2*) engraved by experimental tools 1 (*A*), 2 (*B*), 3 (*C*), and 4 (*D*). (Scale bar: 1 mm.)

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The origin of symbolic behavior of Middle Palaeolithic humans: Recent controversies

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ABSTRACT

One the most controversial problems of the Middle Palaeolithic research is the origin of symbolic behavior and who was responsible – only populations of anatomically modern humans (*Homo sapiens* in Africa) or also populations of Neandertals in Western Eurasia? According to the current evidence, there are two opposite concepts. The first one assumes that use of complex stone and bone technology, burying their dead, and making of art objects as well as personal ornaments originated with anatomically modern humans. The second one supports a view that the Neandertals developed their culture in a similar way, convergent or in various contacts with the societies of early *Homo sapiens*. Their technological equipment enabled them to enter and colonize new areas in northern latitudes, which was impossible without developed knowledge about fire usage, shelter building, and adequate clothing. Neandertals made efficient tools, including composite tools made of various raw materials. In addition, the social relations of Neandertals exemplified an altruistic approach to others. According to the current knowledge, the origin of symbolic behavior cannot be linked only with anatomically modern humans or any isolated Middle Paleolithic population. It appeared much earlier, in the Lower Palaeolithic. It is necessary to remember that archaeological data for remote time are still rare and more evidence is needed to test concepts.

9. Final remarks

New discoveries in western Eurasia after decades of disputes show that the exclusion of the Neandertal bough from the tree of humanity has no basis. Various simplified reconstructions of their physical structure and symbolic culture are exaggerated. The Neandertals had more or less the same degree of cultural development as other contemporaneous human populations. They were also inventors, make complex tools, and knew how to use fire. They built well-organized residential camps or lived in shelters and caves. The Neandertals were able to arrange their cultural environment and had to use the clothes to settle in areas located far to the north or to live in severe climatic conditions. They were able to hunt large and dangerous animals, and had a diverse and healthy diet.

Neandertals in similar periods with the African populations of *Homo sapiens* developed quite sophisticated symbolic behavior, including the production of ornaments and art objects. Neandertals buried their dead and they were aware of human conditions. Recent research results establish the existence of a broad spectrum of symbolic culture, including visual art and music, although such finds are still rare. European and Middle East Neandertals did not seriously differ from African *Homo sapiens* when it comes to the appearance of new forms of symbolic culture.

Contrary to some simplistic thinking, the development of symbolic culture cannot be linked to specific human populations. Further research is needed to explain rules and details of origin and early development of symbolic culture.