



Introduction to Archaeology

Theoretical and Practical Frameworks

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Doorway
to Human History

Who, What, When, Why, Where

Objectives of this lecture

1. Give a general picture of what archaeology is
2. Understand how archaeological research is carried out and why
3. Learn the basics of archaeological research
4. Recognise its importance in the contextualisation of other disciplines who work with samples and materials from the past

Take at home message?

Read an archaeological paper, and being able to understand what is being discussed



The Whos and Whys of archaeological research

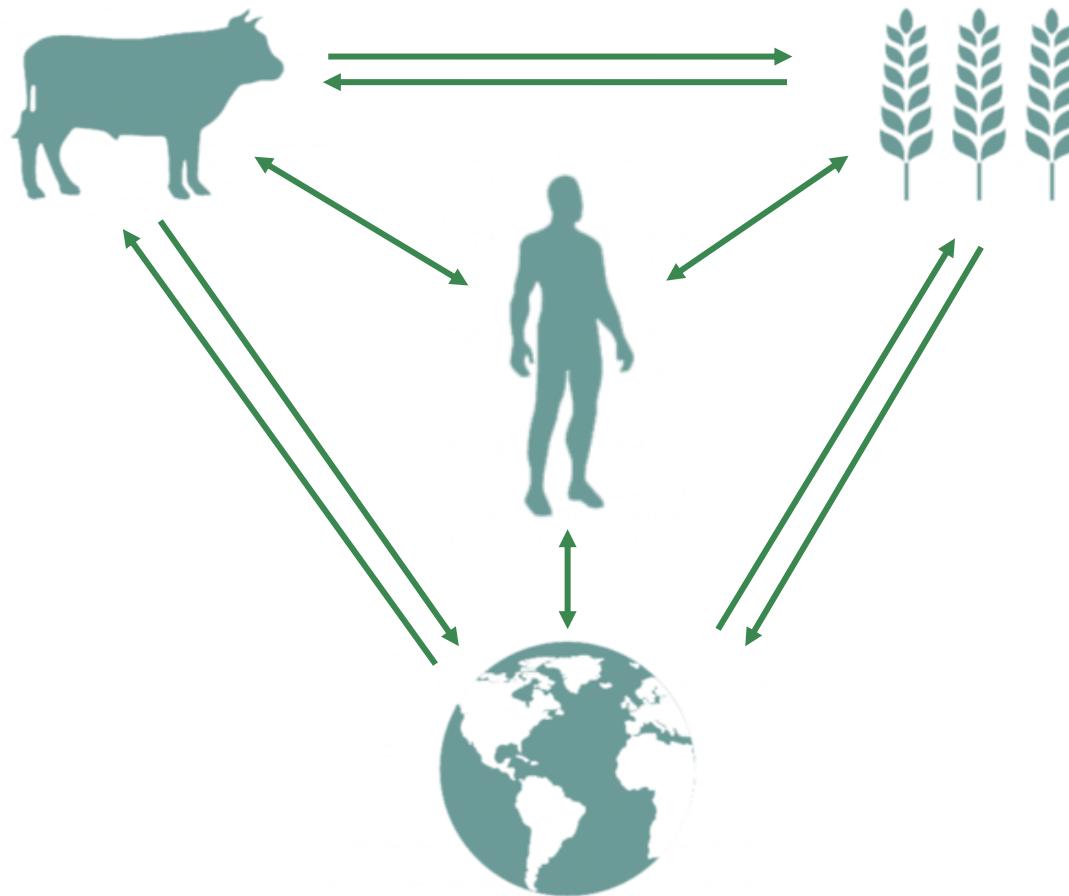
Objectives and research questions



Who



Why



Where and When?



The Wheres of archaeological research

Basics of survey and excavation



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Survey

Non-intrusive methods with the objective to search and fine archaeological sites and materials by collecting information about a location, distribution and organisation of past human activity.

Strictly no disturbance of underground features and materials.



Ground Survey



Credit: Tennessee
Central Economic
Authority

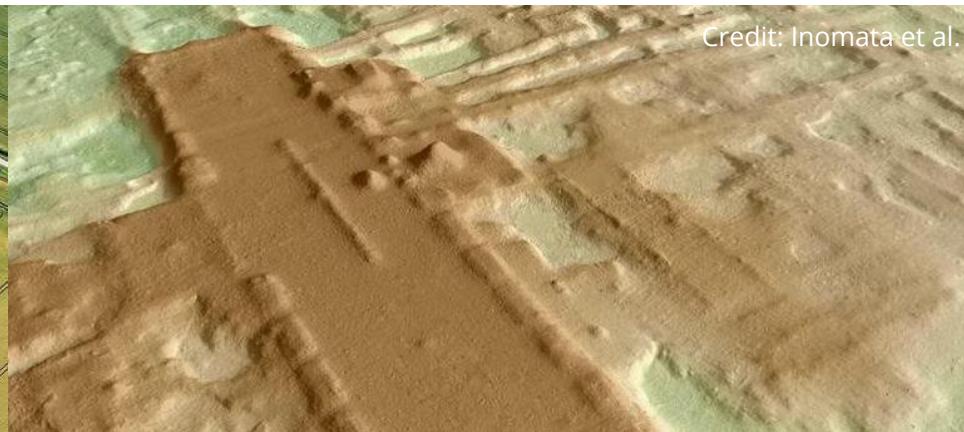


Aerial Survey

Credit: Historic England



Credit: Inomata et al.



Credit: Historic England



Credit: Historic England



Desk-based Survey

Written, Graphic, Photographic, Electronic

historic documents (maps, land property, land registries, etc.)

historic photographs

word-of-mouth and stories

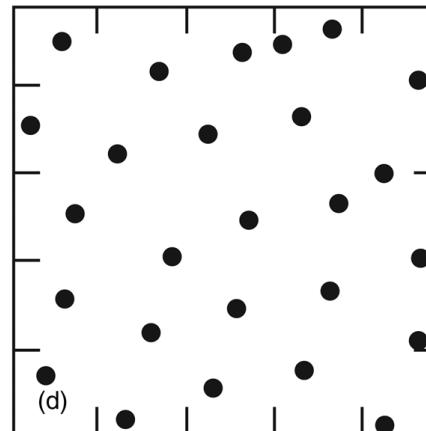
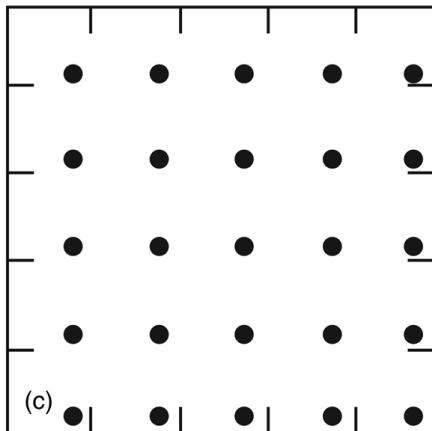
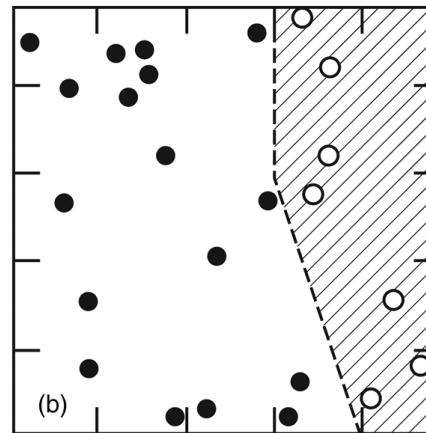
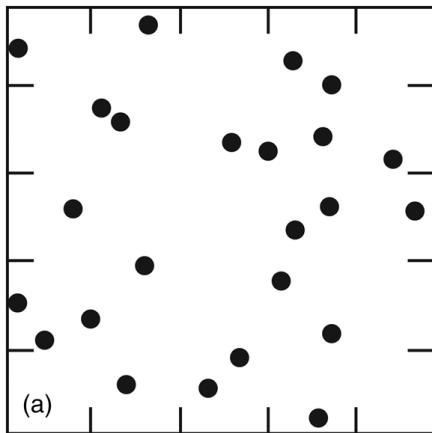
GIS (geographical information system)

Creates, manages, analyses and maps data such as elevation, hydrology, and topography



Basic survey sampling strategies

(a) simple random, (b)
stratified random, (c)
systematic, and (d)
systematic unaligned



Credit: Banning, E. (2021). Sampled to Death? The Rise and Fall of Probability Sampling in Archaeology. *American Antiquity*, 86(1), 43-60.
doi:10.1017/aaq.2020.39



Other surveying strategies

Geophysical surveys Physical properties of materials

Thermal properties: hot

Electric properties: humidity

Magnetic properties: Iron oxides

Geochemical surveys

phosphates, magnesium, calcium, lipids, etc.

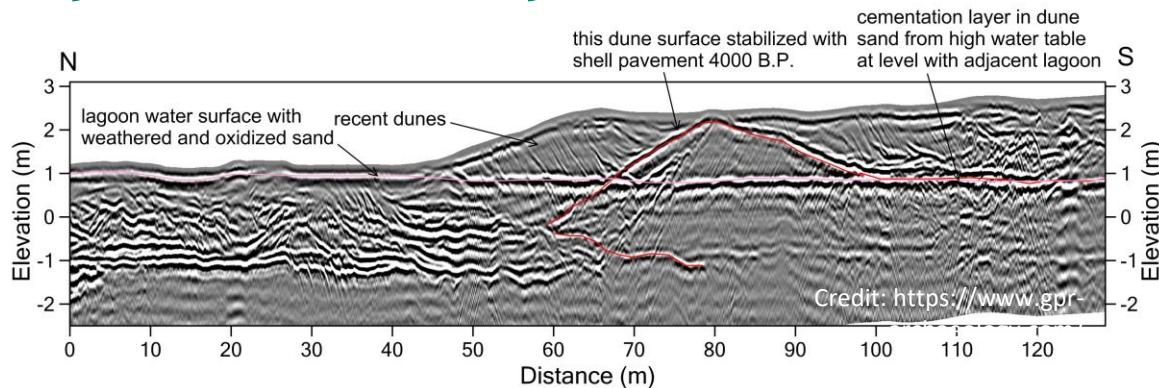
Identification and material properties

Petrology, metal analyses, organic materials, etc.

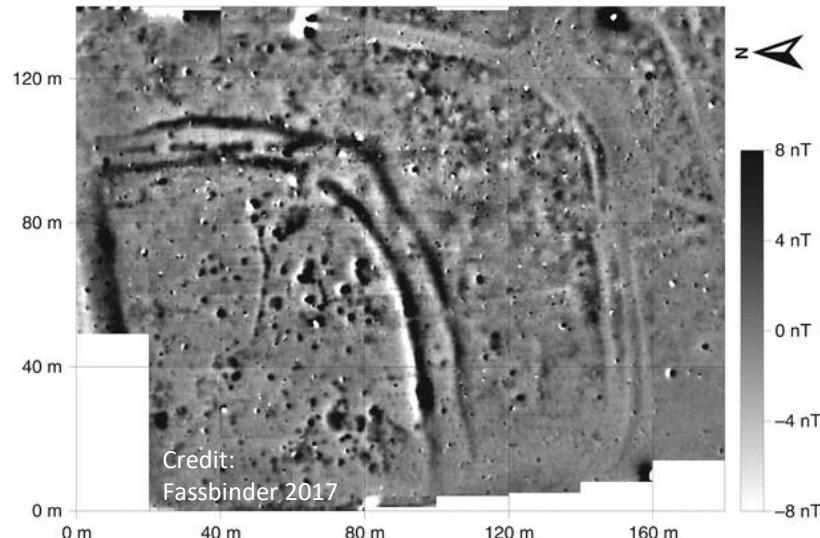


Geophysical surveys

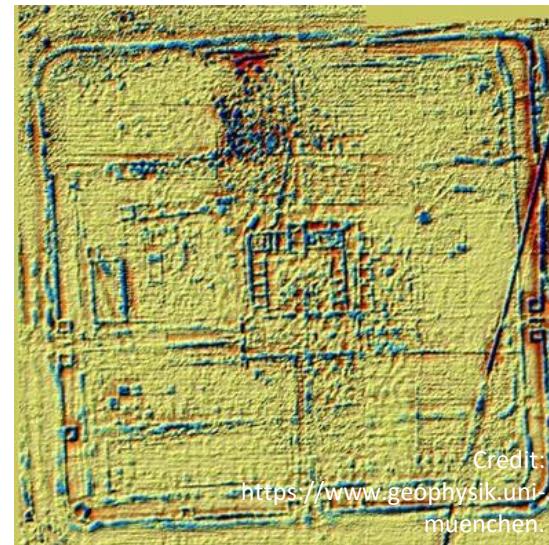
Ground Penetrating Radar



Magnetometry



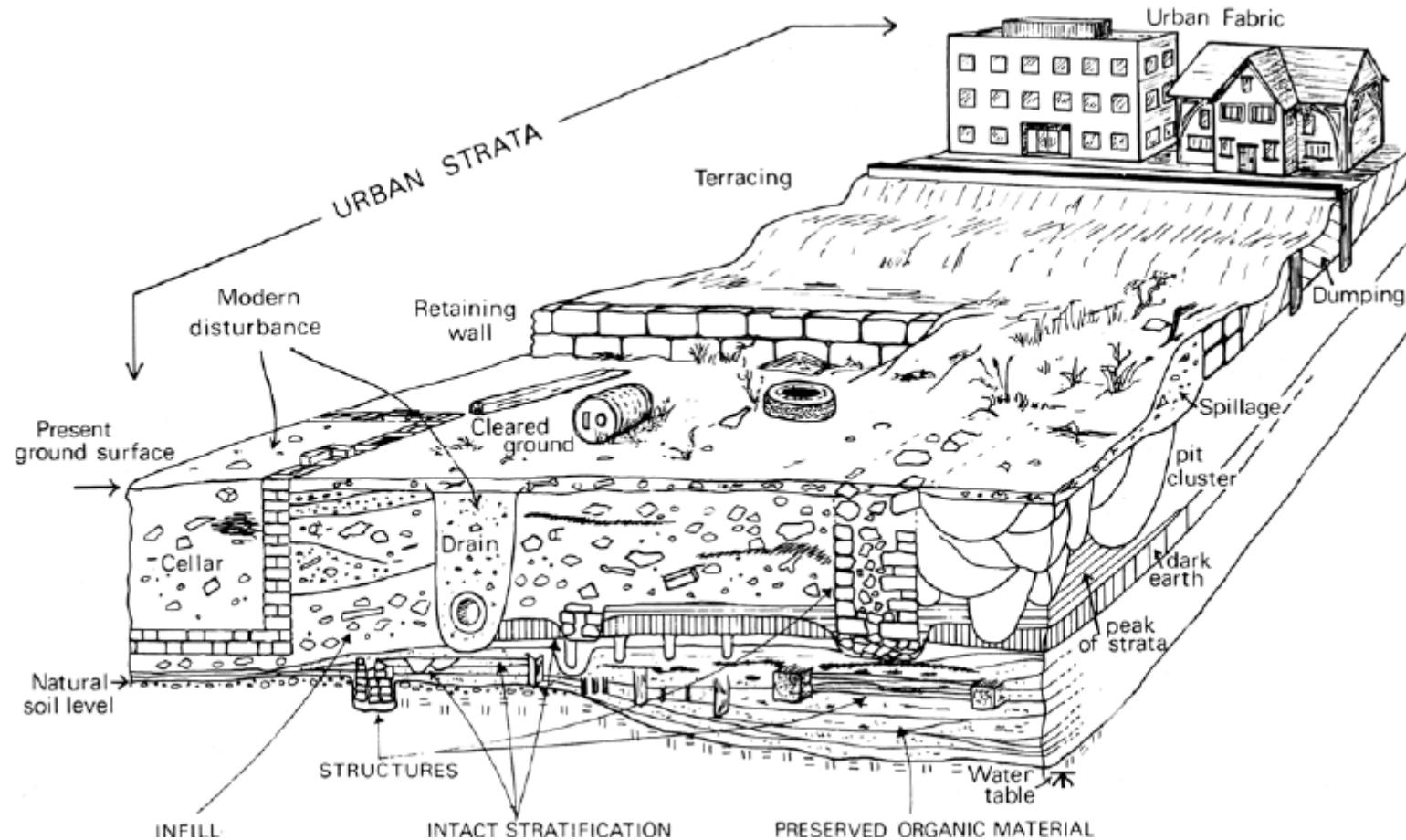
Resistometry



Excavation



Stratigraphy



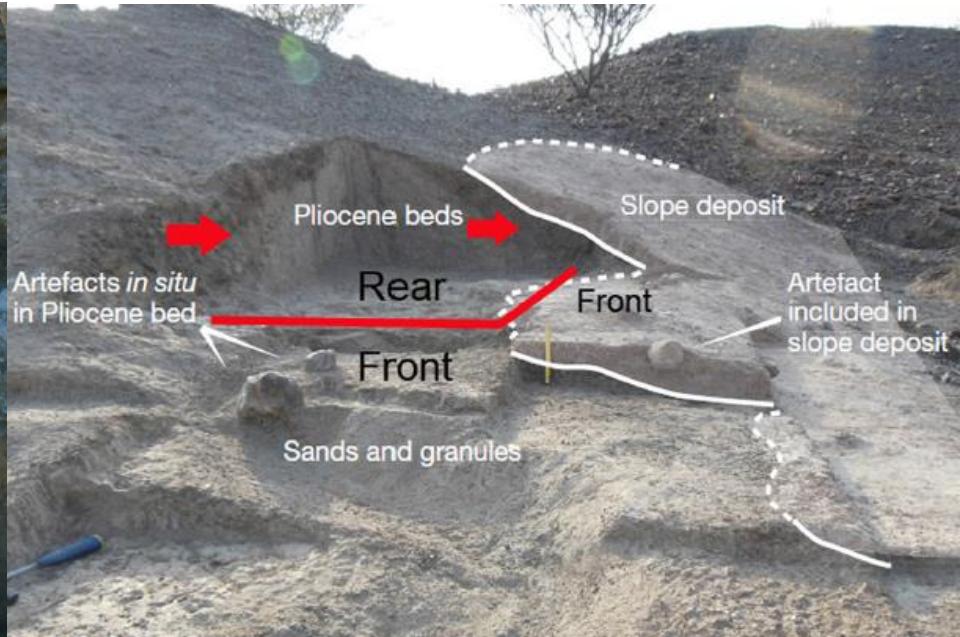
Credit:
Carver 1987, drawn by
Elizabeth Hooper



Stratigraphy



Primary



Secondary



Excavation methods



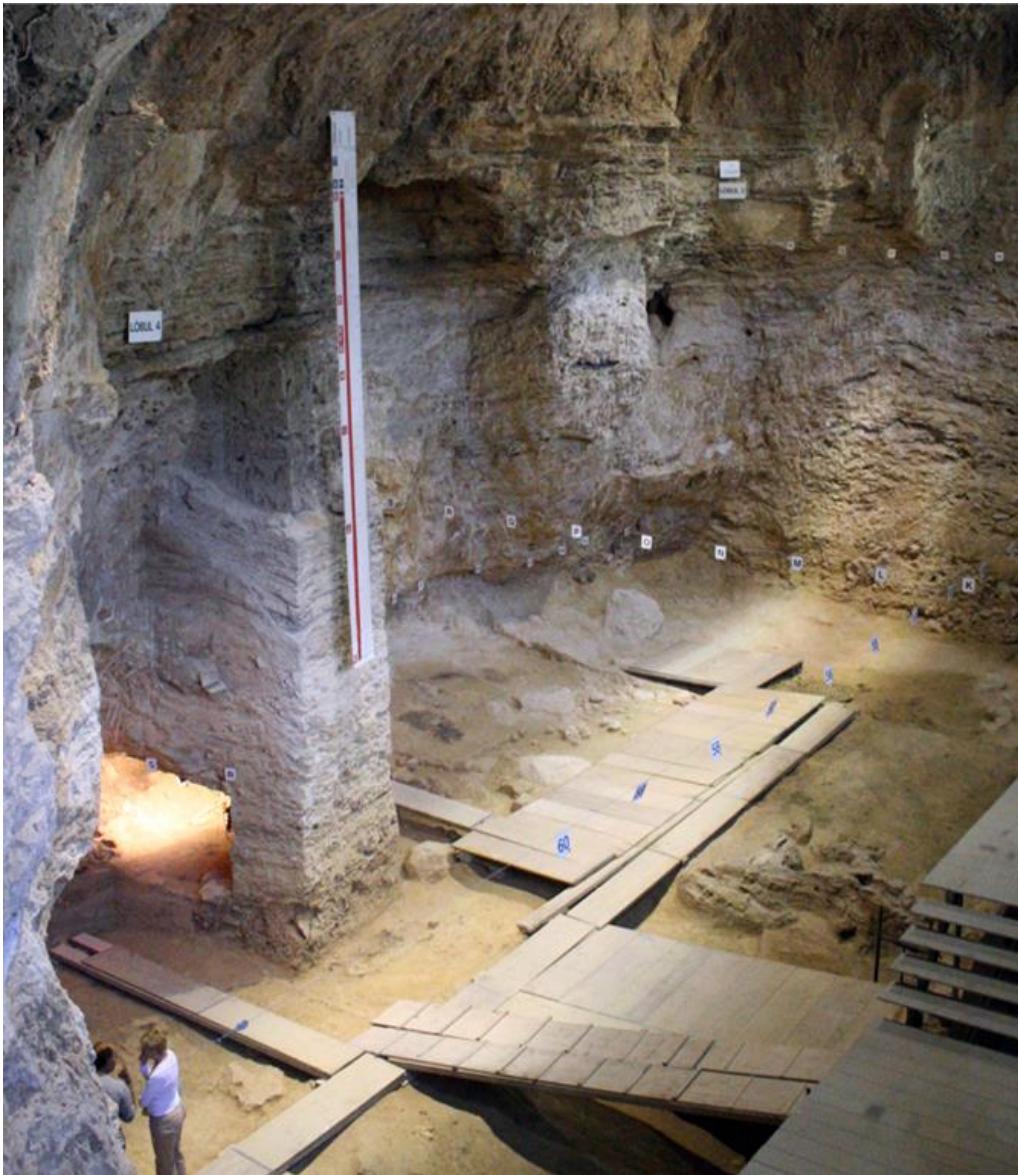
Excavation methods

WHICH ONE IS CORRECT?

It depends on what you are excavating,
and in what conditions...



Excavation methods



Excavation methods



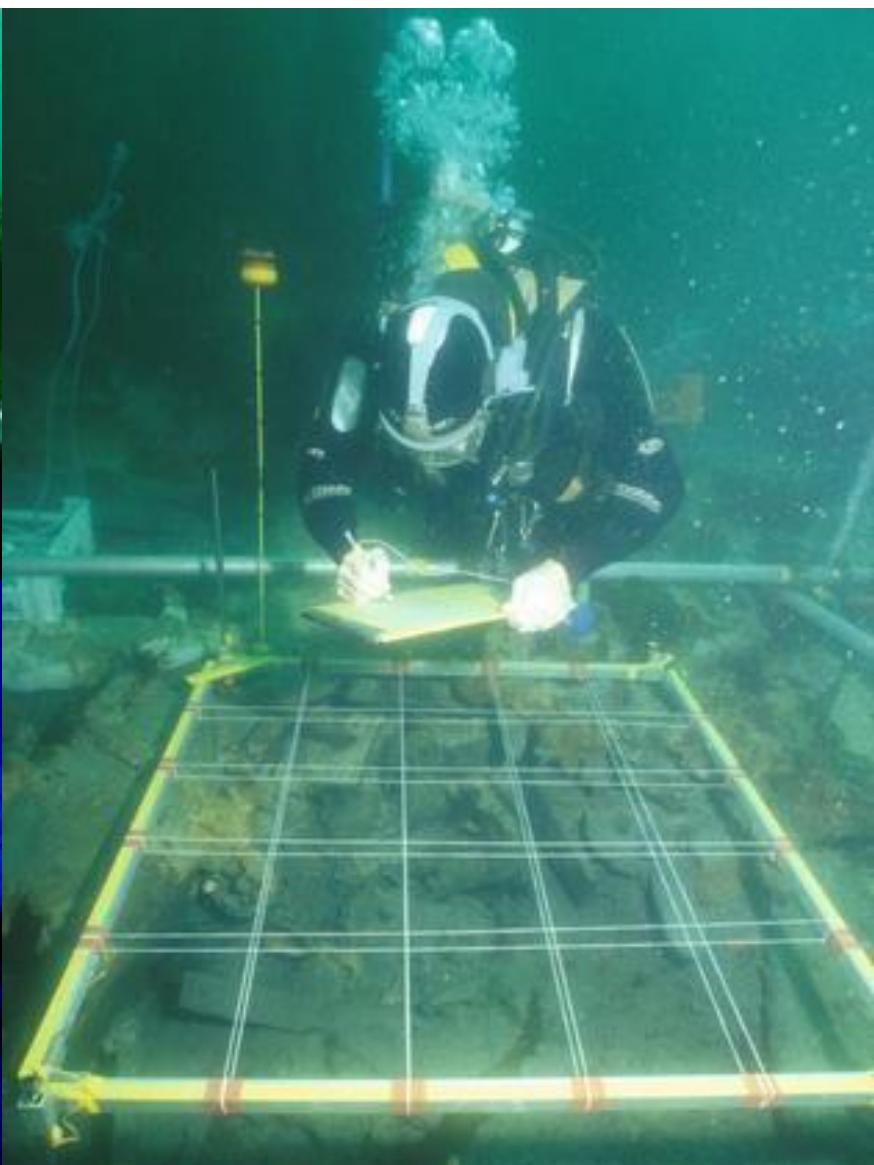
Excavation methods



Underwater excavation



Credit:
NOAA



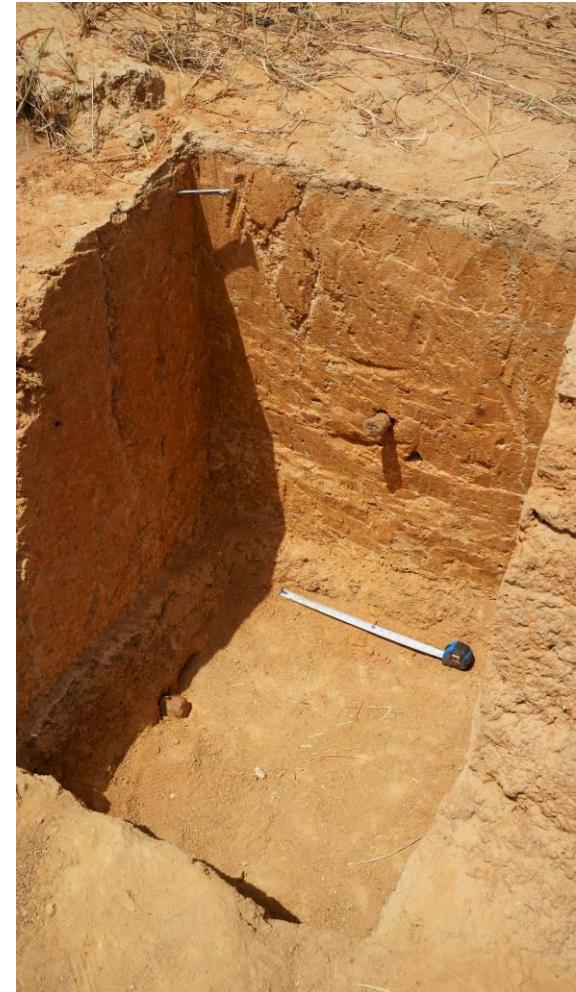
Recovery and recording

FUNDAMENTAL

first step for anything is
RECORDING

Once materials are recovered,
they're original context is **LOST**

Test pit recording sheet for a layerfill			
SITE CODE	TEST-PIT NO.	CONTEXT NO.	DATE
		RECORDED BY:	
		CHECKED BY:	
CATEGORY (circle one)			
Layer:	tessell	subsoil	burned soil
OR:			
Fill of archaeological context:	posthole	pit	ditch
other			
PLAN NO.	SECTION NO.	PHOTO NO(S.)	
LENGTH	WIDTH	DEPTH	ENVIRONMENTAL SAMPLE NOS.
			NUMBER OF ASSOCIATED CUT IF ANYTHING
COLOUR (circle one in each column) e.g. light reddish brown			
light	reddish	grey	hard
medium	brown	brown	firm
mid	yellowish	yellow	soft
dark	greenish	blue	loose
	swarthy	red	
	white		
COMPACTION (circle one)			
hard	firm	soft	very soft
			sandy soil
			sandy silt
			clayey sand
			clayey silt
			other (describe):
INCLUSIONS (circle):			
stones	gravel	charcoal	How frequent are the inclusions?
metals	other		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Is it cut by anything?			
STRATIGRAPHIC MATRIX			
Above my context:	<input type="checkbox"/>		
This Context is:	<input type="checkbox"/>		
Below my context:	<input type="checkbox"/>		
FINDS (check all)			
OTHER FINDS (describe)			
INTERPRETATION			
			



The Whens of archaeological research

Chronology and dating



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Chronological scales

Christian World

Birth of Christ: supposedly in the year AD 1

AD = latin: ‘Anno Domini’

BC = ‘Before Christ’

Common Era

Same as above, but without christian terminology

CE = in the Common Era

BCE = Before the Common Era

Chronometric

Present = 1950

BP = Before (non-calibrated)

Cal BP = Before Present (calibrated)



Dating methods

Absolute

Radiocarbon dating

Luminescence (Optically Stimulated Luminescence, Thermoluminescence) dating

Electron spin resonance (ESR) dating

Other radioisotopic (U, K/Ar, Ar/Ar...) dating

Relative

Seriation (pottery, lithics...)

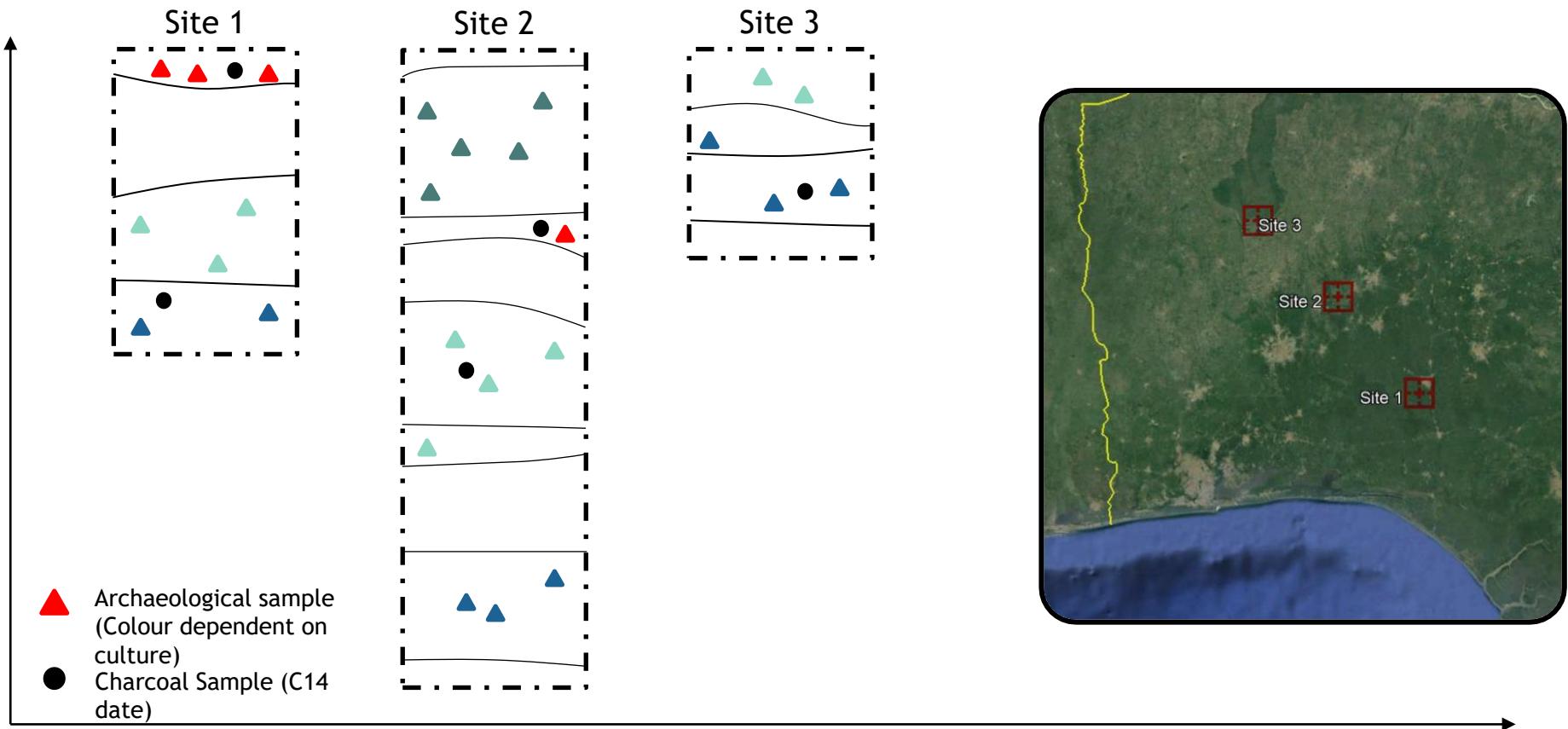
Stratigraphy

Faunal

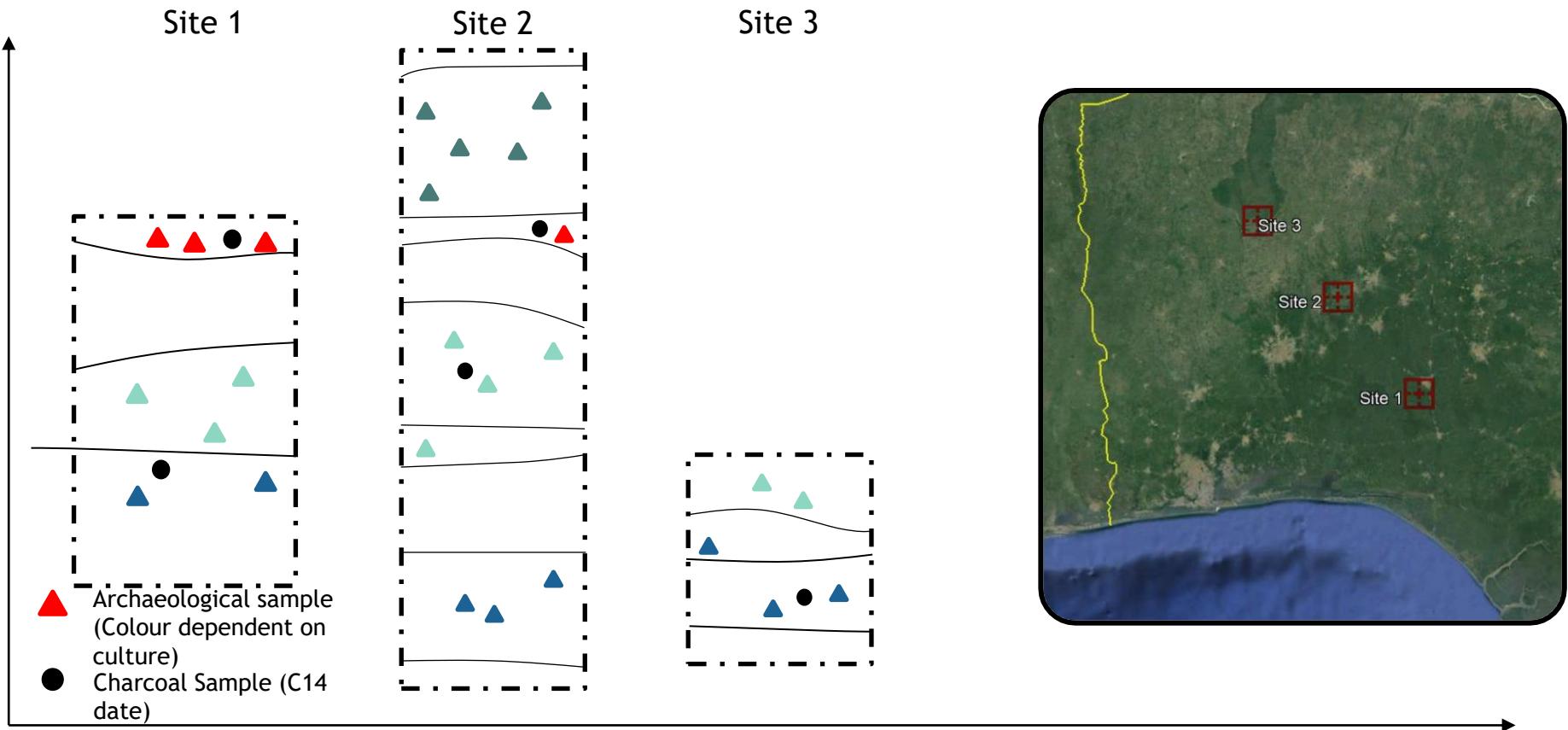
Palynological (pollen)



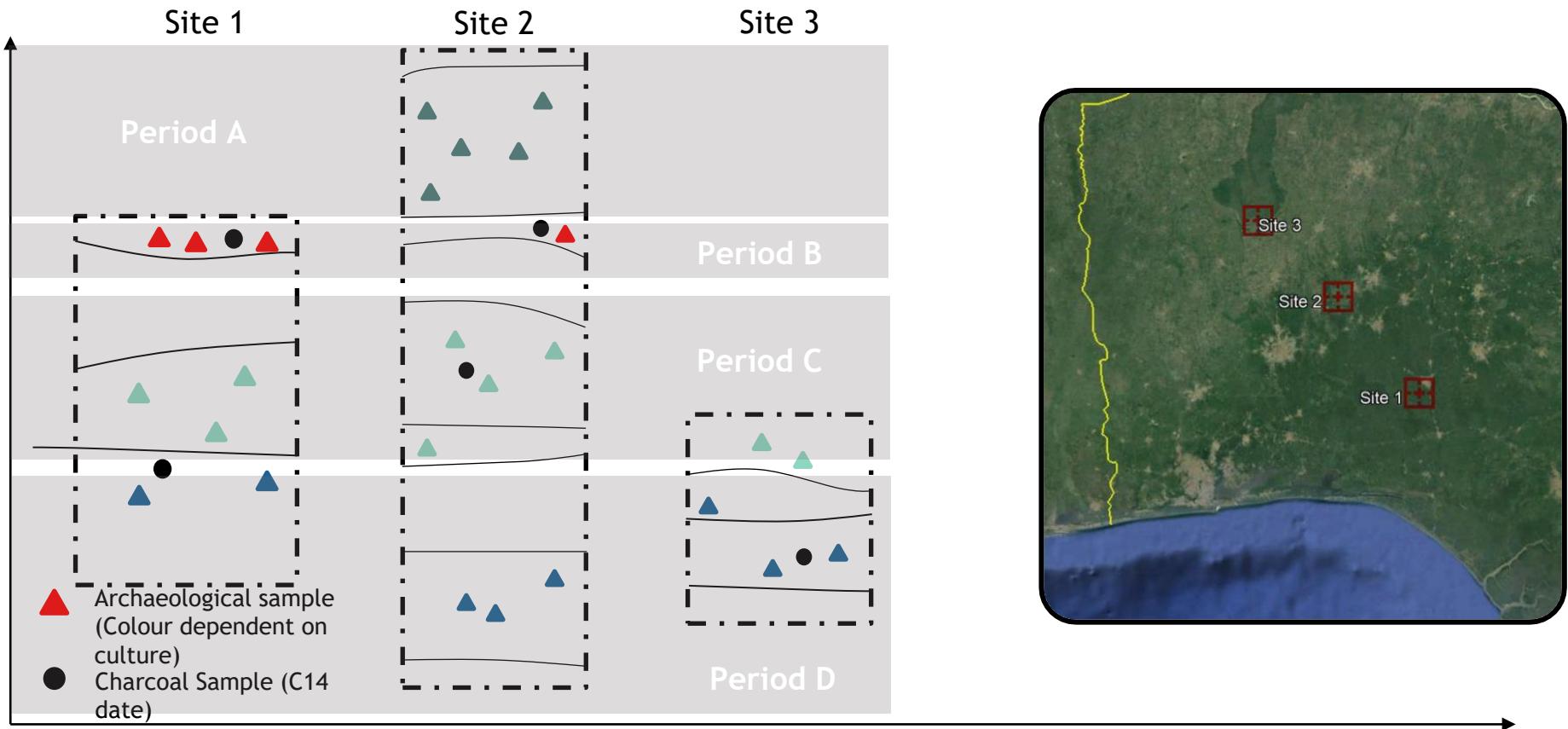
Regional vs. Absolute Chronology



Regional vs. Absolute Chronology



Regional vs. Absolute Chronology



The Whats of archaeological research

Material culture and archaeological finds



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Human vs. Natural

Especially important question for pre-Neolithic and aceramic periods

Example: Which one of these three was made/used by humans?



A



B



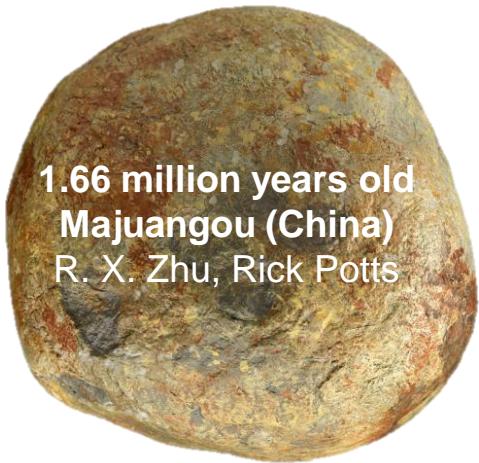
C



Human vs. Natural

Especially important question for pre-Neolithic and aceramic periods

Example: Which one of these three was made/used by humans?



A



B



C



Artificial material culture

Materials

Stone (lithics, grinding stones, building materials...)

Ceramic (pottery, construction...)

Bone (tools...)

Metal (tools, construction, vessels...)

Organic (wood, textile, fur, cordage...)

Analyses and Equipment

Relative dating

Use-wear

Residue

Techno/typological analysis

Analytical (X-Ray Fluorescence, Isotopes, Proteomics, ZooMS...)

Experimental



Natural material culture

Materials

Geological

Bone (human, animals, shell)

Plant remains

Analyses and Equipment

Analytical (X-Ray
Fluorescence, Isotopes,
Proteomics, ZooMS...)

Microscopy (Scanning
Electron Microscope, Optical,
Polarizing, Stereo...)

Morphological/taphonomic

Frequency/ratio



Disciplines of archaeological research

(Just some, or it would take far too long...)



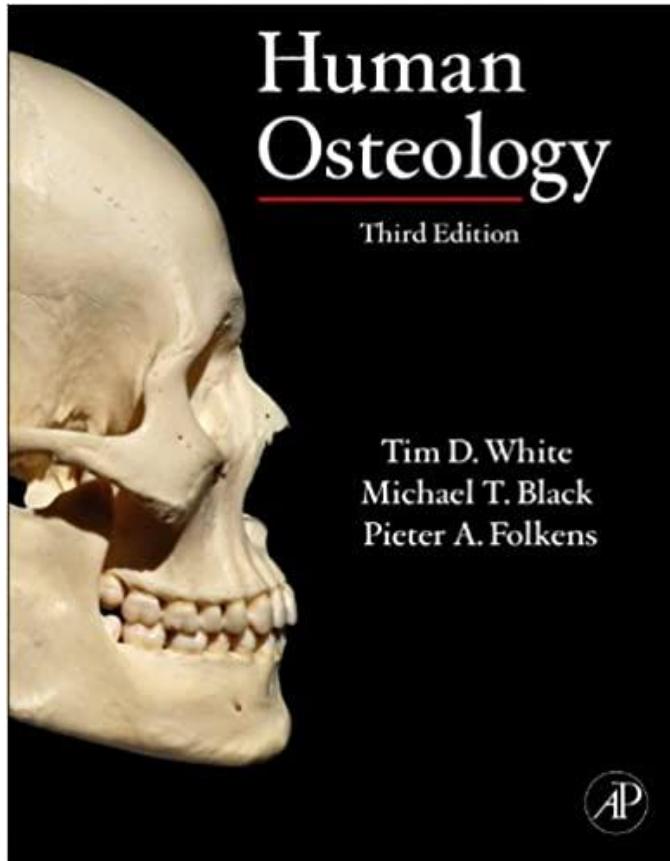
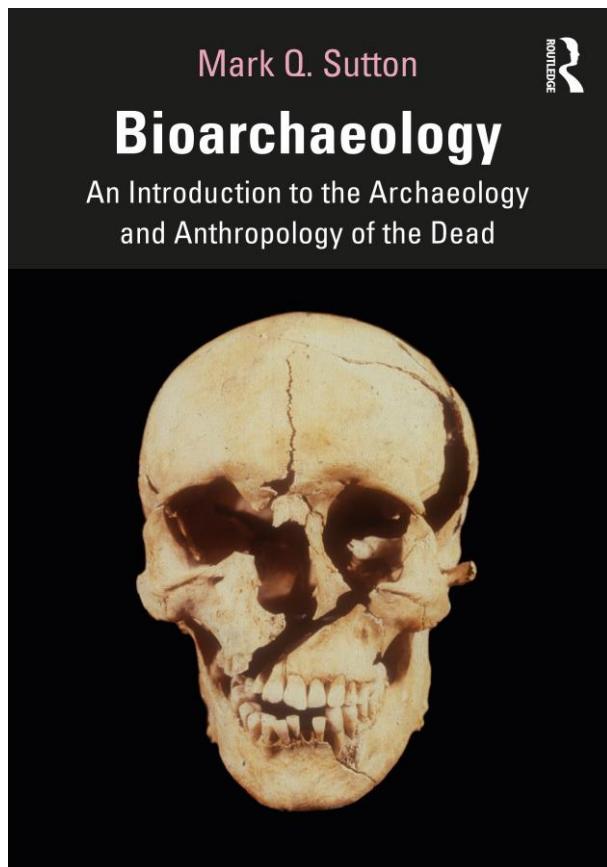
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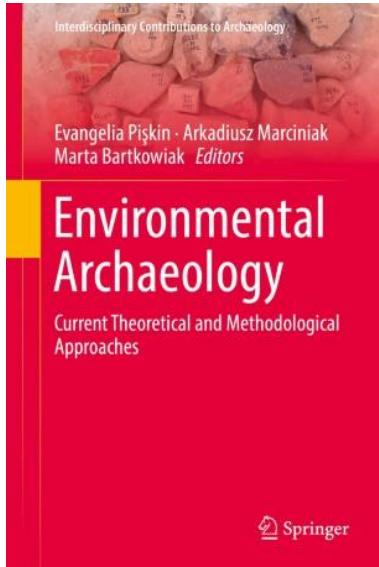
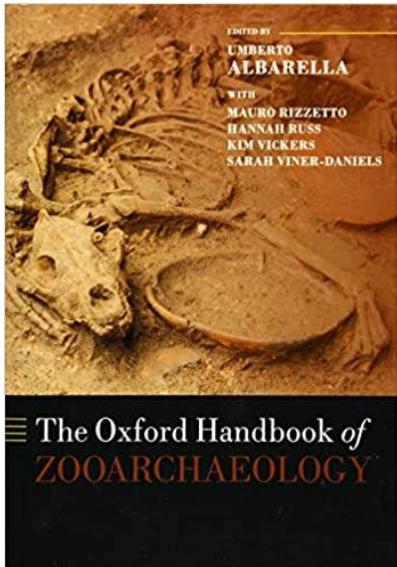
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Bioarchaeology/osteoarchaeology



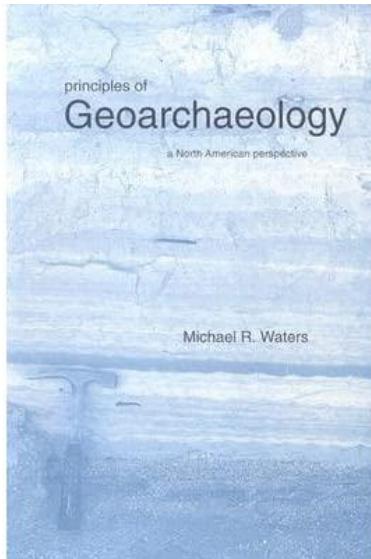
Environmental archaeology



Zooarchaeology (fauna, malacofauna...)

Palaeobotany/archaeobotany (pollen, phytoliths, starch, charcoal...)

Geoarchaeology (site formation processes, sedimentation, stratigraphy...)



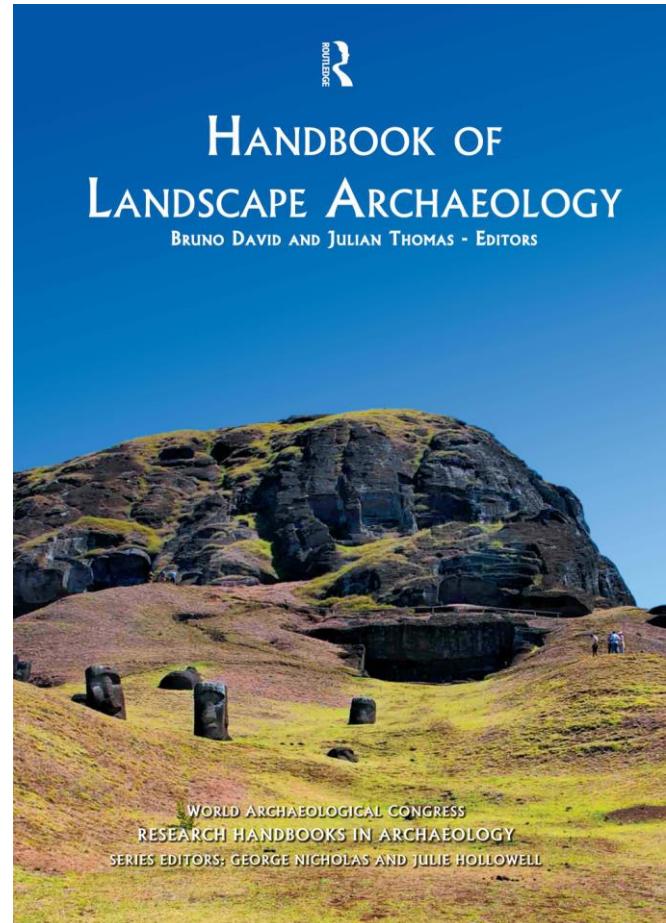
Landscape archaeology

The study of human-induced transformations on landscapes.

Environmental - changes in fauna and flora

Geological - changes in topography

Structural - creation of infrastructure, buildings and more



Computational archaeology

The application of any computer-based analytical methods for the study of human and ecological behaviour and evolution.

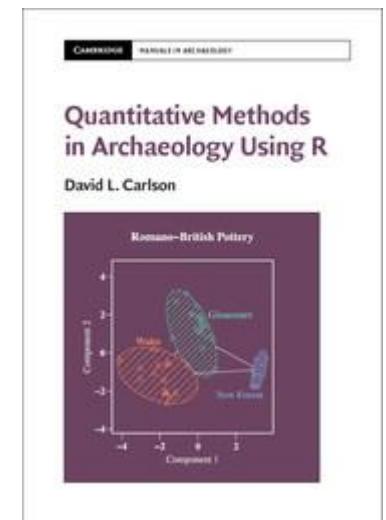
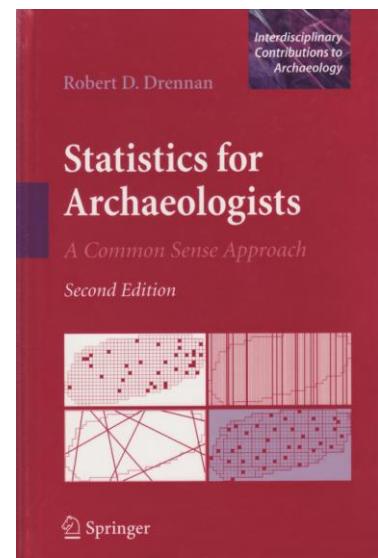
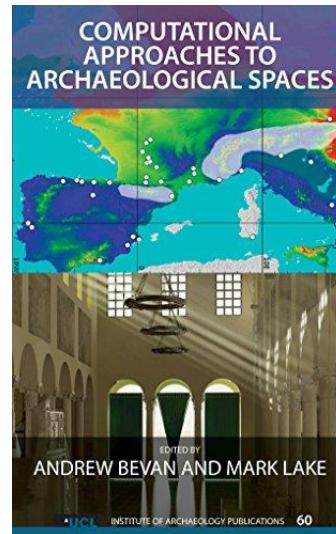
Univariate and multivariate statistics

Agent-based modelling

Bayesian analysis

Digital excavation

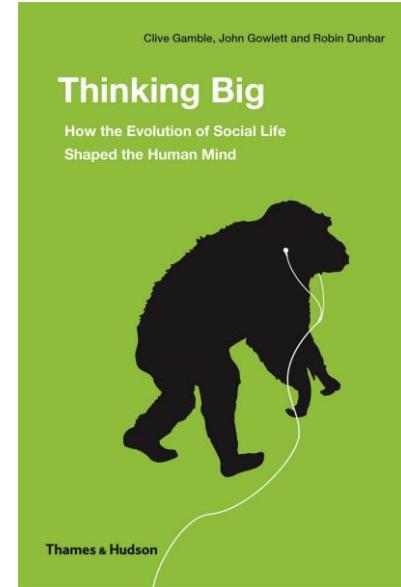
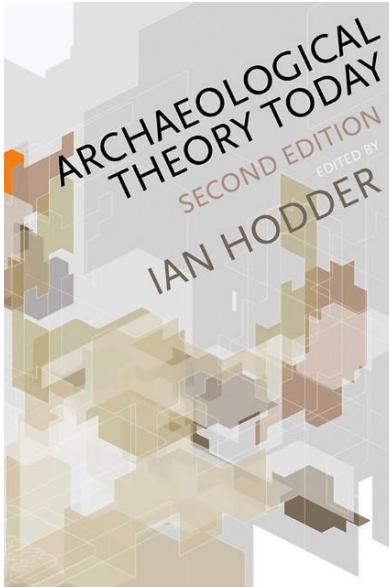
And much much more...



Theoretical and cognitive archaeology

The study of the intellectual framework within which archaeology works.

Studying **how** people thought and acted in the past, **why** they thought and acted the way they do...
... and why **we** think they thought and acted they way they do.



Historic vs. Prehistoric archaeology

Very different approaches
trench vs. open-air

Very different material culture assemblages
ceramics, metals, organics vs. stone, bone

Very different sources
history vs. “no”-history

But should we think of it this way?
No. People are people.

What changes is not how things were, but how we see them.



People, environments and objects

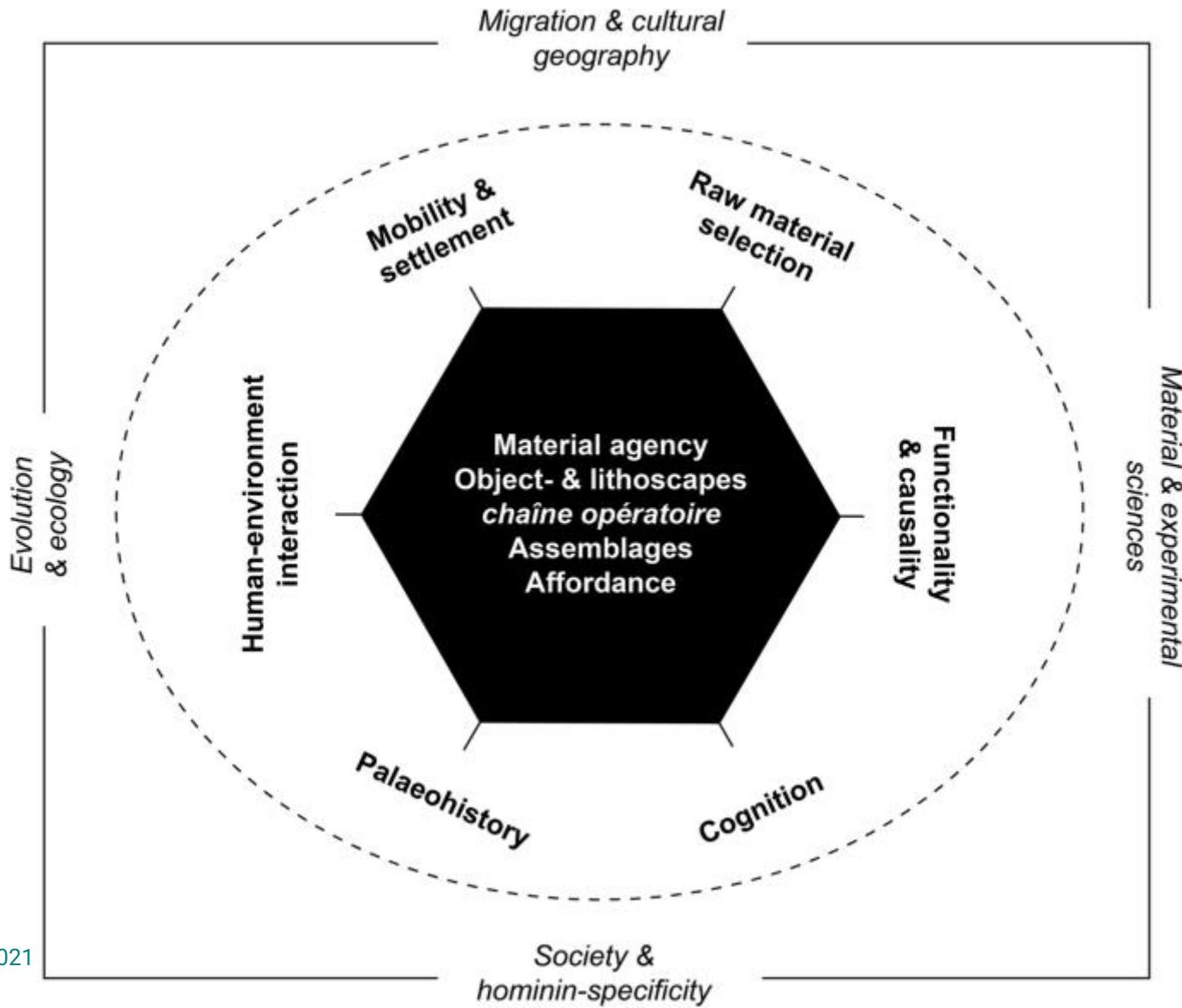


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Credit:
Hussain and Will, 2021



Technology, movement and interactions



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Technological traditions

Personal ornamentation in Upper Palaeolithic Europe

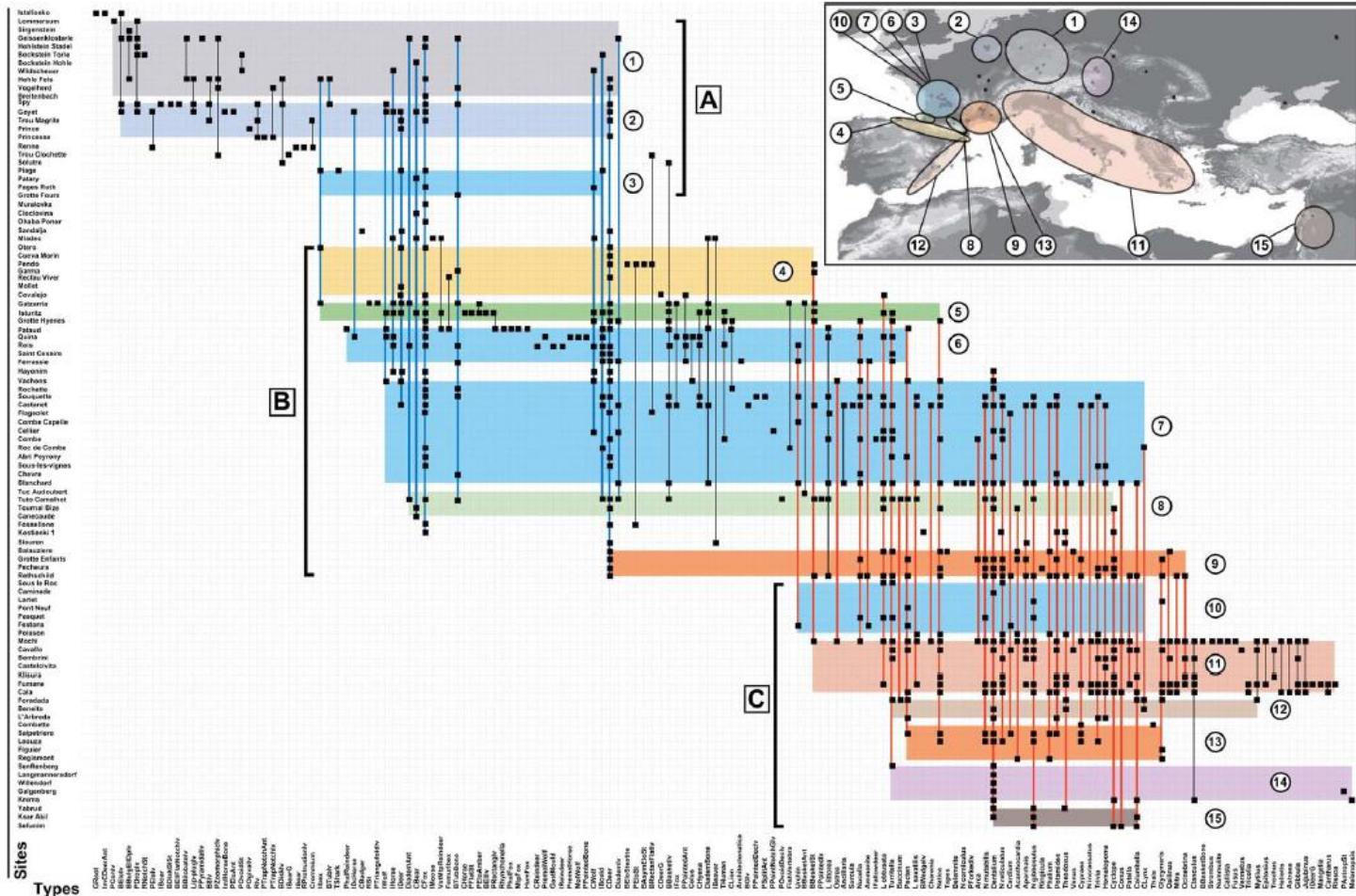
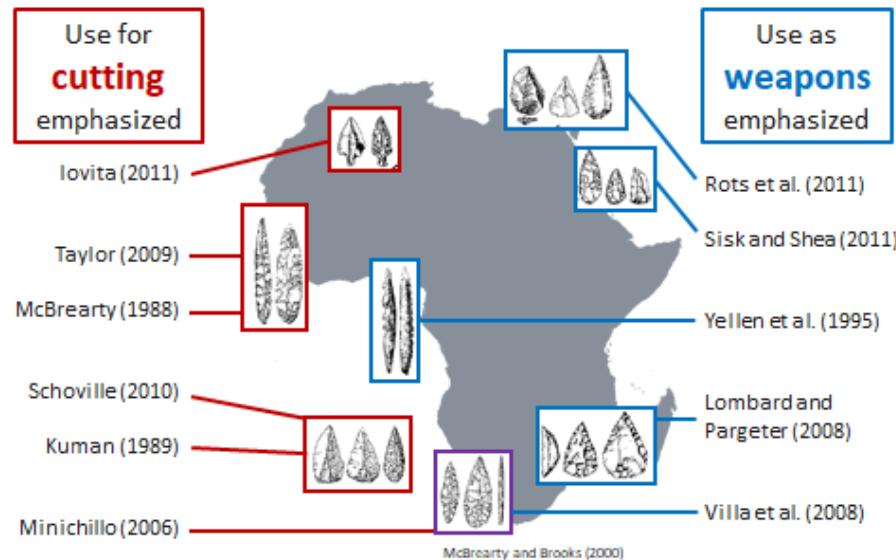


Fig. 5. Seriation of Aurignacian ornament types. Black squares indicate occurrences ($n = 691$) of types at sites. Sets are identified by encircled figures and highlighted by colours according to the geographical location of their constituent sites (see map in top-right box). Macro-sets are identified by brackets and capital letters in squares. Black vertical lines join occurrences of types specific to each macro-set. Blue lines tie occurrences of types shared by Macro-sets A and B, absent in C. Red lines put together ornaments found in Macro-sets B and C, absent in A. Abbreviations used for ornament types are explained in the legend of Table 1.

Technological traditions

498



Form ≠ Function

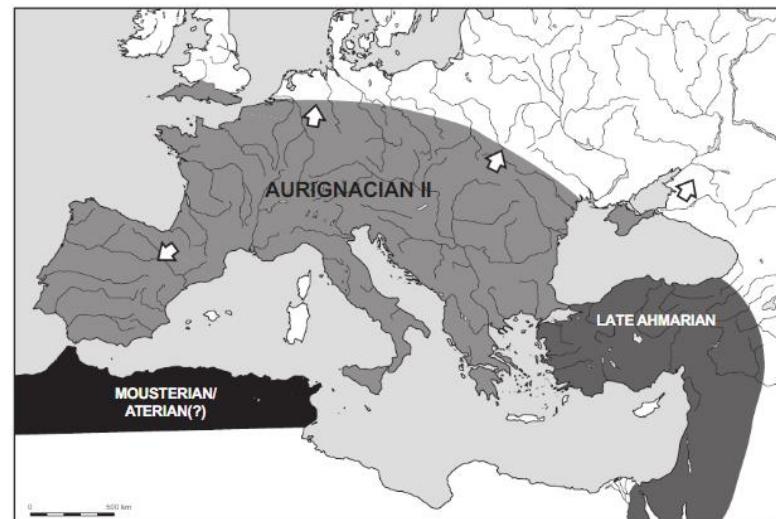
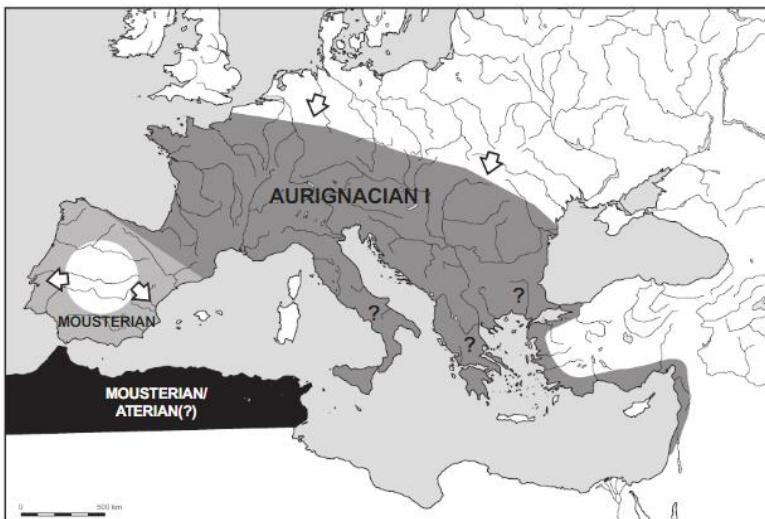
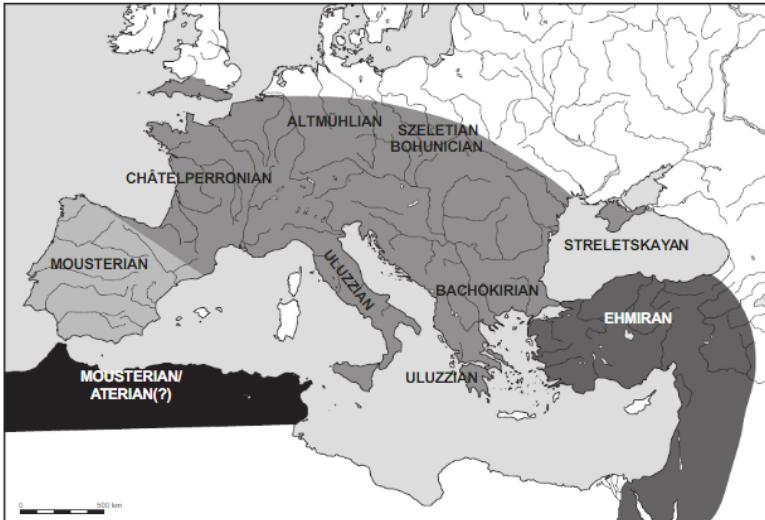
Credit: E. Hallett

Figure 5. Map of distribution of point styles in the African MSA (after Clark, 1993, Figure 1). © Sally McBrearty & Alison S. Brooks.

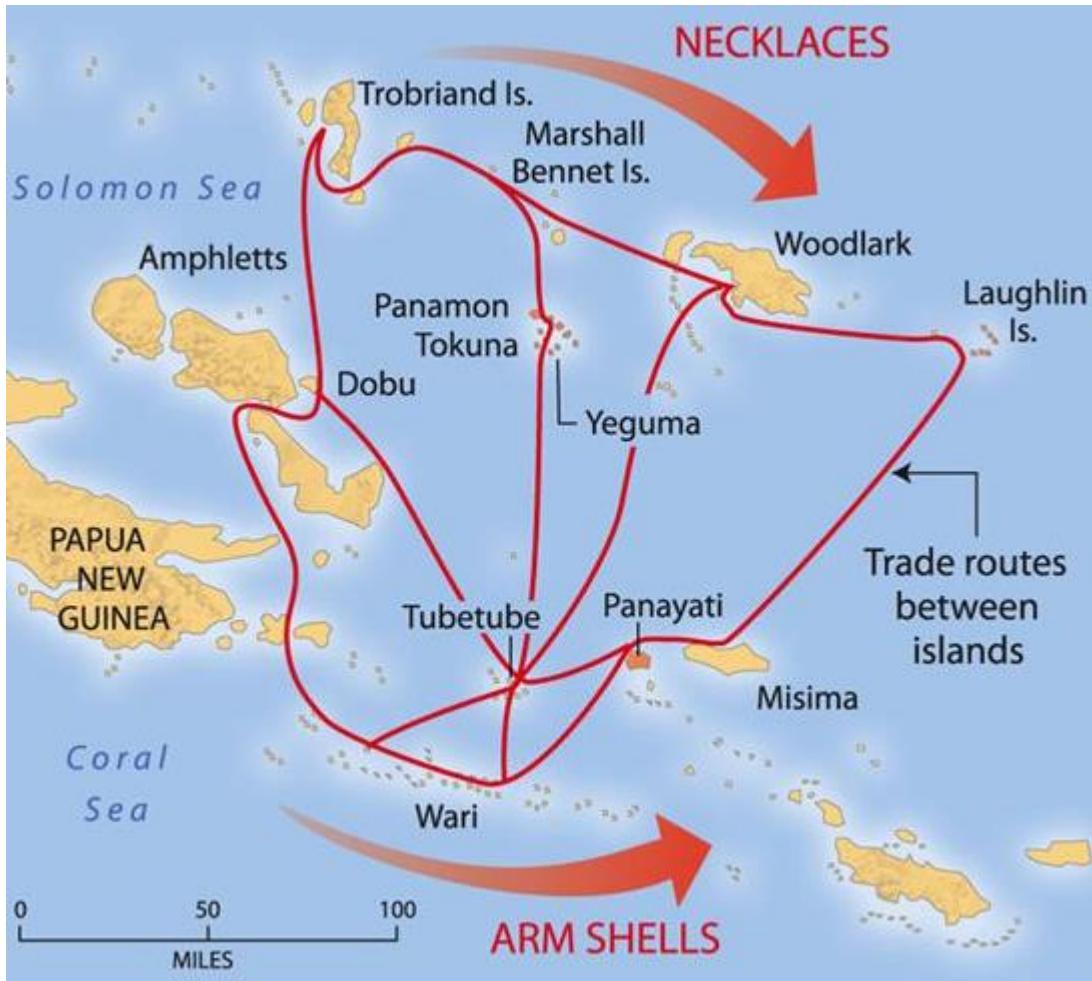


Cultural interactions and exchange

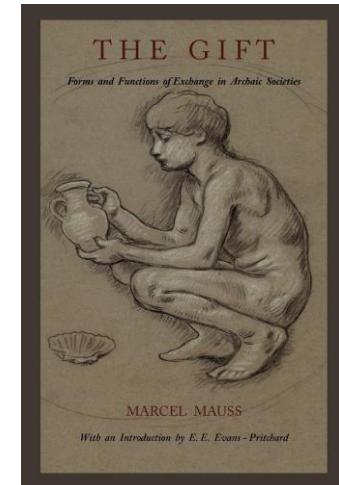
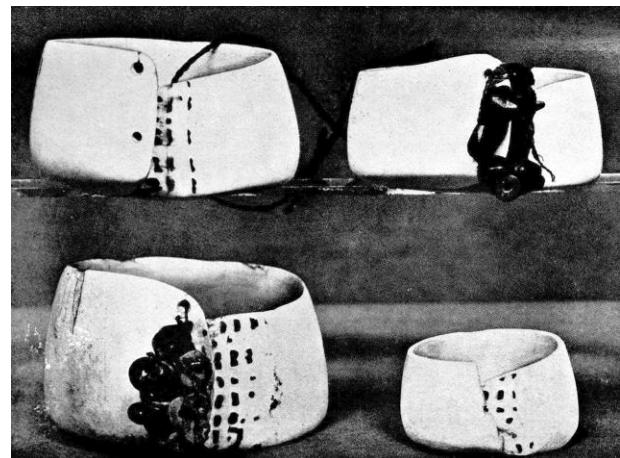
Lithic
technological
cultures in
Upper
Palaeolithic
Europe



THE KULA RING



Ceremonial trading of shell ornaments throughout Melanesia
(The Gift; Mauss, 1925)



Conclusion

How can archaeological practice be useful outside of archaeology



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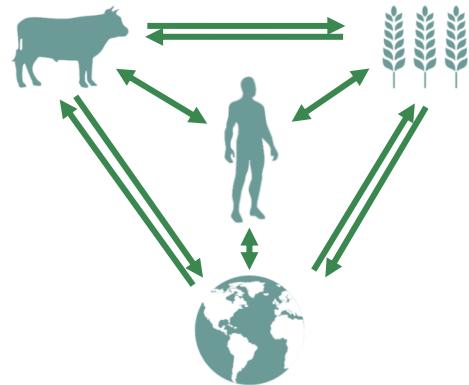


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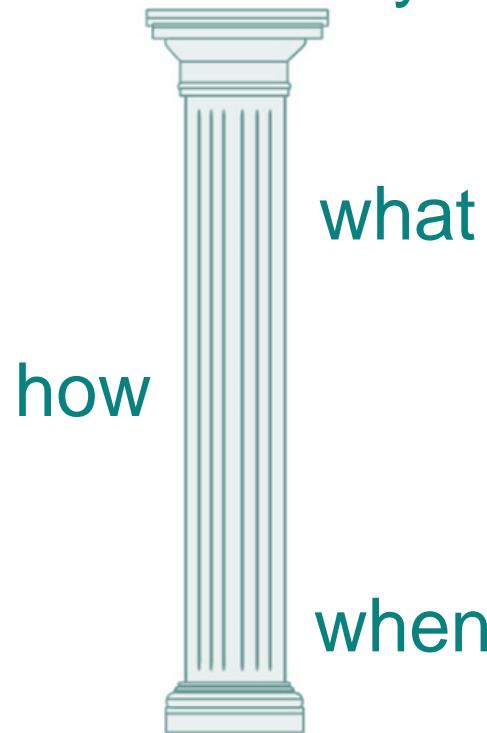


Context





Who & Why



how

when

