

Archaeoethanatology as a method:

how to reconstruct a burial



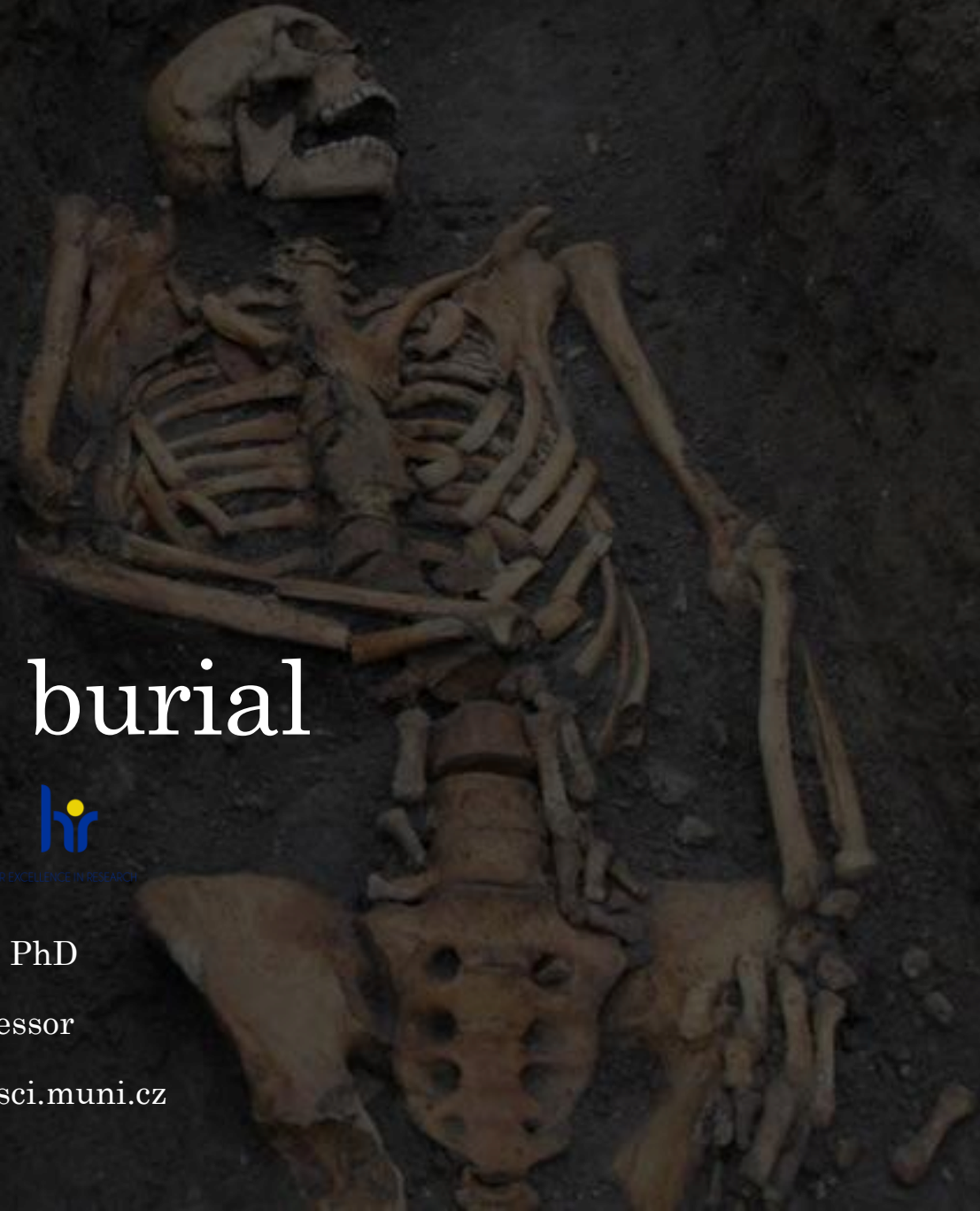
MUNI
SCI



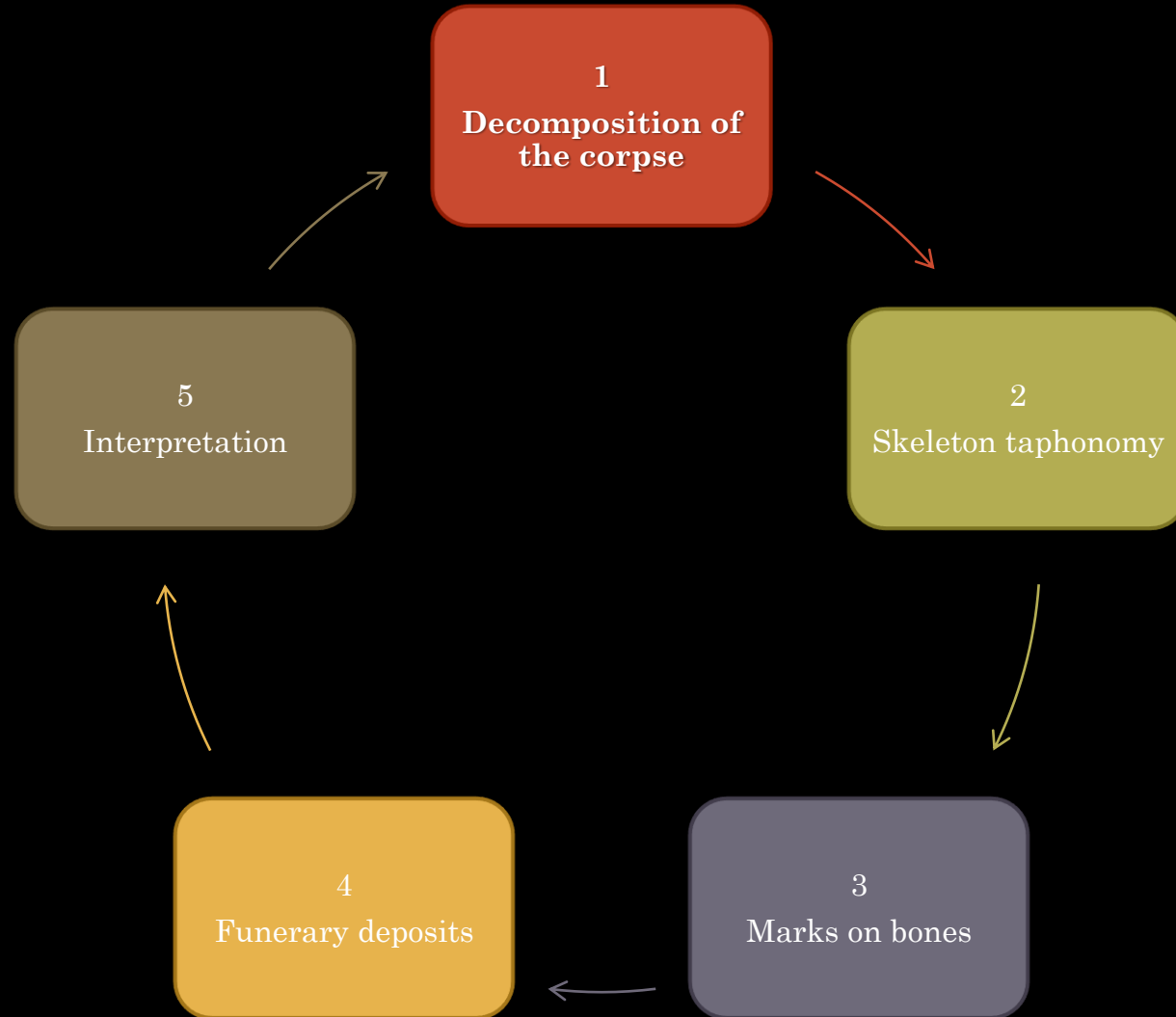
Arwa Kharobi, PhD

Assistant Professor

arwakharobi@sci.muni.cz



Archaeoethanatology as a discipline



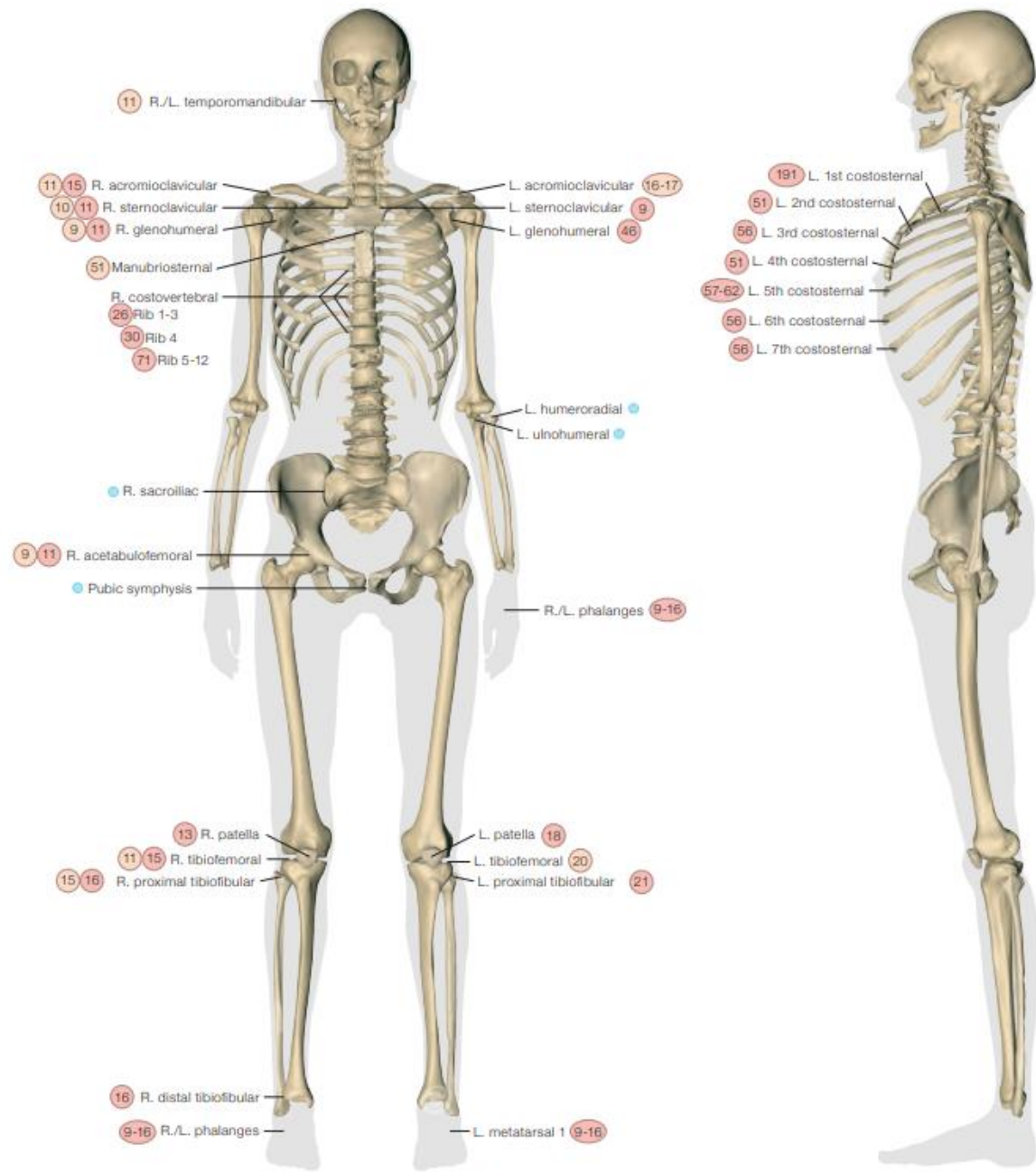


Fig. 21: Ventral and lateral view of joint expansion and joint disarticulation, SG

DAY Joint expansion
 DAY Joint disarticulation
 ● Adjustment of data needed

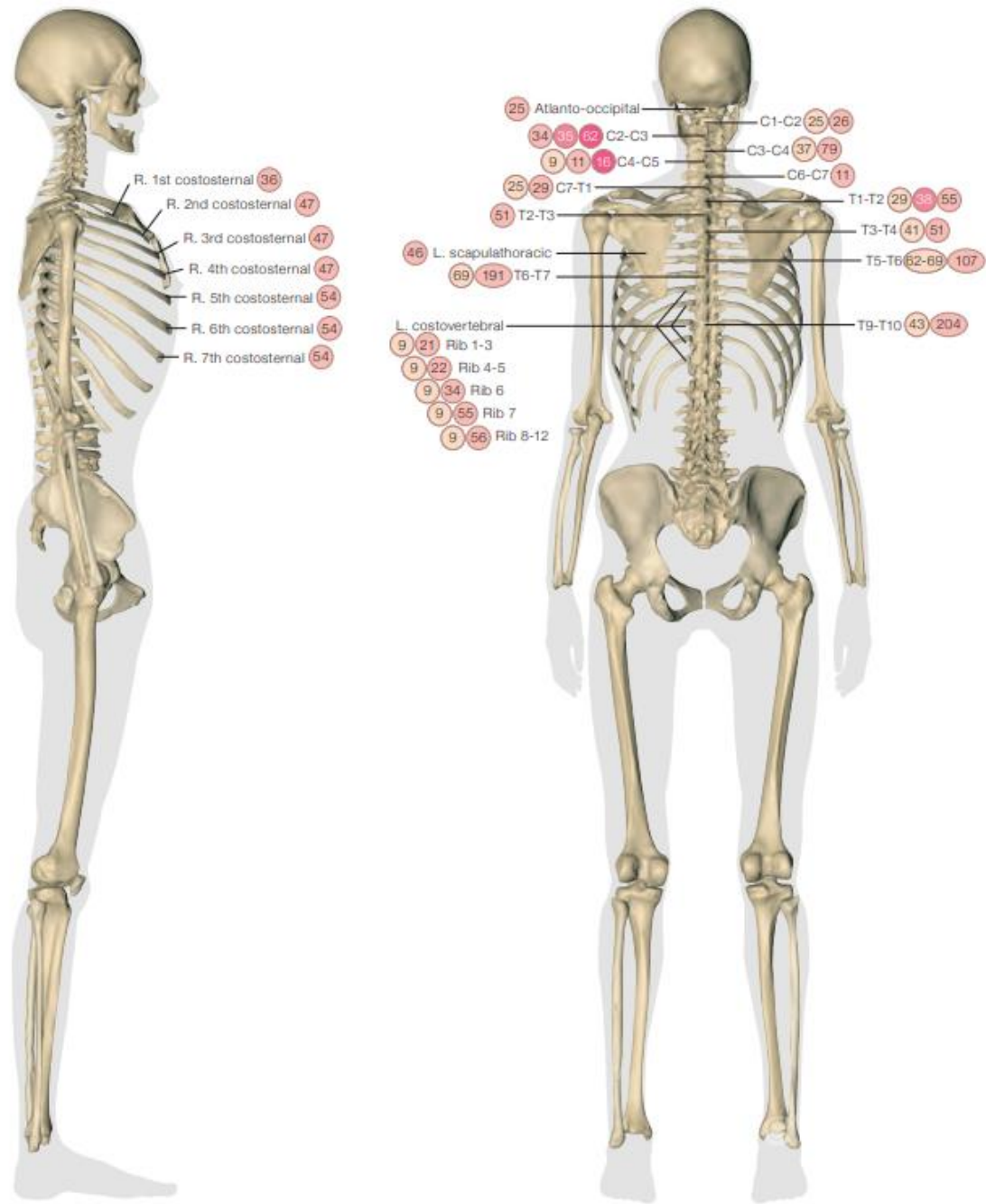


Fig. 22: Lateral and dorsal view of joint expansion, joint disarticulation and joint rearticulation, SG

DAY Joint expansion DAY Joint disarticulation DAY Joint rearticulation DAY 2nd Joint disarticulation



Any thoughts on this grave?

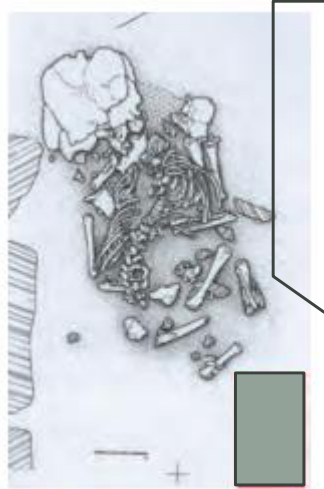


Fig. 16: Excavation plan of baby, Henry
→ Head length



Fig. 17: Excavation plan of baby, Henry
→ Head length



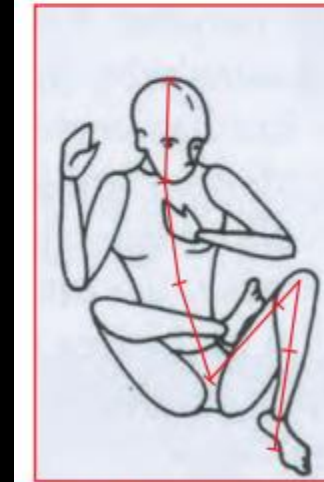
Fig. 16: Excavation plan of baby, Henry
→ Head length



Fig. 17: Excavation plan of baby, Henry
→ Head length



by Duda, legend by SG



by Duda, legend by SG

Recording: in the field



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SKELETAL INVENTORY

RECORDING FORM (1)

Codes:
f = 1-25% present
p = 25-75% present
c = 75-100% present

Provenience: _____

Designation/ID: _____

CRANIAL	left	right	teeth	#	cond	Sternum		
Frontal	-	-	Incisors	<input type="checkbox"/>	-	manubrium	-	-
Parietal	-	-	Canines	<input type="checkbox"/>	-	body	-	-
Occipital	-	-	Premolars	<input type="checkbox"/>	-	xiphoid	-	-
Temporal	-	-	Molars	<input type="checkbox"/>	-	Left Ribs	<input type="checkbox"/>	-
TMJ	-	-	Unidentified Teeth (#):	<input type="checkbox"/>	-	Right Ribs	<input type="checkbox"/>	-
Mandible	-	-				Unidentified Axial (#):	<input type="checkbox"/>	-
Zygomatic	-	-	AXIAL	#	cond			
Maxilla	-	-	1 st Cervical	-	-	APPEND.	left	right
Nasal	-	-	2 nd Cervical	-	-	Scapula	-	-
Lacrimal	-	-	3-6 Cervical	<input type="checkbox"/>	-	glenoid	-	-
I. N. C.	-	-	7 th Cervical	-	-	Clavicle	-	-
Palatine	-	-	1-9 Thoracic	<input type="checkbox"/>	-	med. epi.	-	-
Sphenoid	-	-	10 th Thoracic	-	-	Ilium	-	-
Ethmoid	-	-	11 th Thoracic	-	-	auricular	-	-
Vomer	-	-	12 th Thoracic	-	-	Pubis	-	-
Hyoid	-	-	1-4 Lumbar	<input type="checkbox"/>	-	symphysis	-	-
Thyroid/Cryoid	-	-	5 th Lumbar	-	-	Ischium	-	-
Ossicles	-	-	Sacrum	<input type="checkbox"/>	-	acetabulum	-	-
Unidentified Cranial (#):	<input type="checkbox"/>	-	Coccyx	<input type="checkbox"/>	-	Patella	-	-
						Unidentified Append. (#):	<input type="checkbox"/>	-

APPENDICULAR	left				right			
	epi-p	prox	mid	dist / epi-d	epi-p	prox	mid	dist / epi-d
Humerus	-	-	-	-	-	-	-	-
Radius	-	-	-	-	-	-	-	-
Ulna	-	-	-	-	-	-	-	-
Femur	-	-	-	-	-	-	-	-
Tibia	-	-	-	-	-	-	-	-
Fibula	-	-	-	-	-	-	-	-
Unidentified Long Bones (#):	<input type="checkbox"/>				<input type="checkbox"/>			

EXTREMITIES	#	cond	#	cond
Scaphoid	<input type="checkbox"/>	-	Calcaneus	<input type="checkbox"/>
Lunate	<input type="checkbox"/>	-	Talus	<input type="checkbox"/>
Trapezium	<input type="checkbox"/>	-	Cuboid	<input type="checkbox"/>
Trapezoid	<input type="checkbox"/>	-	Navicular	<input type="checkbox"/>
Capitate	<input type="checkbox"/>	-	Med. Cuneiform	<input type="checkbox"/>
Hamate	<input type="checkbox"/>	-	Inter. Cuneiform	<input type="checkbox"/>
Triquetral	<input type="checkbox"/>	-	Lat. Cuneiform	<input type="checkbox"/>
Pisiform	<input type="checkbox"/>	-	Metatarsals	<input type="checkbox"/>
Metacarpals	<input type="checkbox"/>	-	Prox. Phalanges	<input type="checkbox"/>
Prox. Phalanges	<input type="checkbox"/>	-	Mid. Phalanges	<input type="checkbox"/>
Mid. Phalanges	<input type="checkbox"/>	-	Dist. Phalanges	<input type="checkbox"/>
Dist. Phalanges	<input type="checkbox"/>	-	Sesamoids	<input type="checkbox"/>
Sesamoids	<input type="checkbox"/>	-		
Unidentified Extremities (#):	<input type="checkbox"/>		<input type="checkbox"/>	

Notes:

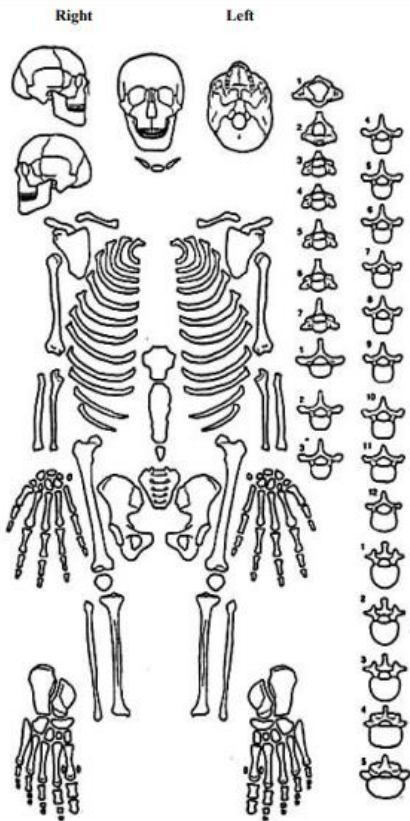
Recording in the field



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SKELETAL INVENTORY RECORDING FORM (1)

Fill in skeletal elements present and record notes along side. Label "L" if unsided, and "A" to denote approximated location.



Additional observations:

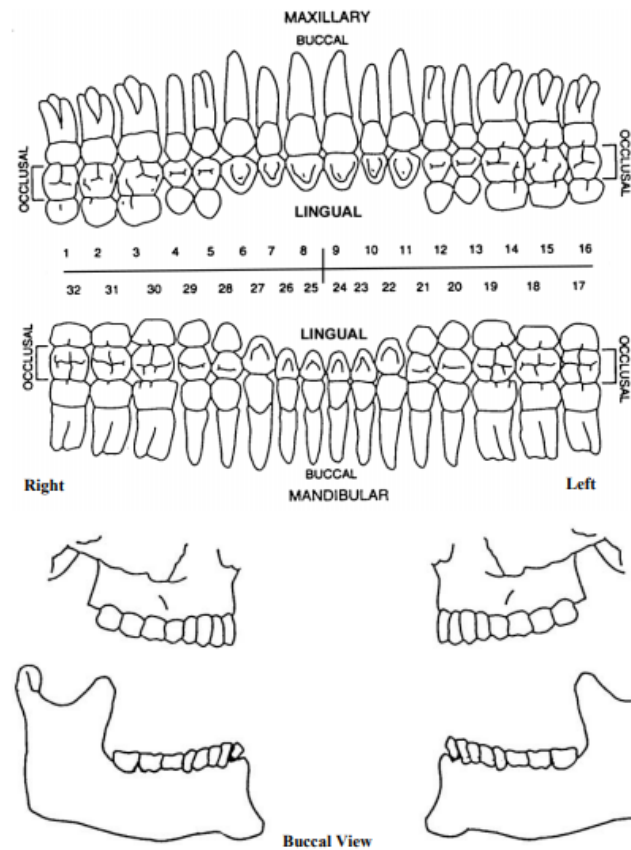
†This form includes information derived from Buikstra and Ubelaker (1994), *Standards for Data Collection from Human Skeletal Remains*. Arkansas Archeological Survey, and is used with permission of the publisher. 1-2



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DENTAL INVENTORY & PATHOLOGY PERMANENT - RECORDING FORM (3a)

Note pathology locations and severity, wear, and any additional observations.

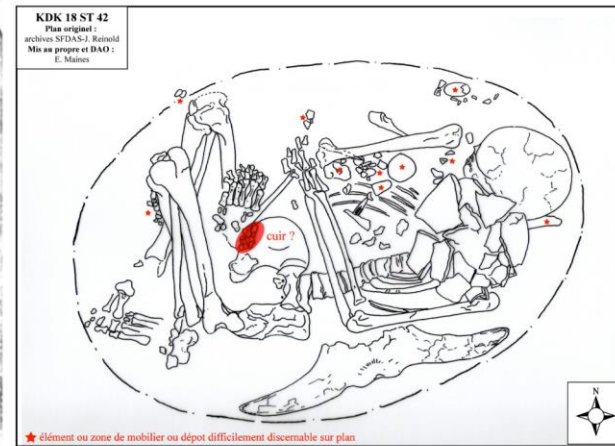
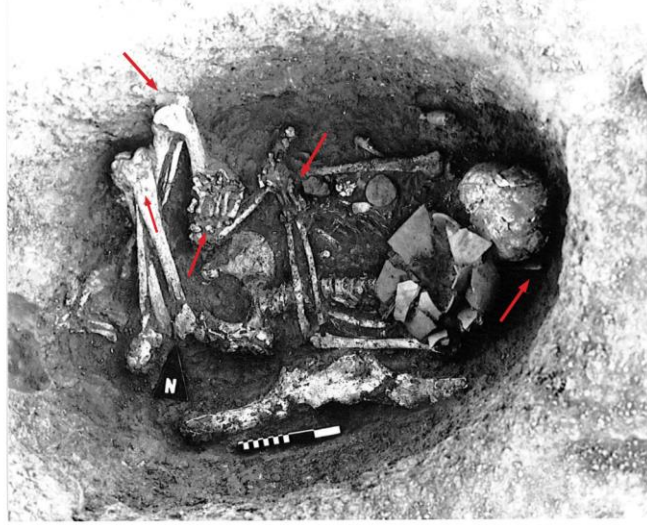
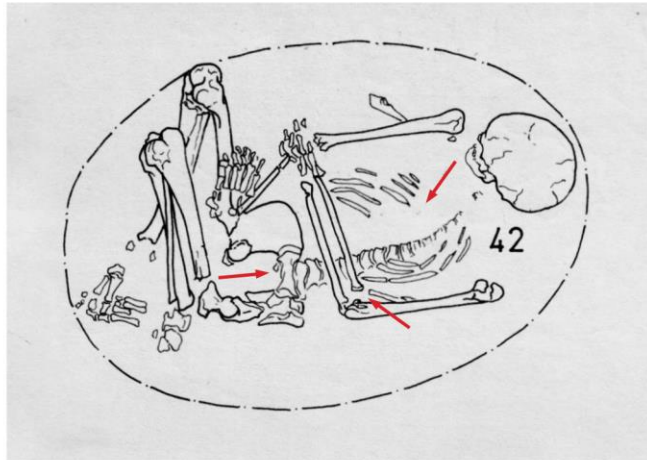


Additional observations:

➔ Recording in the field



Recording: post excavation



Expedition

Locus Database (default sheet)

prev next

Browse Find Add Delete flag
Browse Omit Omitted Sort Unsort

E	Square	Operation	E1
5/30/2010	5/30/2010	excavator	Max Price

nt description supplementary information field records

135 (to the south) and 126 (to the east). It appeared to be continuous with the burials were included in the same cut, which remains a possibility--17, 146, and 174 as well.

North. It had fewer inclusions, however, including two jars. The fill for the collapse and wash, and contained a few potsherds and animal bones--the other burials.

field photos lots objects



texture m.b. collapse and reddish brown soil

Recording: Create your **system**

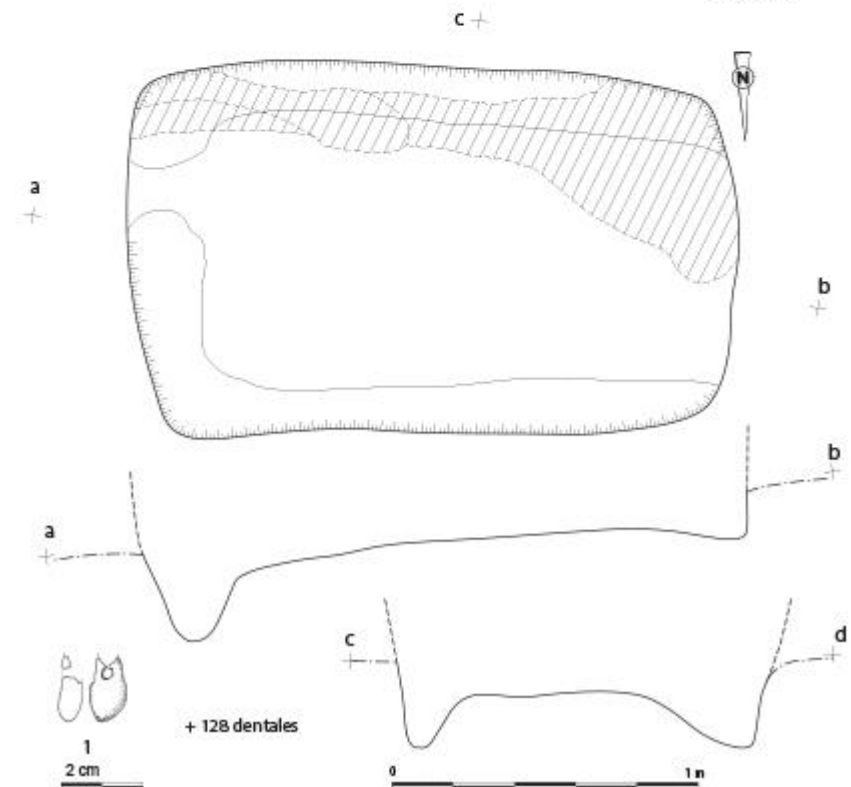
burial	
Location	Location and stratigraphic relationships
Tomb	Orientation, architectural form and nature of the filling.
Elevation (m)	The highest and lowest points of the burial.
Dating	Phase et stratum.
human remains	
Preservation	Good, average or bad.
Description	Relative positioning by anatomical segment (skull, vertebrae and thorax, shoulder girdle, arms, pelvic girdle and legs) noting the presence or the absence of the anatomical joints.
Body orientation	From head to feet.
Biology	Estimation of age and determination of sex.
grave goods	
Nature and quantity of offerings, position in the tomb and in relation to the corpse.	
taphonomical analyses and interpretation	
Discussing (based on the previous description of the human remains) the corpse taphonomy, defining the type of the funerary deposits, analysing the environmental conditions within the burial, exposing the differences between the original burial and the form of the deposit observed at excavation	

Recording: Create your **catalogue**

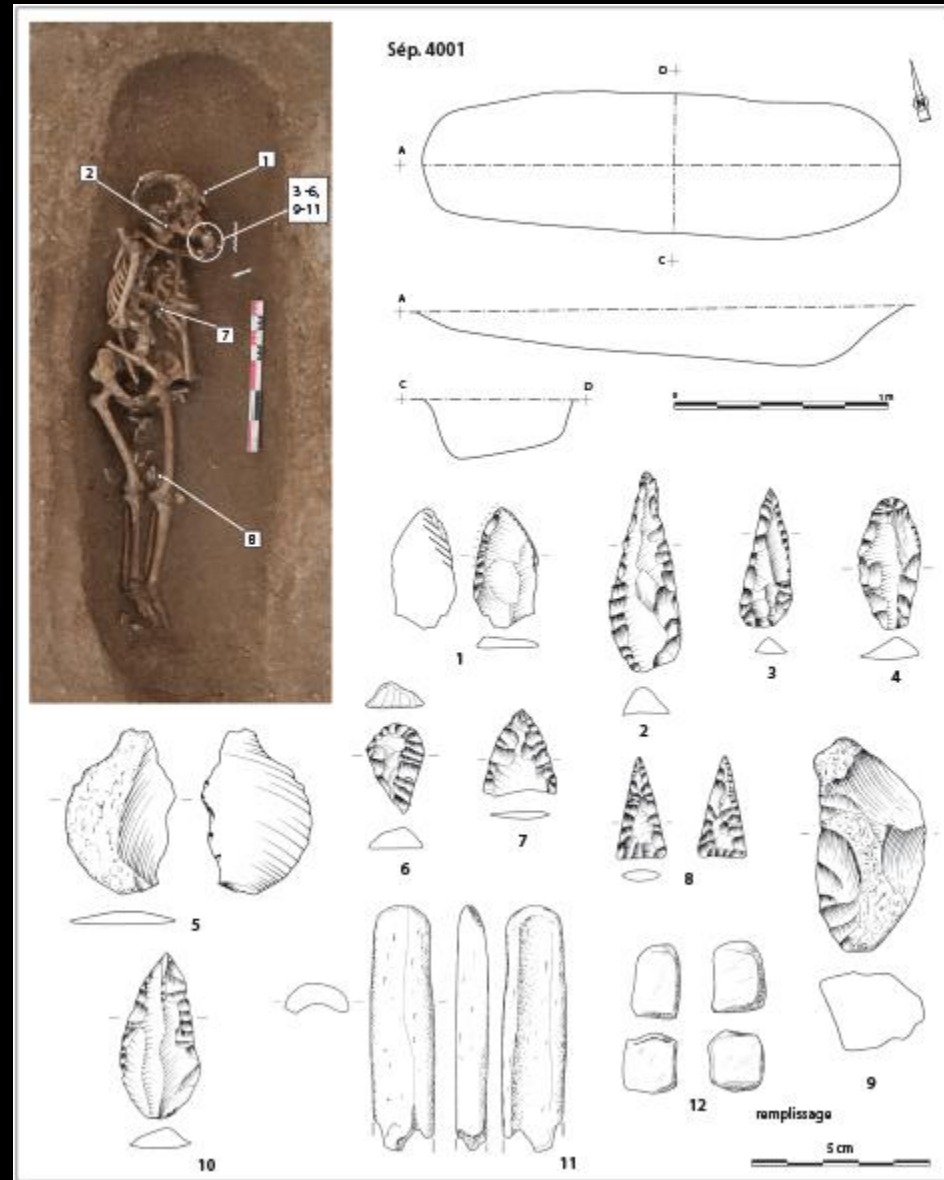
- *Sépulture 1321 (fig. 25)*
- *156- Creusement : fosse de plan rectangulaire (1,98 x 1,32 m) aux angles arrondis ; profondeur conservée maximale de 0,32 m.*
- *Aménagements : tranchées de 15 cm de largeur et de 20 cm de profondeur aménagées sur le fond du creusement, à l'aplomb des parois nord, est et sud. Vestiges de coffrage et/ou de structure aérienne.*
- *Position de l'individu : sur le dos, tête à l'ouest. Le membre supérieur droit est en extension, le membre supérieur gauche légèrement replié ; tous deux sont légèrement écartés du corps. Les membres inférieurs sont en extension.*
- *Taphonomie : effets de délimitation linéaire sur le côté droit du squelette et au niveau des pieds. Contenant en matériau périssable et décomposition en espace vide.*
- *Sexe et âge : sujet décédé entre 15 et 19 ans. Sexe non déterminé.*



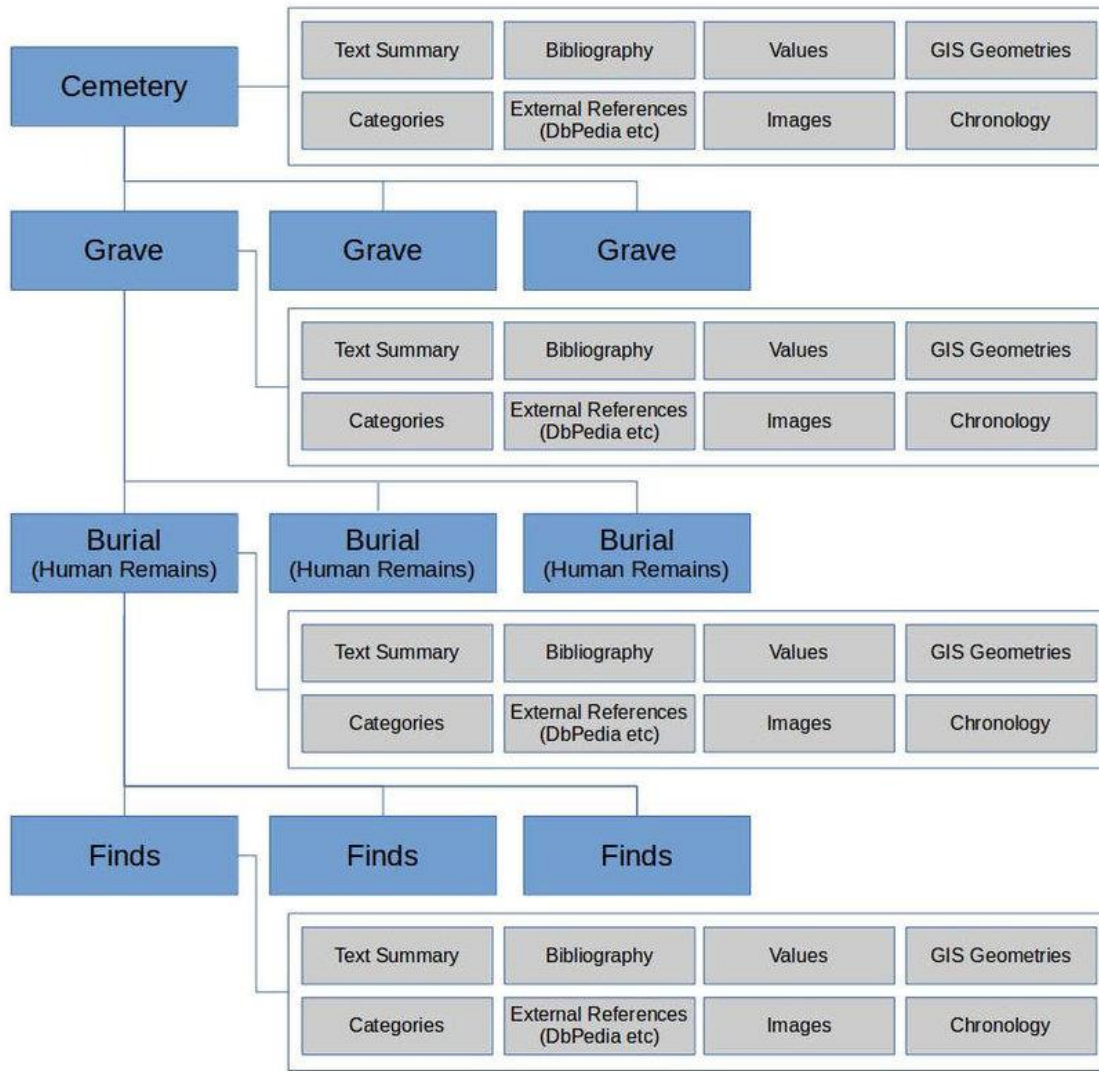
Sép. 1321



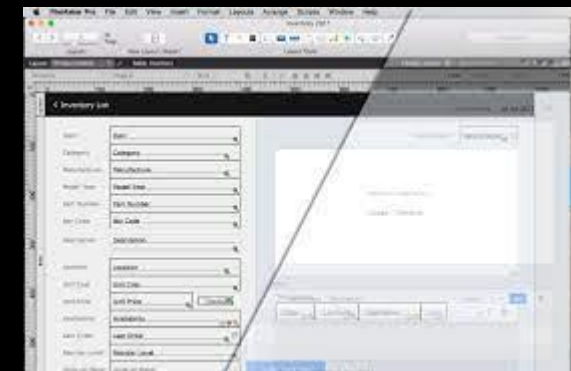
Recording: Create your **catalogue**



Recording: Create your **database**



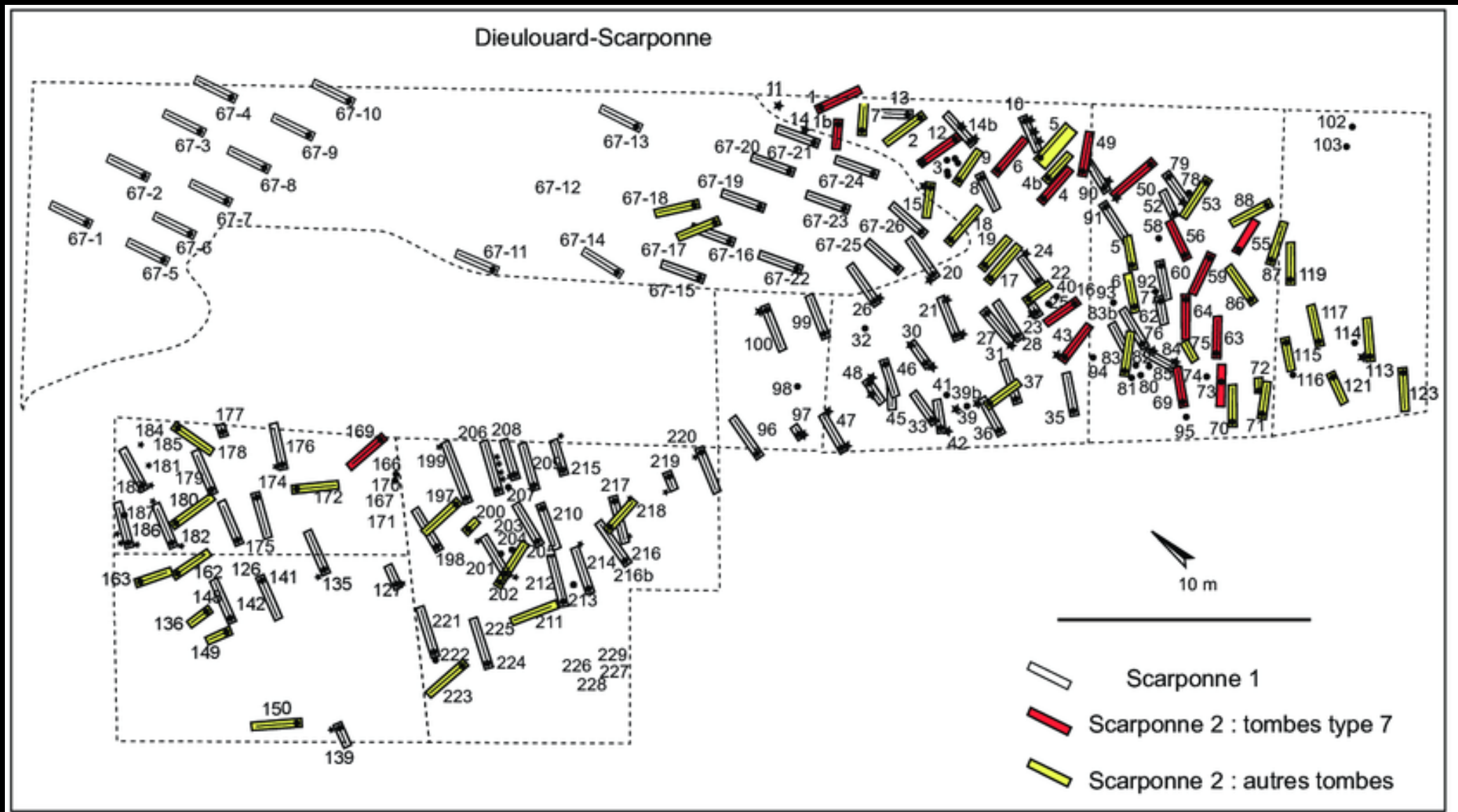
Year	Total	Avg	Tab Name	Numbers	Round Up	Round Down	Round Up	Round Down	Month	Week
1500	4100	1400	BSM KUMAR	1.03333	1	2	1	1.1	1.03	Mon
1600	5000	1832	OGPA, STRAMA	2.0955	2	3	2	2.1	2.09	Tue
1700	5700	1741	SOBA, PMU	2.908	3	3	2	3	2.90	Wed
1800	4200	1500.50	NAOS, SINGH	8.94	8	9	8	9	8.94	Thu
1900	7480	2457	RAM, RAM	1.333	1	2	1	1.4	1.33	Fri



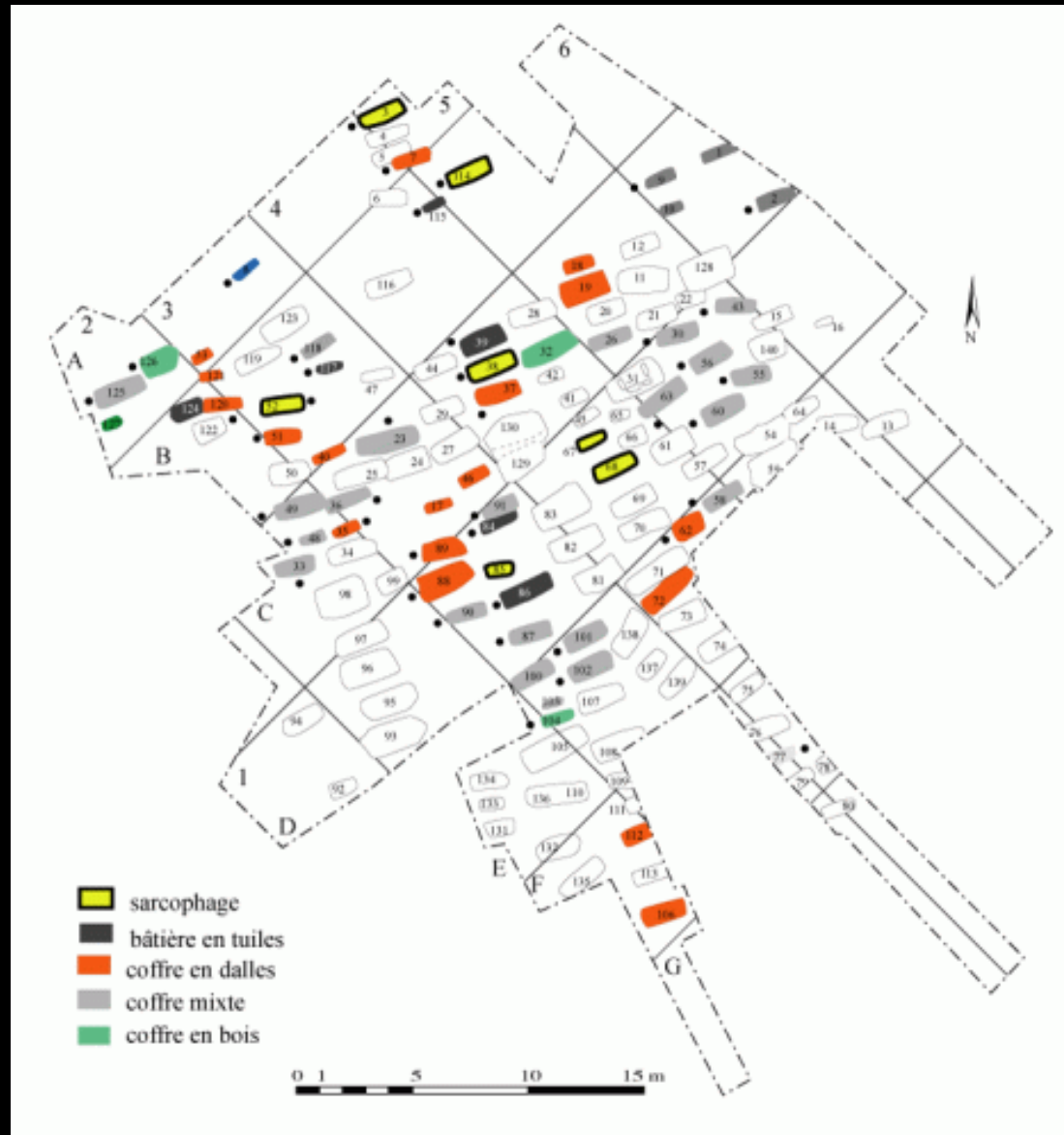
Recording: Test statistically



Recording: Discuss spatial organisation



Recording: Discuss spatial organisation



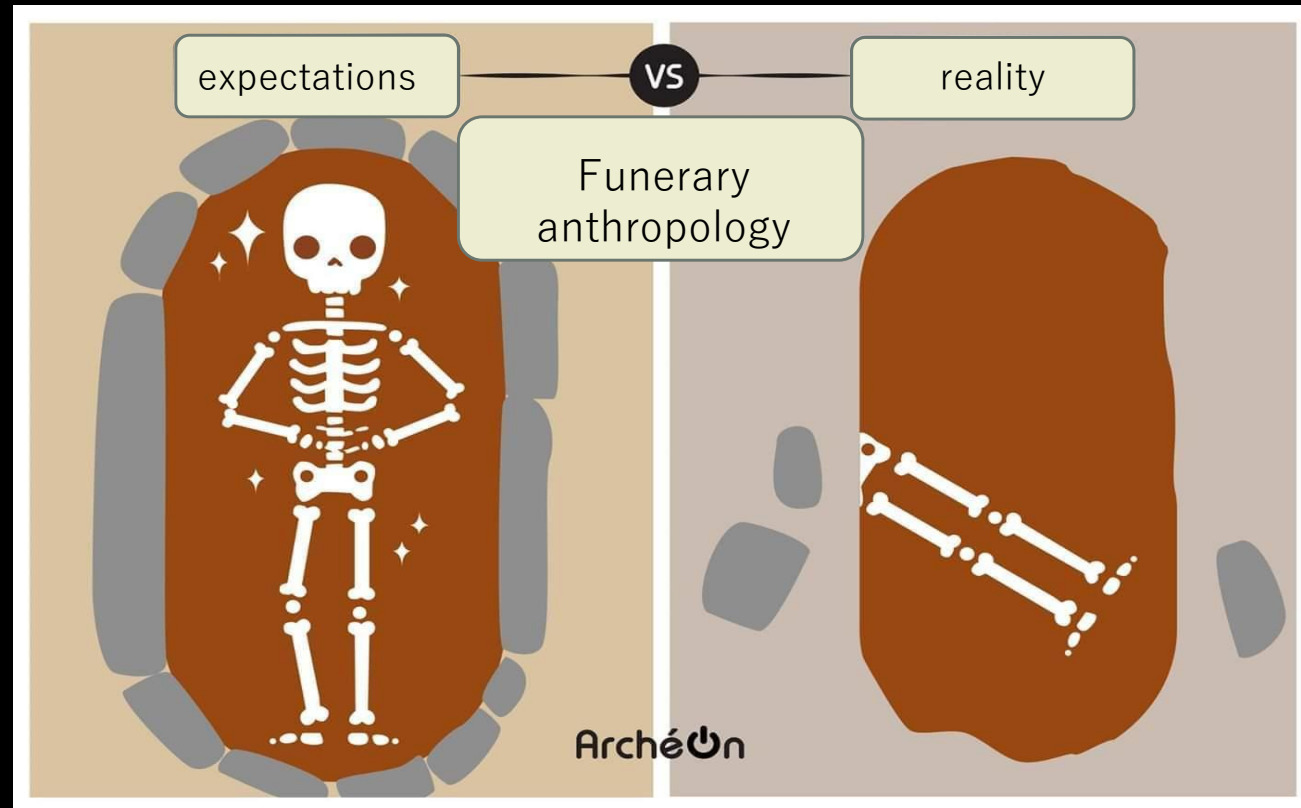


How to **reconstruct** a burial?

Define if it is :

1. Primary or secondary?
2. Single, multiple or collective burial?
3. Decomposition in a void or a filled space ?

➡ Different categories of funerary deposits



1. Primary or secondary?

2. Single, multiple or collective?

3. Decomposition in a void or a filled space ?

➡ Different categories of funerary deposits

- **Primary burial** "simple funeral" = a single ceremony during which the manipulation of the remains takes place. The body, still in a state of anatomical integrity, is then placed in its final tomb. Decomposition happens almost entirely at the place of burial



➡ Primary burial

The determination of the mode of primary deposition is essentially deduced from:

- observation of the **anatomical connections**
- & more precisely of the **labile type joints**
- some connections give way **faster than others**

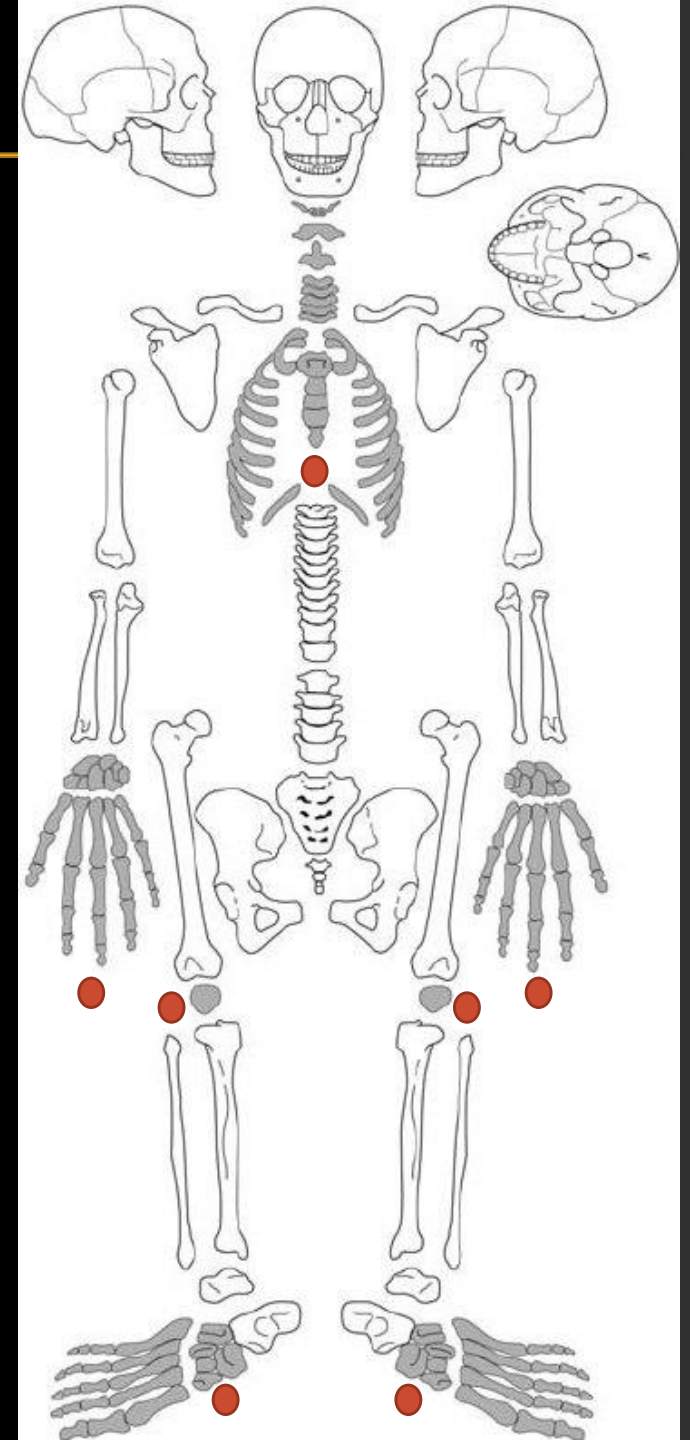


Primary burial F.3891 adult male, Çatalhöyük (Turkey)

Primary burial

- *labile joints* * *first to give way* = small & fragile bones (i.e. cervical vertebrae, patella, hands, feet)
- *persistent joints* * *preserved longer* = solid & voluminous bones

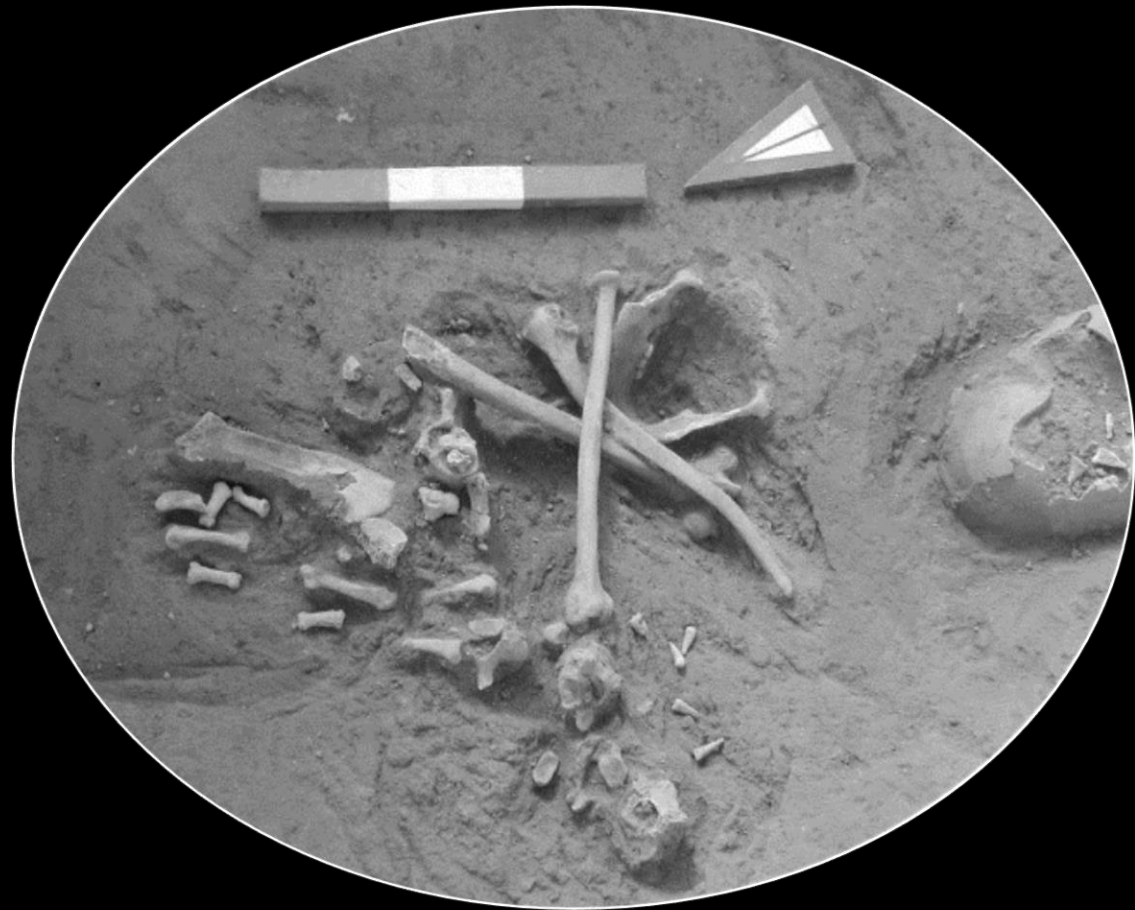
preserved labile connections → primary burial



➡ Secondary burial



Secondary burial, Laos



Secondary burial A10q1137, Tell Mozan (Syria)

However, the reverse reasoning is not necessarily valid

➡ Different categories of funerary deposits

- *Secondary burial* "double funeral" = human remains are manipulated at two different stages
 1. First the corpse is put in a temporary burial where decomposition takes place
 2. Afterwards the bones are transferred to a tomb

The final burial happens away from the place of decomposition → impossible to observe the diagenesis of the corpse in the place of final deposition



Challenging



1. Primary or secondary?

2. Single, multiple or collective?

3. Decomposition in a void or a filled space ?

➡ 2. Single, multiple or collective burial?

Minimum number of individuals, or MNI (White, 1953)

- *Individual* burial
- *Double* burial
- *Multiple* burial
- *Collective* burial



2. Single, multiple or collective burial?

Individual burial = containing the remains of a single individual



Single burial, Olmos (Peru)



➡ 2. Single, multiple or collective burial?

- *Multiple burial* = comprises dead bodies deposited in the same place simultaneously
→ evidence for catastrophic events, massacres, plagues, floods, etc., which have caused a mortality crisis.
- The minimum form of multiple burial, containing only 2 individuals deposited at the same time = *double*.



Double burial, Raqefet Cave, (Palestine)



Multiple burial with 80 skeletons, near Athens (Greece)

➡ 2. Single, multiple or collective burial?

- *Collective burial* = corpses deposited at different times & the structure allowing reopening for further depositions



St. Pauls Catacombs, Rabat (Malte)



Collective burial, Saint-Rémy-la-Calonne, Meuse (France)

1. Primary or secondary?

2. Single, multiple or collective?

3. Decomposition in a void or a filled space ?

➡ 3. Decomposition in a void or a filled space ?

Observations on the taphonomy of a corps →

useful information on the micro-environment in which a decay process takes place, and, in directly on burial architecture :

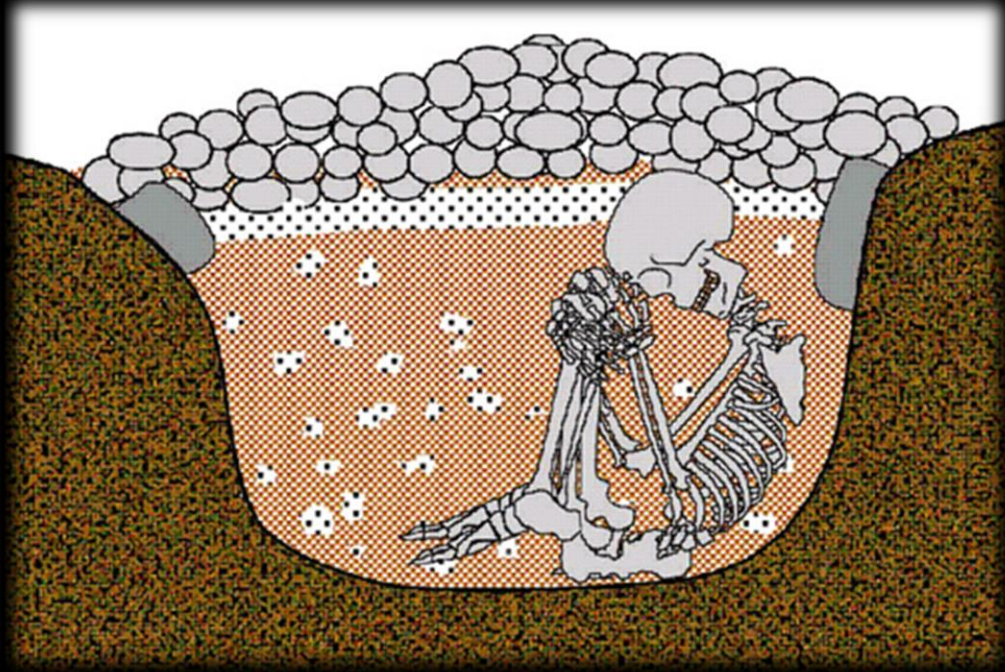
the corps may be buried either :

- **in a filled space**
- **or in a void**



A child burial in a filled space, l'église Saint-Saturnin (France)

3. Decomposition in a filled space



victim of the Vesuvius eruption of 79 AD, Pompeii (Italy)

➡ 3. Decomposition in a filled space

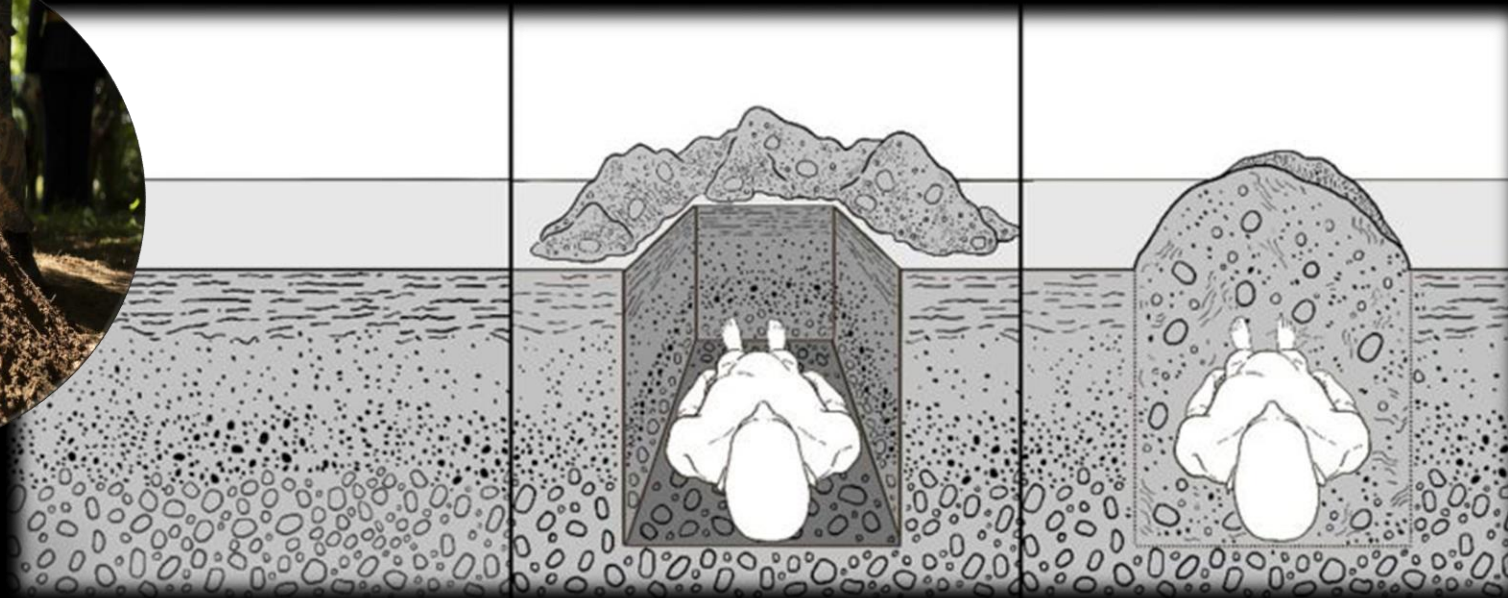
- **Three mechanisms** have been identified in the process of filling:



3. Decomposition in a filled space

- Three mechanisms have been identified in the process of filling.

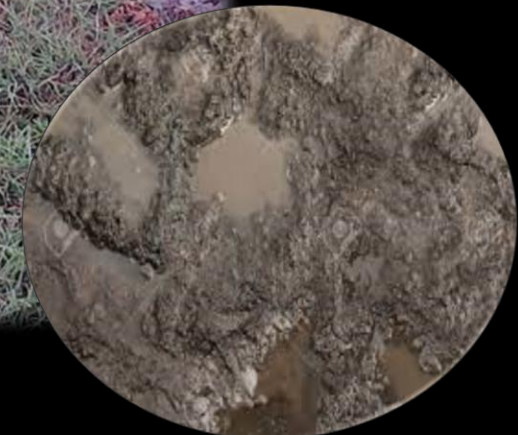
1. the force of gravity = the sediment that has built up above the corpse falls into the spaces left empty by the disappearance of the soft tissue.



3. Decomposition in a filled space

- Three mechanisms have been identified in the process of filling.

2. the increase in volume of clay sediment when wet = decomposition fluids from the corpse soak the sediment and, if clay, this expands to fill the empty spaces.



3. Decomposition in a filled space

- Three mechanisms have been identified in the process of filling.

3. the disturbance caused by the actions of small animals = while digging tunnels they swallow the soil and later expel it. Such animals particularly seek out humid areas where the sediment is rich in organic matter, like those near burials.

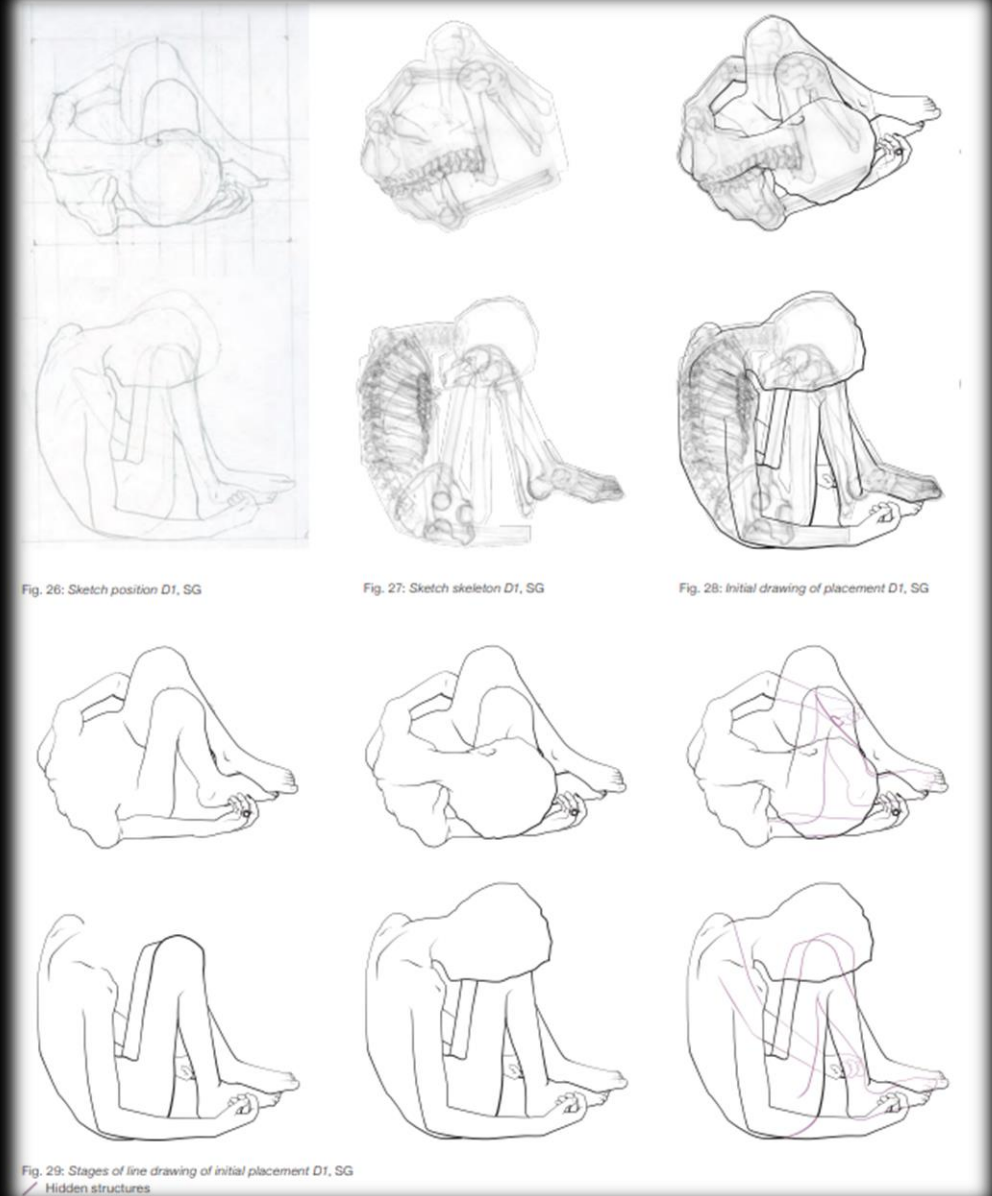


3. Decomposition in a filled space

The space freed by the decomposition of flesh & organs + gravity → skeletal movements & displacements inside the tomb → to observe the:

1. collapse of the ribs
2. fall of the sternum
3. dislocation of the spine

These movements depend on various factors (i.e. the position of inhumation, the decomposition environment & the funeral architecture).



3. Decomposition in a filled space

- bones in an unbalanced position do not tip over into the volume outside the corpse/no void to allow their movement outside the body volume



➡ 3. Decomposition in a filled space

Different types of a filled space:

1. sediment is fine and fluid & can seep into the internal volume of the corpse → **progressive filling** = soft parts will disappear → creating voids that will be gradually filled by the sediment, preventing any movement = the anatomical connections in potential imbalance, in relation to the inner volume of the corpse, are preserved.
2. sediment is thicker and cannot immediately replace decomposing flesh → **delayed filling** = small displacements within the initial body volume.

➡ 3. Decomposition in a void

An observation on the relationships between the internal and external environments of the corpse can provide us with useful information about the cadaver environment

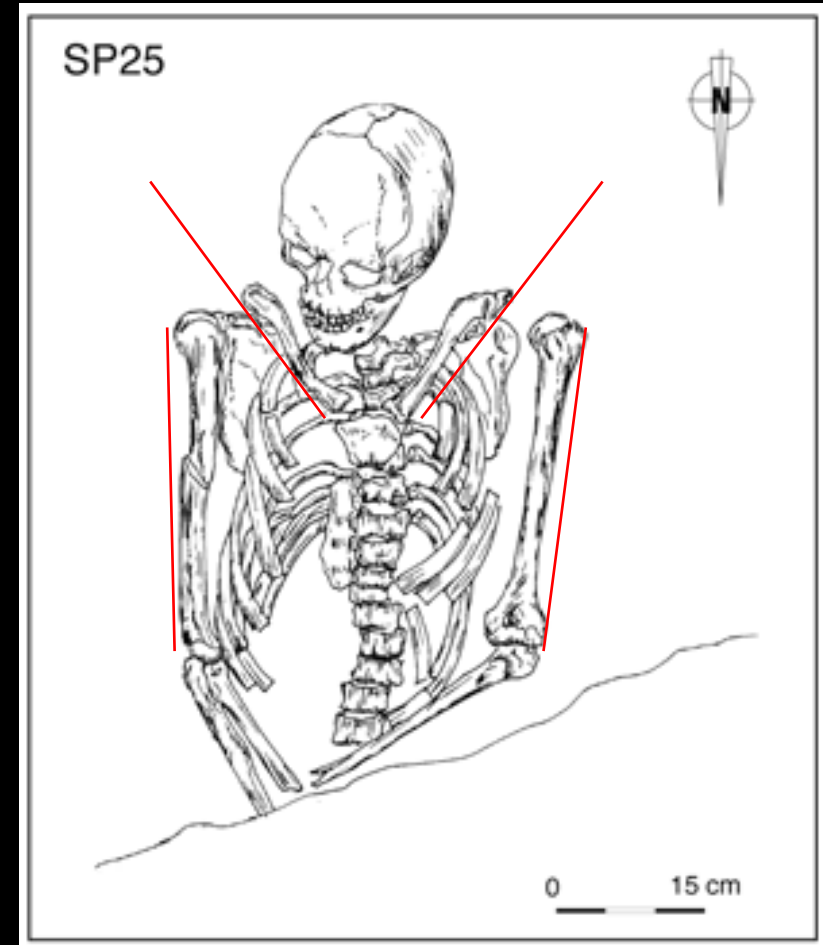
Archaeothanatology allows clues to be identified related to the presence of a void at the moment of burial

traces of wood, nails or differences in fill → what type of structure might have caused this void, coffin, burial chamber, wooden framework, etc.



3. Decomposition in a void

- The existence of a container around the cadaver that is **sufficiently durable** for the decomposition of the body to have taken place before the sepulchral space is filled = some bones become mobile and may leave the initial volume of the body, causing greater displacements than those observed in a filled space.



➔ 3. Decomposition in a void

- These movements occur when the bone parts are in a **position of imbalance** in relation to the volume outside the corpse.
- Wall effects may indicate the use of a funerary structure made of perishable material when certain bones remain in balance or are under stress (e.g. **verticalization of the clavicles**).



➡ 3. Decomposition in a void

a void can also be detected in the absence of architectonic elements:

e.g. individuals buried under covers of leather, a thick and rigid material

→ that creates a void around the corpse

→ seen in the displacement of bones away from the space originally occupied by the body, since the cover decayed long after the corpse did.



A child burial in a jar, Toulouse (France)

Not only to discuss funerary practices

[Home](#) > [The Mother-Infant Nexus in Anthropology](#) > Chapter

Archaeoethanatology as a Tool for Interpreting Death During Pregnancy: A Proposed Methodology Using Examples from Medieval Ireland

[Mélie Le Roy](#) & [Eileen Murphy](#) 

Chapter | [First Online: 26 October 2019](#)

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Part of the [Bioarchaeology and Social Theory](#) book series (BST)



To you! case study & interpretations





















