Field Documentation, collection & evaluation of human remains

PřF: Bi2424 Field research methods (Spring 2023)

Dr Arwa Kharobi, Professor Assistant

Department of Anthropology

@ArwaKharobi

MUNI Masaryk University

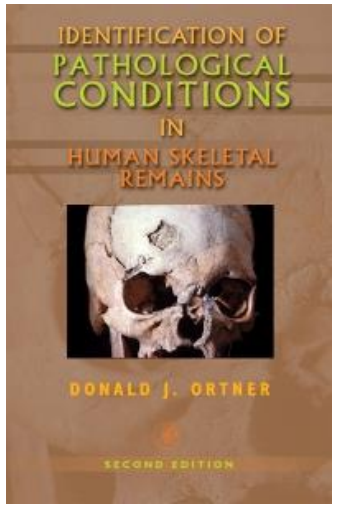
A record of our Lives

Anthropologists analyze skeletons of ancient populations to find out:

- **How** they were? Age at death, biological sex, height
- **Who** they might have been? Identity, origin
- **Where** did they go? Mobility, migration
- **What** they ate? Diet

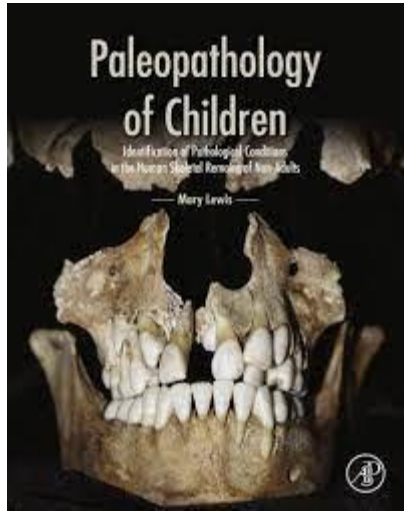
(Credit: Masarik/shutterstock 2018)

A record of our Health



Palaeopathology is the medical discipline dedicated to the study of disease occurring in the past which, in many cases, still afflicts the present

Molecular paleopathology is an emerging field that is devoted to the detection, identification and characterization of the molecular signatures in past diseases



Anthropologist can also study:

- Diseases
- Activities
- Injuries/ surgeries
- Causes of death

RESEARCH ARTICLE | Open Access

Medieval injuries: Skeletal trauma as an indicator of past living conditions and hazard risk in Cambridge, England

Jenna M. Dittmar, Piers D. Mitchell, Craig Cessford, Sarah A. Inskip, John E. Robb

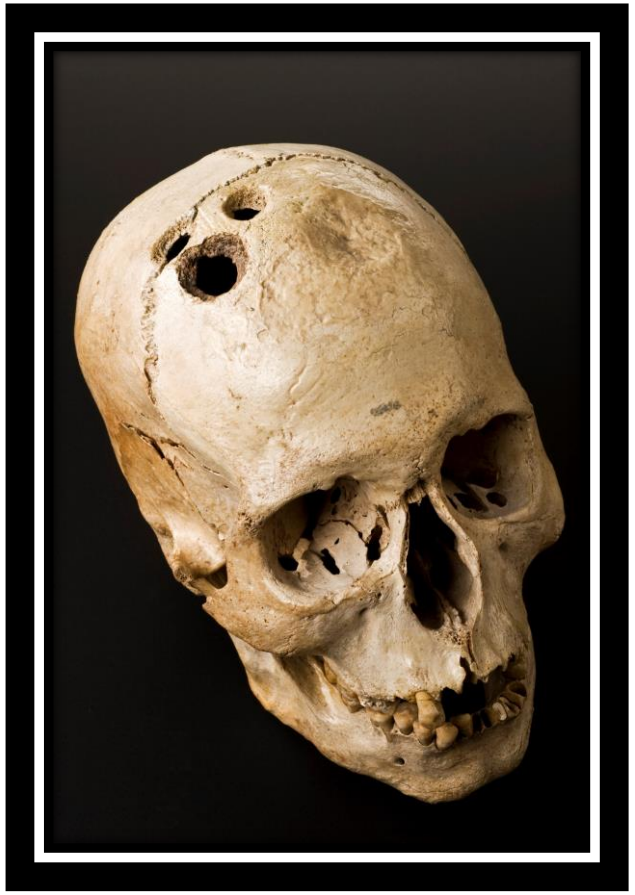
First published: 25 January 2021 | https://doi.org/10.1002/ajpa.24225 | Citations: 3

Am J Phys Anthropol. 2006 Jan;129(1):12-23. doi: 10.1002/ajpa.20234.

Tracing prehistoric activities: musculoskeletal stress marker analysis of a Stone–Age population on the island of Gotland in the Baltic sea

Petra Molnar [1]

King Tut was Disabled, Malarial, and Inbred



A case of trepanation (ancient cranial surgery)

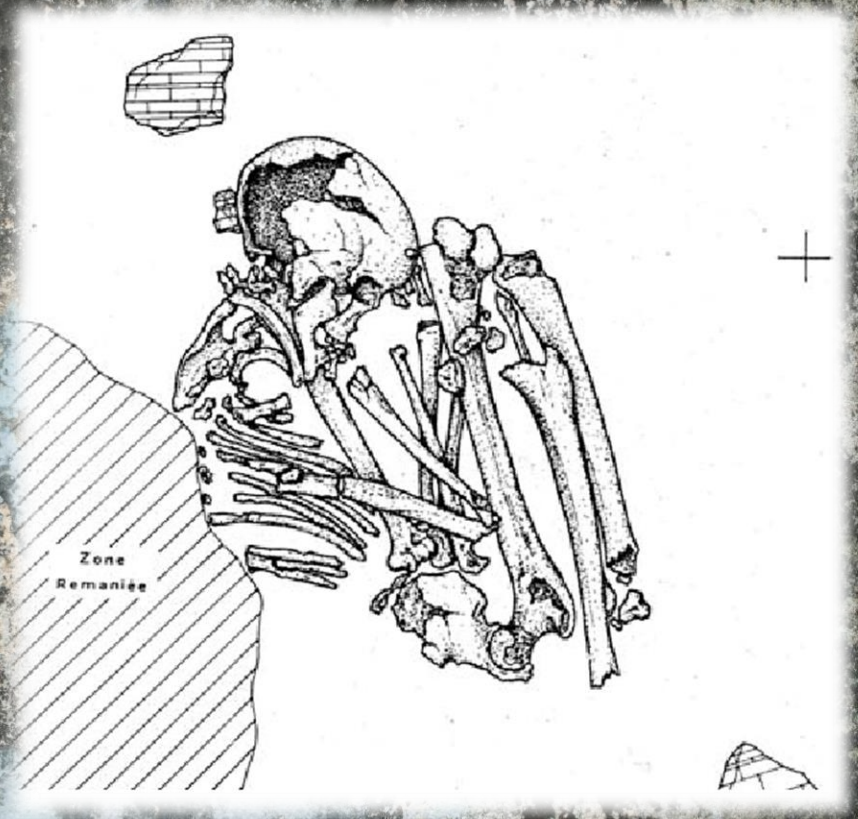
You are not Indiana Jones

Your role is not to empty a hole, but much more than that…

Archaeothanatology

- *''A multi-disciplinary approach in archeology, that studies funerary rituals in the past''*

- Based on knowledge of natural decay processes, the method has made it possible to reconstruct in detail how humans have historically dealt with their dead



How to reconstruct a burial?

Define if it is :

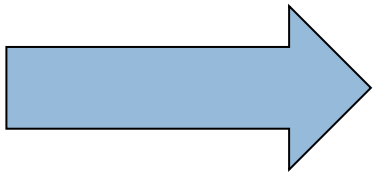
1. Primary or secondary?
2. Single, multiple or collective burial?
3. Decomposition in a void or a filled space ?

Excavation

Use appropriate tools, such as brushes and trowels, to carefully remove sediment and recover the remains, taking care to avoid damage

Excavate the whole of the grave in plan

You are not



No shame of having ‘moved bones’ bag

~~NEVER~~

Stick a trowel into the ground to pry out bone

DO NOT excavate soil from

- the eye orbits
- the nasal aperture (nose)
- the auditory meatus (ear)
- the mandible (lower jaw) – leave a flat section across one side of the Jaw bone to the other
- any holes that occur in any of the bones that may be the result of disease

Because you might lose tiny elements:

Hyoid Bone

Present in all people, contained within the jaw area in the throat.

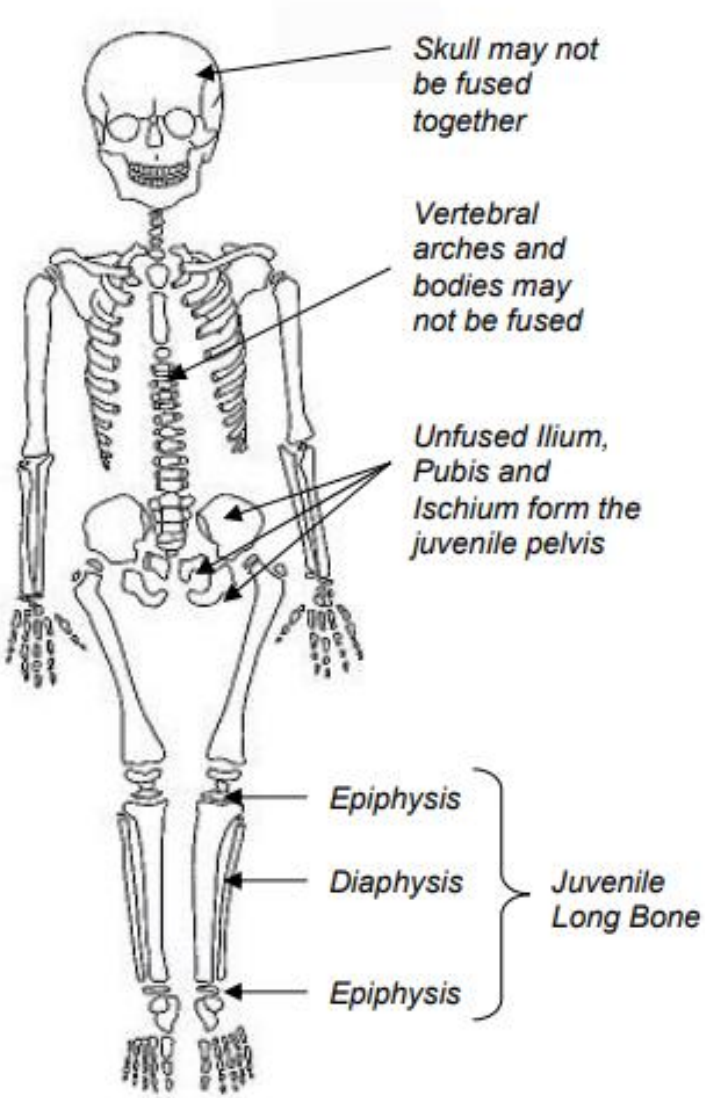
Thyroid Cartilage

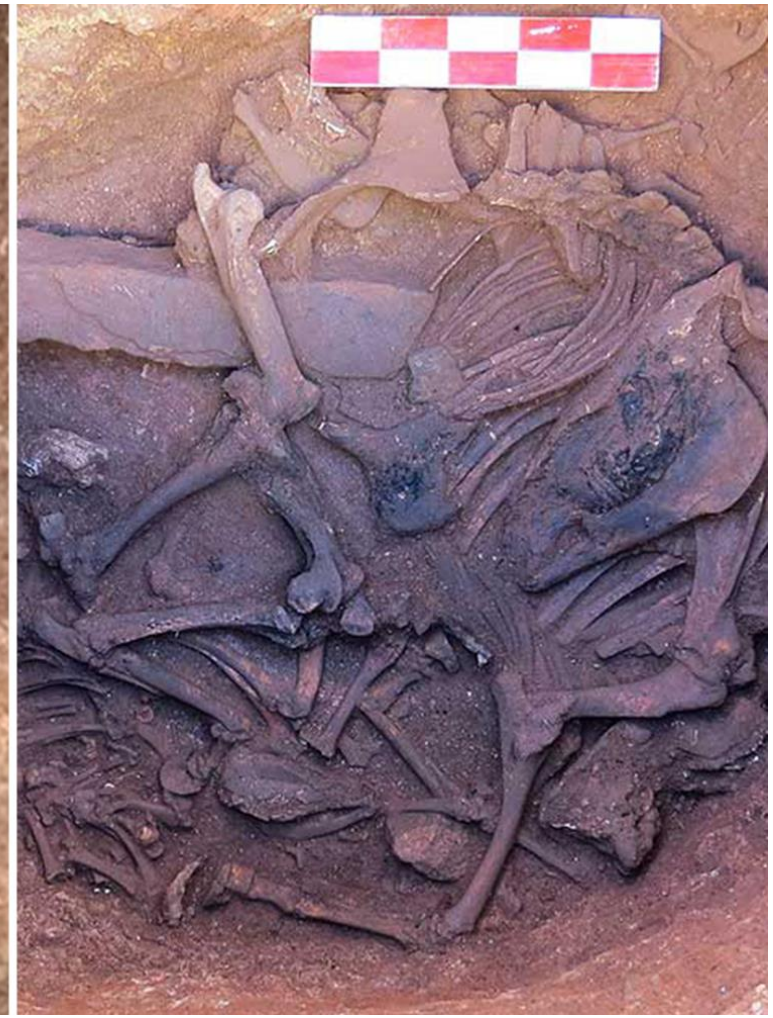
Present in some people, contained in the jaw area – very fragile ossified cartilage

Crickoid Cartilage

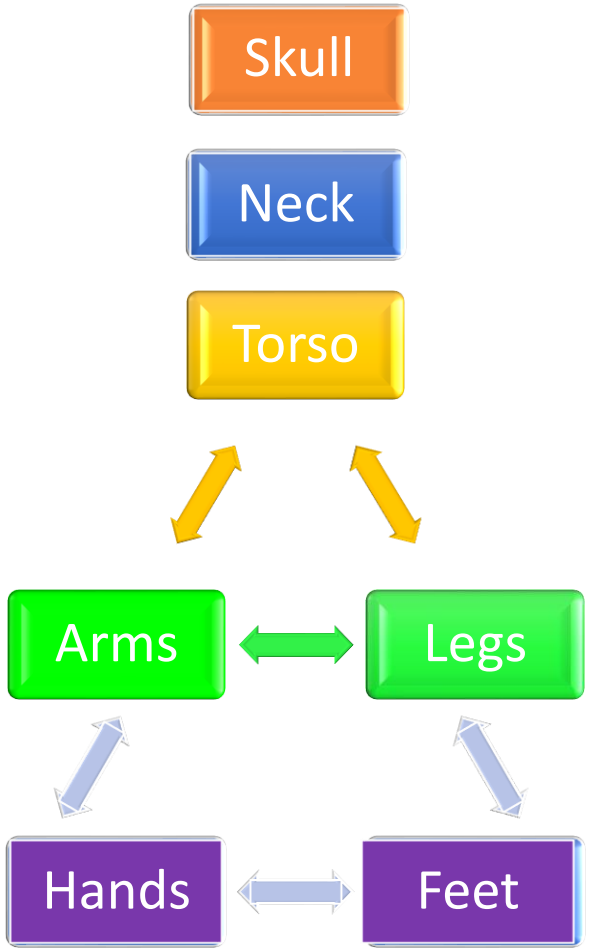
Present
in a few people, contained in the jaw area – very fragile ossified cartilage

Subadults Skeleton – note unfused long bones and pelvis





Once you have exposed the skull, you can work your way down the remains in sequential order of body areas:



- Remove as much soil as is required to reveal to extent of the bones (and associated finds) and their position in the ground so that can be clearly seen for recording and photographing

- Be careful not to remove so much fill that the bones move from their original position or to scrape the bone surface with your trowel

Post-mortem damage caused to the surface of a well preserved femur by using a mattock to excavate grave fill.

Careful excavation with appropriate tools ensured the survival of this fragile fragment of **shroud** preserved on the tibia of this individual.

At the stage when full extent of the skeleton has been fully exposed, record the skeleton. This should include:

- the bones present,
- body position,
- head position,
- grave alignment,
- associated finds,
- structures and features,

- Conduct an initial assessment of age-at-death estimation, sex determination, and stature estimation based on skeletal indicators.

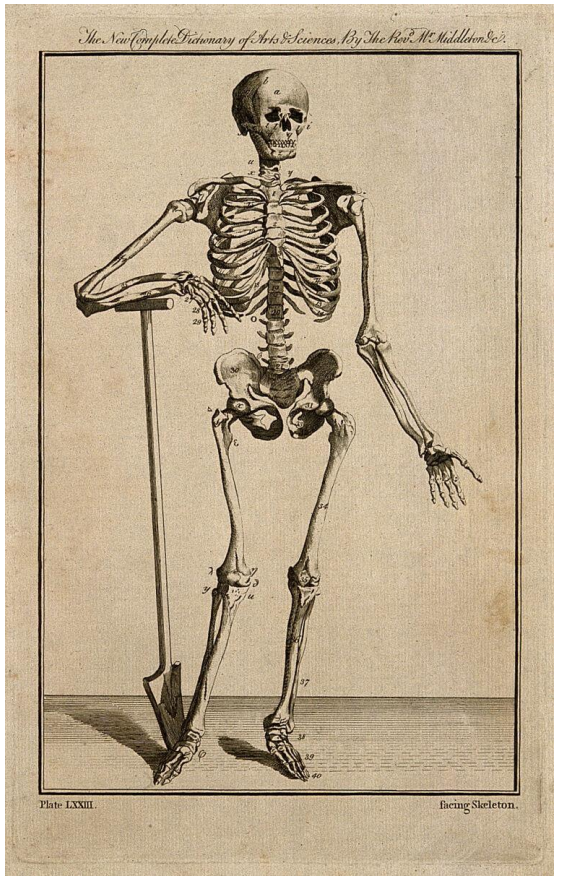
- Identify any evident traumatic injuries, diseases, or other pathological conditions (closeup shots taken with a scale).

Human remains

1. Documentation

2. Collection

3. Evaluation



1. Field Documentation

- Create detailed maps, sketches, and photographs to accurately document the position and arrangement of the skeletal elements.

- Use scales, grids, and reference points to establish measurements and ensure proper spatial documentation.

1. Field Documentation

Anthropological field research form

Created by Erika Průchová 2013

Site:	**Skeleton:**
Excavation unit:	**Date:**
Square:	**Examined by:**

1. grave pit: detected ☐ whole ☐ part
not detected ☐

2. pit dimensions: length: width: depth:
3. individuality: ☐ single ☐ multiple: …

4. disposal: ☐ primary ☐ secondary ☐ undetermined
☐ intact ☐ damaged: …

5. construction elements: ☐ wood: …
☐ nail ☐ stone: …
☐ undetected ☐ other: …

6. documentation: ☐ photography ☐ drawing

7. skeleton: ☐ unpreserved ☐ preserved completely
☐ preserved parts: …

8. body orientation (head-foot): **facing:**

9. length of the skeleton:

10. position: ☐ dorsal ☐ lateral dx / sin ☐ ventral
☐ undetermined ☐ extended ☐ flexed

11. position of upper limbs: **position of lower limbs:**
dx sin dx sin

12. position of skull: ☐ base ☐ os occipitale ☐ face
☐ os temporale dx / sin ☐ os parietale dx / sin
☐ undetermined ☐ displaced ☐ other:

13. measured lengths of the long bones:

14. pathological observations and anomalies:

15. age at death: ☐ fetus/neonatus ☐ infans ☐ juvenis ☐ adultus
☐ maturus ☐ senilis ☐ adultus-senilis

16. sex: ☐ female ☐ male ☐ indifferent ☐ unestimate
Methods used for estimation: ☐ Bruzek 2002 ☐ Buikstra – Ubelaker 1994

17. articulation of selected joints:

evaluated connection	unilateral	dx	sin	evaluated connection	unilateral	dx	sin
Ve C3-C7				occip-C1			
cost-vert				Hu-Ra,Ul			
carpal				Sc-Il			
carpal-MC				fem-tib			
Ph hand				tarsal			
pubic symph				temp-mand			
fem-acet				talus - calcan			
tarsal-MT							

Legend: **AC** = articulation close; **AL** = art. loose; **DA** = disarticulated; **NP** = not present/undetectable

18. taphonomy: ☐ „wall efect“:
Segmentation of the spine: ☐ yes ☐ no ☐ undetermined ☐ undetectable
Jaws: ☐ pressed ☐ slightly pressed ☐ extended ☐ DA ☐ NP
Flatting of the rib cage: ☐ no ☐ slightly unilateral ☐ slightly bilateral
☐ extended unilaterally ☐ extended bilaterally ☐ competely flattened ☐ undetectable
Position: patella dx: patella sin:

19. notes:

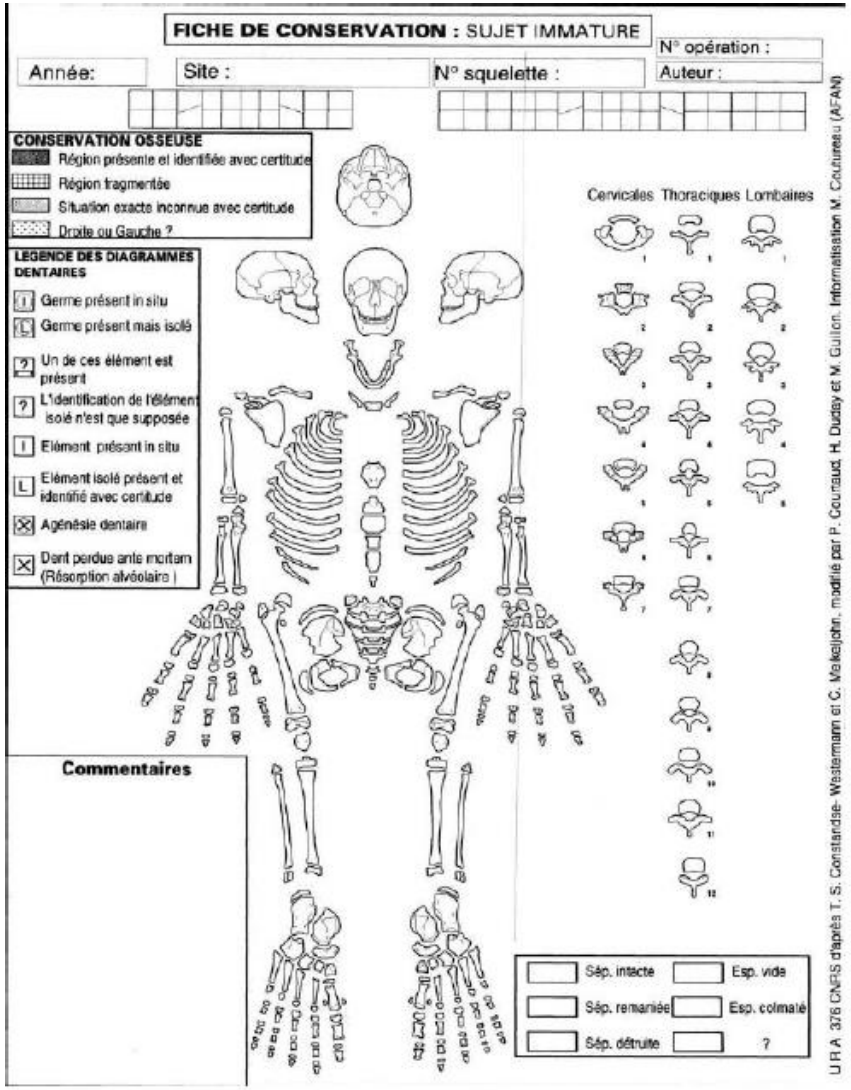
.....

.....

.....

20. grave goods and its location:

1. Field Documentation:



FICHE DE CONSERVATION : SUJET IMMATURE

Année: | Site : | N° squelette : | N° opération : | Auteur :

CONSERVATION OSSEUSE
- Région présente et identifiée avec certitude
- Région fragmentée
- Situation exacte inconnue avec certitude
- Droite ou Gauche ?

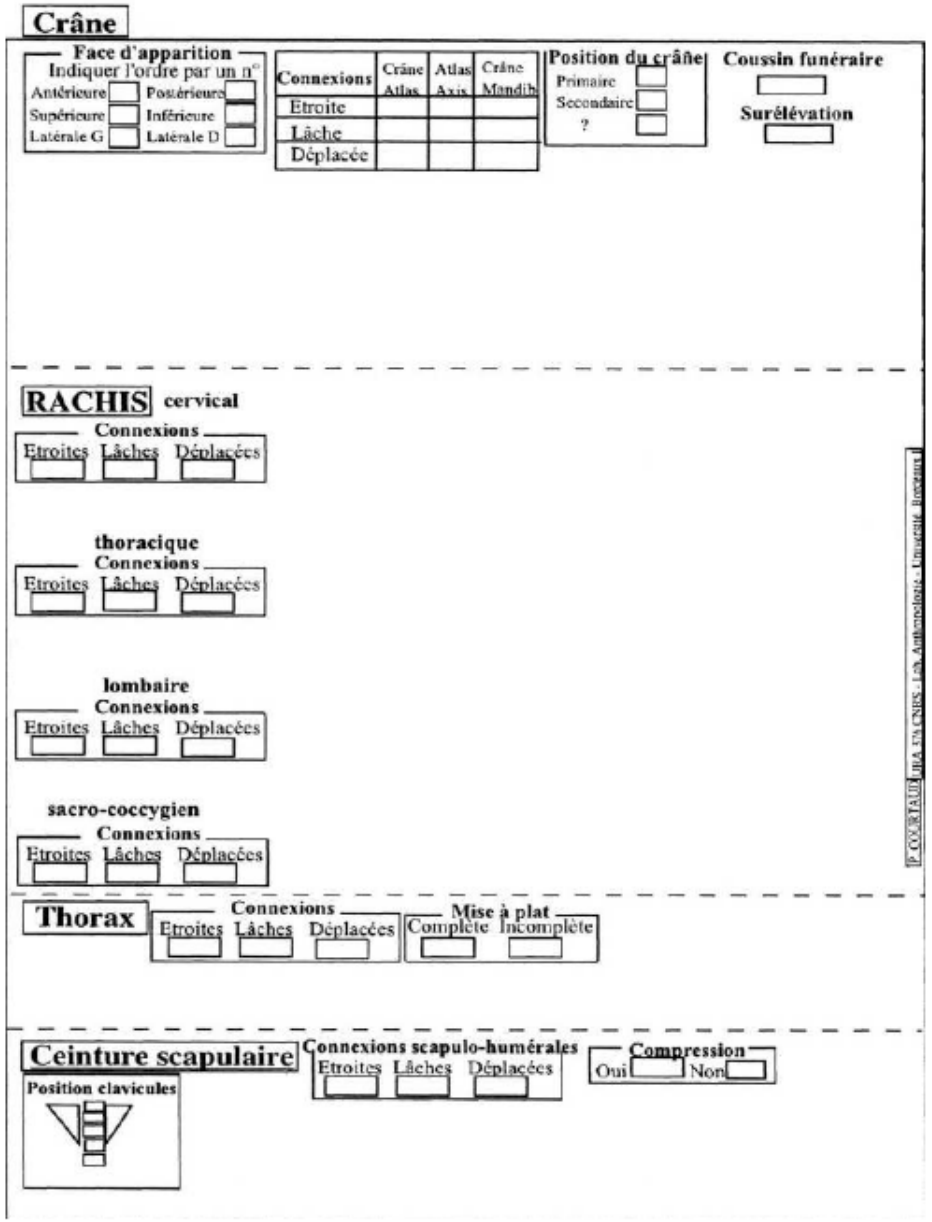
LEGENDE DES DIAGRAMMES DENTAIRES
- Germe présent in situ
- Germe présent mais isolé
- Un de ces élément est présent
- L'identification de l'élément isolé n'est que supposée
- Elément présent in situ
- Elément isolé présent et identifié avec certitude
- Agénésie dentaire
- Dent perdue ante mortam (Résorption alvéolaire)

Cervicales Thoraciques Lombaires

Commentaires

Sép. intacte | Esp. vide
Sép. remaniée | Esp. colmaté
Sép. détruite | ?

URA 376 CNRS d'après T. S. Constandse- Westermann et G. Vekelijohn, modifié par P. Courraud, H. Dudaÿ et M. Guillen. Informatisation M. Couturaud (AFAN)



Crâne

Face d'apparition
Indiquer l'ordre par un n°
Antérieure | Postérieure
Supérieure | Inférieure
Latérale G | Latérale D

Connexions	Crâne Atlas	Atlas Axis	Crâne Mandib.
Etroite			
Lâche			
Déplacée			

Position du crâne
Primaire | Secondaire | ?

Coussin funéraire

Surélévation

RACHIS cervical
Connexions: Etroites | Lâches | Déplacées

thoracique
Connexions: Etroites | Lâches | Déplacées

lombaire
Connexions: Etroites | Lâches | Déplacées

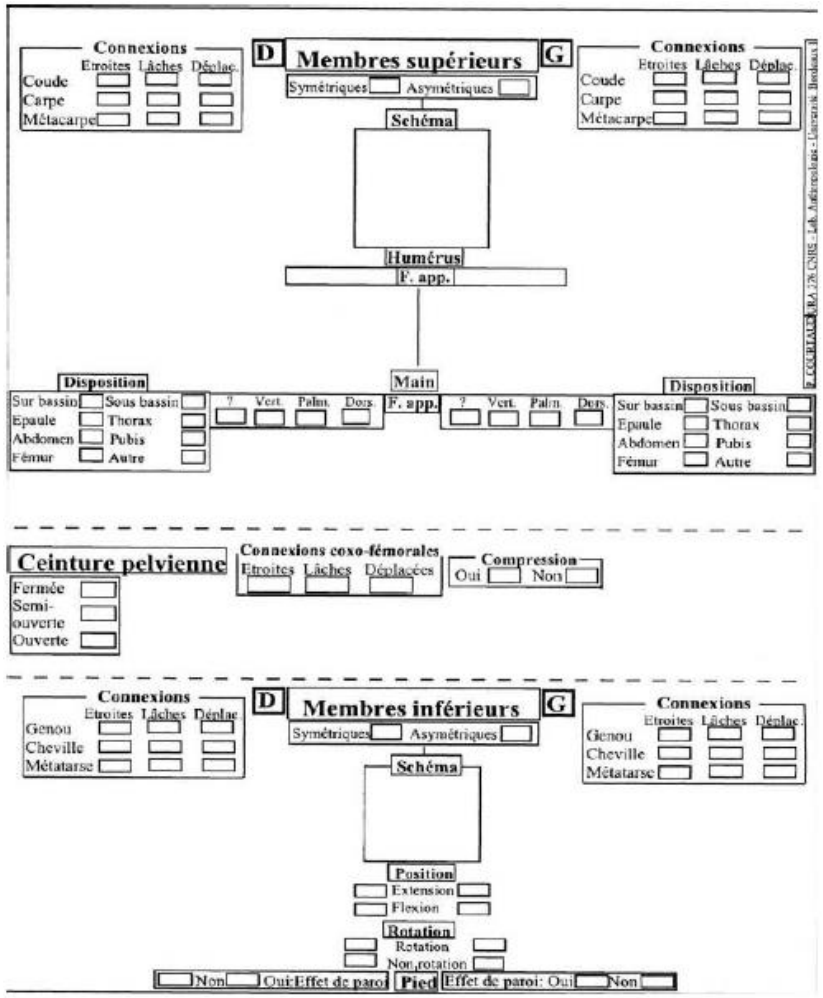
sacro-coccygien
Connexions: Etroites | Lâches | Déplacées

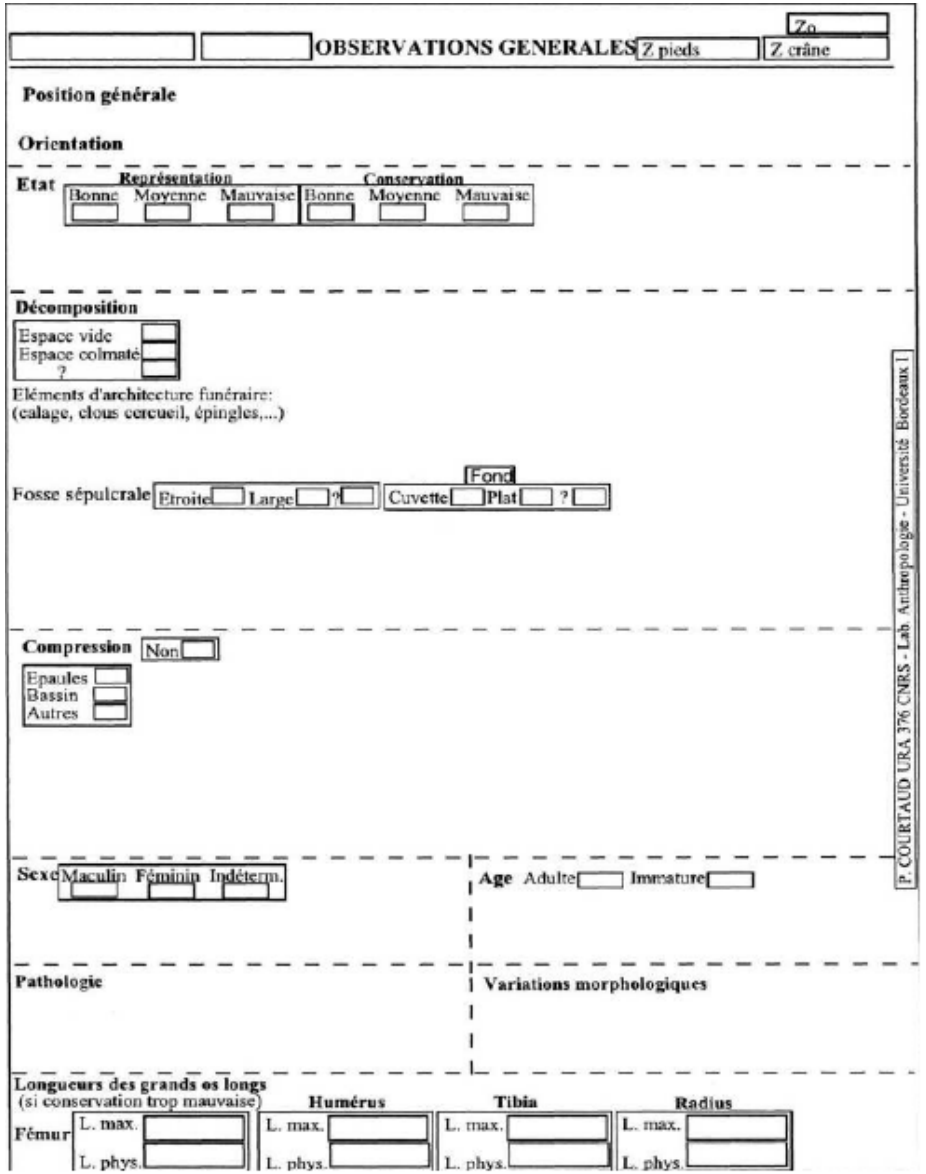
Thorax
Connexions: Etroites | Lâches | Déplacées
Mise à plat: Complète | Incomplète

Ceinture scapulaire
Position clavicules
Connexions scapulo-humérales: Etroites | Lâches | Déplacées
Compression: Oui | Non

P. COURTAUD URA 376 CNRS - Lab. Anthropologie - Université Bordeaux I

1. Field Documentation:





1. Field Documentation:

Hamoukar Expedition

Locus Database (default sheet)

locus identification

Browse | Find | Add | Delete | flag

menu items | new items

Browse | Omit | Omitted | Sort | Unsort

Season 2010 | Area E | Square | Operation E1

Locus Number 144 | date opened 5/30/2010 | date closed 5/30/2010 | excavator Max Price

basic data | stratigraphic placement | description | supplementary information | field records

Burial 144 was found adjacent to 135 (to the south) and 126 (to the east). It appeared to be continuous with 135, and may have been-- if all the burials were included in the same cut, which remains a possibility-- continuous with 126, 130, 133, 127, 146, and 174 as well.

Like the others, 144 was pointed North. it had fewer inclusions, however, including two jars. The fill for the burial was mixed ashy and m.b. collapse and wash, and contained a few potsherds and animal bones-- these are of tertiary context, like the other burials.

texture: m.b. collapse and reddish brown soil

field photos | lots | objects

IMG_0973.JPG

IMG_0975.JPG

1. Field Documentation:

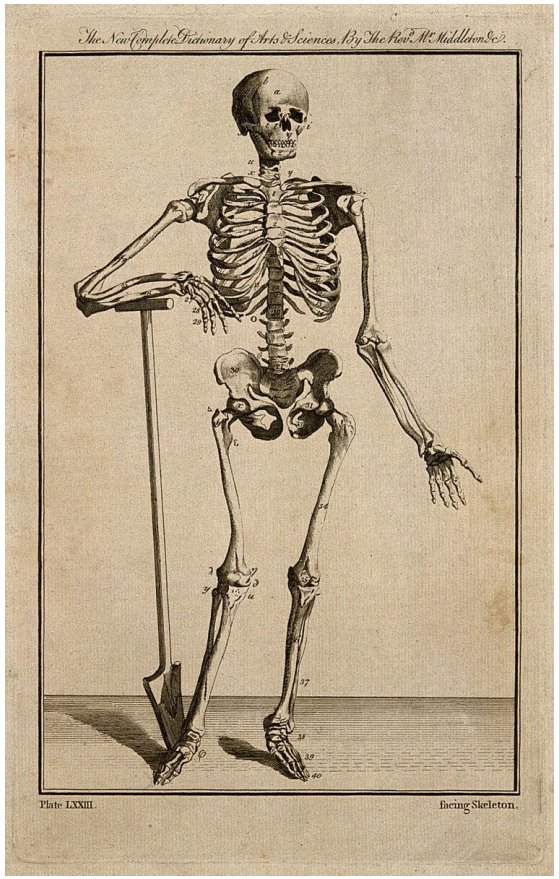
burial	
Location	Location and stratigraphic relationships
Tomb	Orientation, architectural form and nature of the filling.
Elevation (m)	The highest and lowest points of the burial.
Dating	Phase et stratum.
human remains	
Preservation	Good, average or bad.
Description	Relative positioning by anatomical segment (skull, vertebrae and thorax, shoulder gridle, arms, pelvic gridle 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	

Human remains

1. Documentation

2. Collection

3. Evaluation



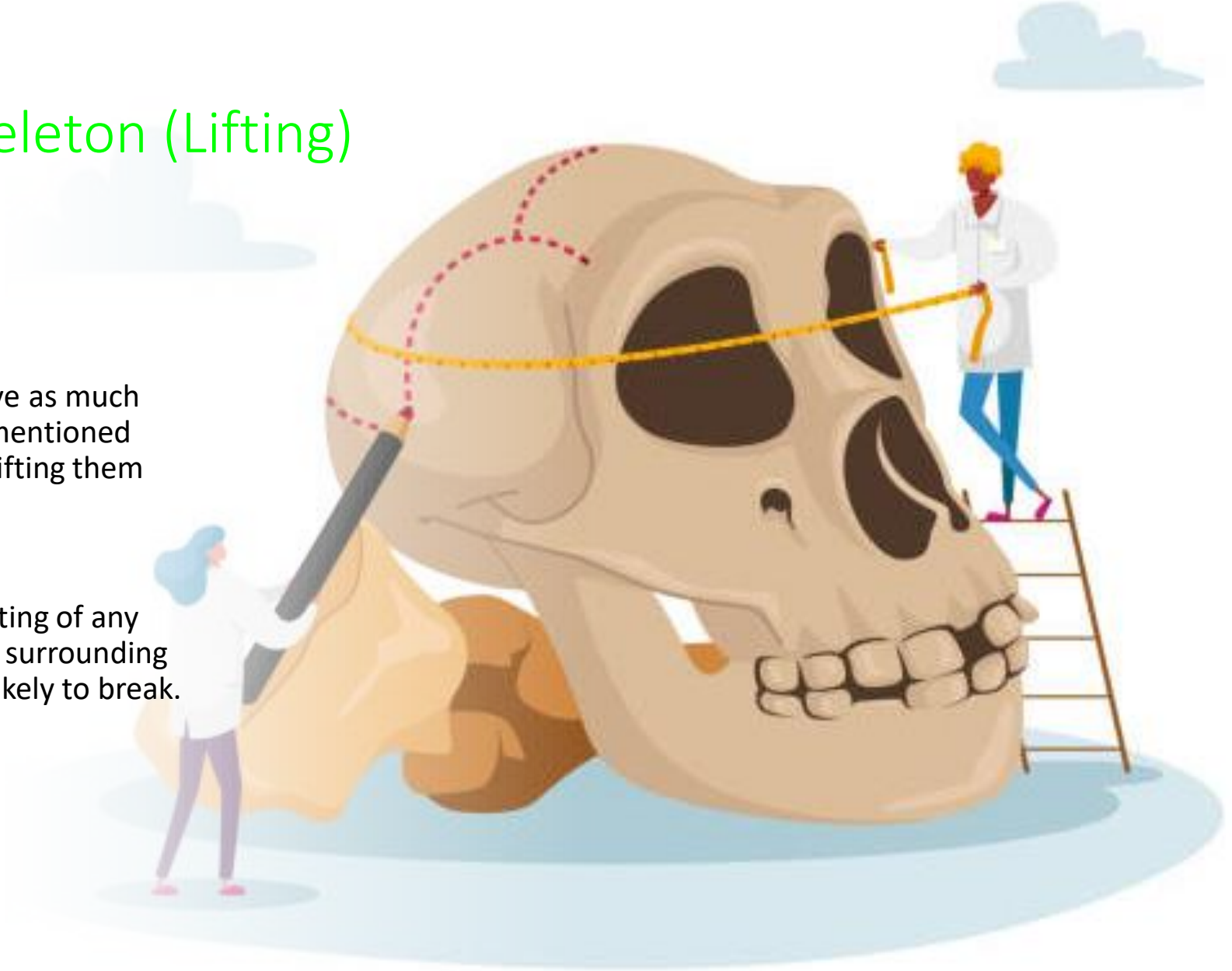
2. Collection of Samples

- Take samples from the gut area of the skeleton and the pelvic/between femurs (microbial & Parasitology).
- If necessary, collect samples for further analysis, such as DNA extraction, stable isotope analysis, or radiocarbon dating.
- Follow established protocols for sample collection to ensure preservation and prevent contamination.

2. Collection of Skeleton (Lifting)

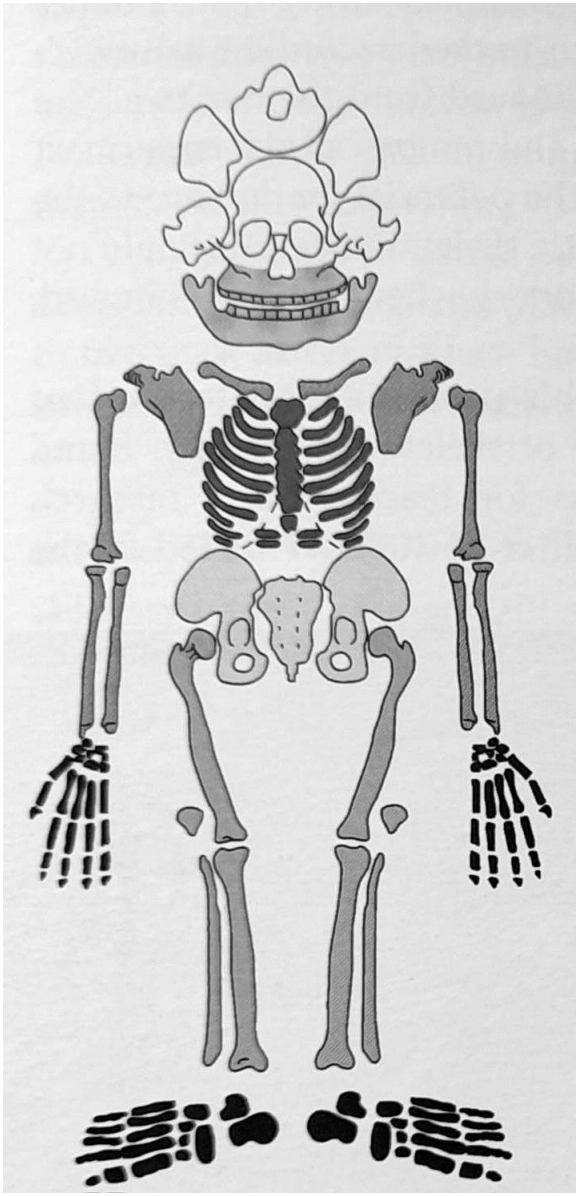
- At this point you need to remove as much soil as possible (except where mentioned above) from the bones before lifting them out of the ground.

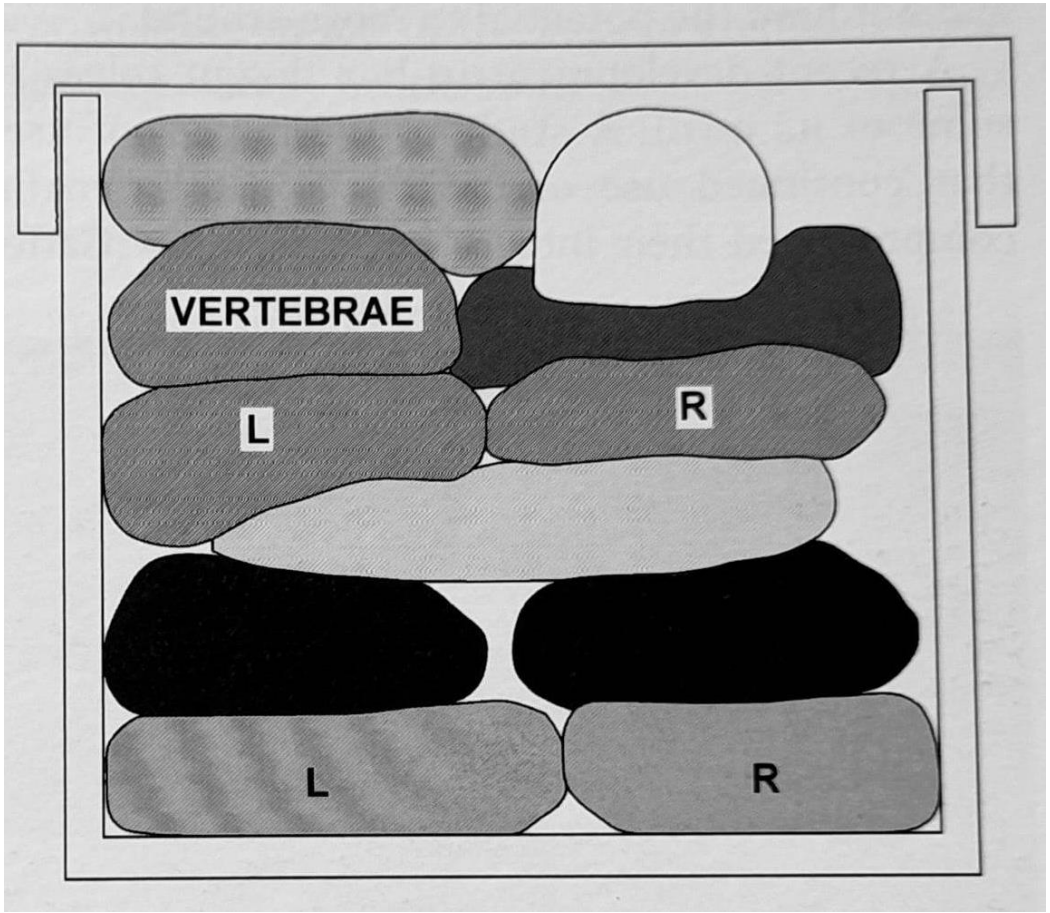
- This relieves the bone you're lifting of any pressure of resistance from the surrounding soil and the bone is much less likely to break.



Lifting the Skeleton

Start	Start removing the bones in the same order you excavated them in, starting with the skull and working down.
Wrench	Never wrench bones out of the ground: always ensure you have removed enough soil to remove the bones freely.
Bag	Bag the bones up as you lift them with the appropriate labels, keeping left and right side limbs separate.





How to pack a skeleton

- ✓ Never pack the skull, maxilla & mandible at the bottom of the box
- ✓ Heavy bones go first
- ✓ Loose teeth, maxillae & mandible should be bagged separately and not with the heavier cranial vault
- ✓ Pathological bones & fragile maxillae should be wrapped in acid-free tissue paper

Transportation

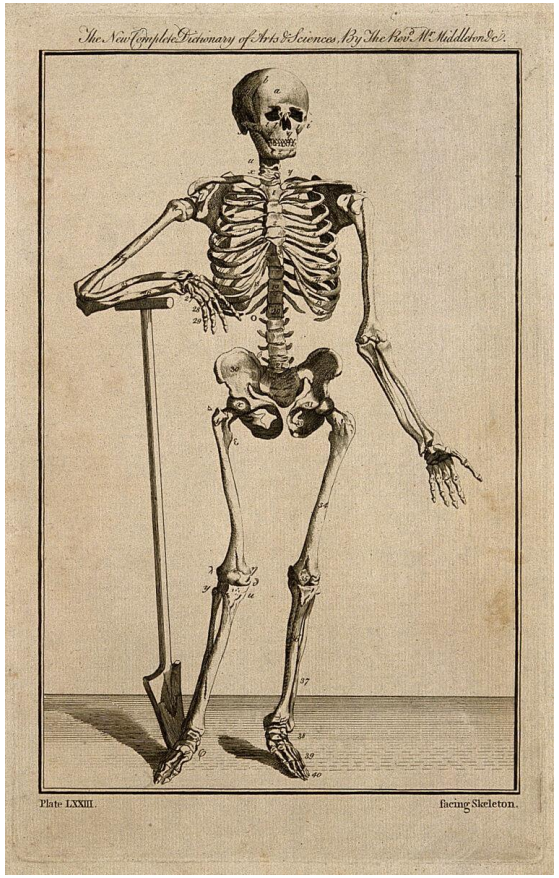
- ✓ Toss bones in the back of a car or truck without proper packing
  - ✓ Pack a series of skeletons in one large container
    - ✓ Pack rocks or heavy artifacts on top of bones

Human remains

1. Documentation

2. Collection

3. Evaluation



Evaluation

- Do not wash the teeth
- Do not extract the teeth
- Do not damage joints by rough brushing
- Wash more than one skeleton at a time

Evaluation

- Fill in broken areas with plaster or plastic wood
- Cover bones with oil, paint or shellac
- Glue together unclean edges

Final note

It's important to note that the evaluation of human remains should be carried out by trained professionals (archaeologists or anthropologists) who possess the necessary expertise to handle and analyze skeletal material.

Additionally, adherence to legal and ethical guidelines is crucial when working with human remains.

Thank you and enjoy the excavation