

### Definitions

|                                       |                                                                                                                                                |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Osteoarchaeology</i>               | Study of bones in an archaeological context.                                                                                                   |
| <i>Linear Enamel Hypoplasia (LEH)</i> | Pits/linear lesions in teeth, provide information surrounding nutrition from 4 weeks <i>in utero</i> . Caused by vitamin A and D deficiencies. |
| <i>Cribra orbitalia</i>               | Porosity on orbital roof as a response to anaemia or physiological trauma <i>e.g. rickets and scurvy</i> .                                     |
| <i>Periostitis</i>                    | Reaction of periosteum to stress. Osteoperiostitis = pitting/striations associated with nutritional deficiencies.                              |

### Bioarchaeology of care

Borneo, 31 kya

Found in an area rich in rock art dated to 40 kya.

Geophysical survey used to find site, excavated in a 2x2m trench through 9 stratigraphical units (SUs) and uncovering a fully articulated burial.

**Burial features** Limestone rocks positioned at the head and each arm of the individual buried (TB1).

TB1 was found in a flexed position and is considered to be an anatomically modern *Homo sapiens*.

Aged around 19-20 years of age - evidence from epiphyseal fusion and auricular surface stages (pelvis).

Sex = indeterminate, but stature suggests male rather than female.

**Surgical amputation** Absence of left foot. Left tibia + fibula shaft = unusual distal bony growth.

### Bioarchaeology of care (cont)

Pattern = consistent with clinical amputation as non-surgical amputations (e.g. blunt force trauma) would cause crushing of bones rather than oblique sectioning as found here. Remodelled lamellar bone suggests healing prior to death - care for individual. Lack of infection post-injury.

Lived for 6-9 years after amputation.

**Significance of results** Medicinal knowledge in foraging cultures prior to this discovery always considered rudimentary. Care for the wounded limited to trepanation, sutures and dentistry. More complex surgeries thought to be beyond capabilities of foraging communities.

TB1 suggests a foraging community with complex knowledge of limb + muscular anatomy and vascular systems, as well as the knowledge that the removal of this limb was necessary for survival.

### Bioarchaeology of care (cont)

Living with the altered mobility of an amputated leg also suggests altruism and care for the individual, especially in this mountainous environment.

Post-surgical care such as regular bathing and disinfection would have also been necessary to avoid infection.

(Maloney, *et al.*, 2022)

### Bornean amputation



### Secondary Contexts - Funerary Taphonomic Processes

**Additions to archaeothanatology:** Disposition + effects of decomposition on disarticulation and inferences we can draw from this.

Çatalhöyük, Turkey *c. 7100-6000 calBCE*

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### Secondary Contexts - Funerary Taphonomic Processes (cont)

Bodies buried bound with rope, with a delay between death and burial

Burials underneath settlements with younger individuals buried in central/side rooms.

**Evidence for secondary context** Disarticulated and commingled context of bodies. Could suggest bodies were left out to decompose before burial.

**Evidence for primary context** Remains = very tightly flexed.

(Knüsel and Robb, 2016)

### Trauma

Dakle Oasis, Egypt *Romano-Byzantine period*

Age sex and pathology of remains identified as physiological consequences of political, economic, subsistence processes, etc changes.

Social context - Egypt well known for its agricultural specialities.

**Age estimation** Dental formation, epiphyseal development + fusion.

Cranial development + fusion.

**Health + physiological stress** \**Cribra orbitalis*, *LEH* and *osteoperiostitis* all = main signs of physiological stress in juveniles of the Kellis 2 burial on site.\*

### Trauma (cont)

Combining data of age + health -> better idea of demographic of population, with majority of individuals showing active lesions perimortem.

LEH in older stratum of the group (around 15 yrs old), always accompanied by other lesions (CO, osteoperiostitis, or both).

**Discussion** To what extent is the burial record generalisable to living demographics?

Ultimately, the burial record is designed, decided and modified by living populations to either symbolically represent significance or consciously alter perspectives of living demographics.

So the Kellis 2 burial, for example, cannot necessarily be applied to say that all children underwent malnutrition with a high juvenile mortality rate. What if younger or sickly individuals were separated in burial contexts from the general population?

(Wheeler, 2012)

### Amarna workers

North cemetery of Amarna, Egypt.

Site shows evidence of early life stress from work.

Demographic constituted mainly of females, 7-25 years old.

Evidence suggests stress in very early life from physical labour.

|                                       |                        |
|---------------------------------------|------------------------|
| <i>Linear Enamel Hypoplasia (LEH)</i> | High frequency of LEH. |
|---------------------------------------|------------------------|

(Dabbs, 2019)

### Movement and Interconnectivity

Using chemical analysis on bones - multidisciplinary approach.

Genomic data and stable isotopic analysis on the *Amesbury archer*.

Amesbury archer = related to Bell beaker culture, found near Stonehenge.

|                       |                                                                                                                               |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------|
| <i>Stable isotope</i> | <i>Strontium</i> - associated with groundwater of region.<br><i>Oxygen</i> - associated with typical temperature of a region. |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------|

Suggested individual had travelled from Alps to place of burial.

|                     |                                                                                                        |
|---------------------|--------------------------------------------------------------------------------------------------------|
| <i>Genomic data</i> | Comparison of aDNA with modern people, determined admixture between Beaker people and steppe ancestry. |
|---------------------|--------------------------------------------------------------------------------------------------------|

(Olalde et al., 2018; Renfrew, Bahn and DeMarrais, 2024)



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