

Human remains from Tahyagh, Iran, 2016

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In the mountainous areas of the Markazi province, Iran, underground structures were frequently cut in conglomerate bedrock for storage or as refugial places. One such structure has been found near a shrine Zeinab Khatun in Tahyagh (33°39'53"N, 49°59'28"E), a village located c. 8km east of Khomein. The site has been documented and partially excavated by a team directed by Esmail Sharahi during the spring of 2016. There are c. 600 square metres of chambers, connected by irregular corridors (**Figure 1**). The pottery and other artifacts retrieved from the site are dated to the middle Islamic period and the latest period represented is the late 12th to early 13th century, based on a coin issued by Tekish ibn Il-Arslan, a king of the Khwarazmian dynasty (1172–1200 CE). The site appears to have been completely abandoned before the beginning of the Ilkhanid period (mid-13th century).

In one chamber, a well 4m deep has been found, being completely filled with stones and sediment. Close to the bottom of the well, at a depth of 320–370cm, some artifacts (pottery and a brazier) were found together with some animal and many human bones (**Figure 2**). Due to the rescue character of the excavation, possible articulations in the human skeletons have not been documented. Based on the skeletal elements recovered there were two more or less complete skeletons as well as a number of elements belonging to at least three other individuals. Human remains were studied using a protocol described elsewhere (Soltysiak 2010), including detailed documentation of taphonomic changes and possible perimortem trauma.

The skeletal remains of two individuals were found at the depth of 350cm. Based on general bone size and morphology of the auricular surface, the first skeleton (labelled as A) has been identified as a 30–40 year old probable female. Aside from missing elements from the feet, this skeleton was fairly complete. Black staining was evident on most of the skeletal elements. Such staining is believed to be the result of fungal activity in the humid soil close to the bottom of the well (cf. Reed 2009). Cranial bones were particularly heavily effected, being covered by dense black biofilm (cf. Pitre et al. 2013).



Figure 1. Plan of the underground structure at Tahyagh.

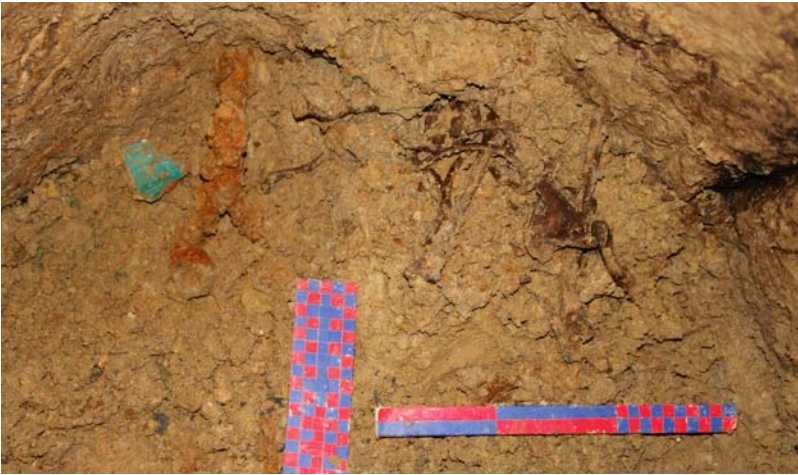


Figure 2. Bones of Individual B during excavations.

The pathological conditions in Skeleton A include initial degenerative joint disease, with dislocation at the right side between the 2nd and 3rd thoracic vertebrae, as well as arthritis in the 12th thoracic vertebra. Dental caries were also present, with 6/10 observable molars having carious lesions. Some obliterated porosity has been noted in the upper part of the occipital bone. There were also two cases of ante-mortem trauma, one small depression (3.0×5.4mm) in the middle of right parietal, and a small healed inflammation area at the distal tibia, close to the joint with the fibula (Figure 3).



Figure 3. Individual A, healed lesion in distal tibia. Scale bar 1cm.

Due to dark staining, distinctions between old and fresh damage to bone has not been possible based on difference in colour. However, two small lesions retained smooth edges with cortical bone embedded and deformed, but not fractured, and

therefore they may be tentatively classified as perimortem injuries (cf. Jordana et al. 2009). One of these lesions was noted on the lateral tibia ($6.5 \times 10.4\text{mm}$) and the other on the frontal bone ($3.8 \times 6.2\text{mm}$) (**Figure 4**). There is also a large notch in the manubrium sterni, but it may be postmortem damage, as edges are irregular. The ribs were heavily fragmented, and one fragment shows damage that may be related to perimortem sharp force injury (**Figure 5**).



Figure 4. Individual A, possible perimortem trauma on frontal bone.



Figure 5. Individual A, possible perimortem trauma in a rib. Scale bar 1cm.



Figure 6. Evidence of scavenging on a proximal tibia. Scale bar 1 cm.

The second relatively complete skeleton, Skeleton B, was retrieved from the same depth as Skeleton A but was much less complete: no foot nor hand bones were retrieved and the skull was represented only by a few fragments. However, elements from the trunk, upper and lower extremity were present. This skeleton was also significantly affected by black staining, but to a lesser degree than Skeleton A. Age-at-death was estimated as 5 years, using available teeth. Signs of mechanical stress were observed in this individual, including a wide lesion in the acromial end of right clavicle and a small lesion in radial tuberosity. Some possible postmortem damage was present in the lateral left fibula at the nutrient foramen (rectangular notch, 2.3×9.4 mm), on the posterior aspect of the right ischium (irregular notch, 7.3×9.7 mm), and possibly also on the right ilium, though the bone appears recently fragmented in this area.

Apart from these two skeletons, there were also several elements scattered in the well. Their detailed description is presented in **Table 1**. The minimum number of individuals (MNI) is 3: at least one infant, one adolescent and one adult. Evidence of scavenging by carnivorous mammals is abundant (**Figure 6**) (cf. Blumenschine et

Table 1. Additional bone fragments retrieved from the well at Tahyagh.

No.	Element	Age category	Scavenging
1	mandible, left ramus damaged	mature adult	possible
2	mandible, left condyle damaged	adolescent / young adult	possible
3	shaft of right femur	adolescent / adult female	clear in proximal, possible in distal end
4	shaft of right tibia	adolescent / adult female	clear, both ends
5	shaft fragment, right (?) fibula	adolescent / adult	slight polishing of one edge
6	shaft of left humerus	adolescent / adult	possible, distal end
7	unfused head of left humerus	adolescent	
8	shaft of left clavicle	adolescent / adult	possible, both ends
9	upper thoracic vertebra	adult	
10	eight rib fragments	adolescent / adult	
11	left 1 st metatarsal + phalanx	gracile adult	
12	fragment of a cranial vault	infant	

al. 1996), and there are also some areas with black staining, although much less intensive than in skeletons A and B. No perimortem or postmortem damage was observed, though evidence of such alteration may have been obliterated by scavenging.

Using the available evidence, the deposition date of the human remains in the well at Tahyagh may be estimated as the first half of the 13th century CE. This time period was one of conflicts, seeing the fall of the Seljuk dynasty, westward expansion of the Khwarazmian state, and finally Mongol invasion into Iran. All of these events saw increased levels of inter-personal violence and rapid socio-political changes (Lane 2003). There was no contemporary village in the neighbourhood of the underground structure at Tahyagh, so it is most likely that this place was used as a refuge shelter. Possible perimortem trauma and the evidence of animal tooth marks as well as the archaeological context of these human remains suggest that after a possible violent episode some dead bodies were thrown into the well without prolonged exposure, while others were exposed on the ground, providing the opportunity for animal scavenging before eventually also being disposed of into the well at more advanced stage of decay.

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