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Short fieldwork report

Human remains from 25th Zolfaqar Street, Kashan, Iran, 2017

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The archaeological site of Tepe Sialk, one of the most significant prehistoric sites in Iran and the most important in the Central Iranian Plateau, was excavated by Roman Ghirshman on behalf of the Louvre Museum in 1933, 1934, and 1937 (Ghirshman 1938, 1939). The site includes four principal components used in different periods: the northern mound (c. 6000–4800 BCE), the southern mound (c. 4300–2900 BCE), Cemetery A (c. 1500–1000 BCE), and Cemetery B (c. 1000–700 BCE). Together, they cover an area of approximately 40 hectares (**Figure 1**).

Fifteen graves were excavated from Cemetery A, located southeast of the southern mound, while a total of 217 graves were uncovered from Cemetery B, to the west of the southern mound, divided into two sectors: B1 and B2 (Ghirshman 1939). According to Ghirshman's description, the graves in Cemetery A consisted of simple pit burials, typically containing a single individual placed in a flexed or squatted position (Ghirshman 1939:3–5). The bodies were usually laid on their left or right side with the head oriented towards the north or south. After the deposition of grave goods, the pits were filled with soil, and no surface markers were erected. However, the limited extent of excavation and the small number of graves uncovered from Cemetery A render these observations only tentatively representative.

In contrast, Cemetery B has yielded a larger sample of graves, allowing for more reliable interpretations of burial practices. Here, rectangular pits were first excavated, and after the placement of the body and associated offerings, the graves were sealed with square stone slabs or large brick or mudbrick covers (measuring approximately 80×80cm or 60×60cm) arranged in a reverse V-shaped configuration and then filled with soil (Ghirshman 1939:26–28). Although most graves, as in Cemetery A, contained single burials, a small number of double or multiple burials were also recorded. Some graves appear to have been reused, with earlier human remains and associated

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offerings collected in a corner of the pit before the placement of a new burial and its accompanying grave goods.

Despite some gradual changes in funerary customs over time, the principal elements of burial practice at Sialk—including flexed interments laid on the side, the deposition of grave goods such as ceramic vessels, jewellery, cosmetic containers (Holakooei et al. 2022), and personal items (e.g., gaming pieces or tools such as blowpipes), and the roughly east-west orientation of the graves—remained consistent across several centuries.

As Ghirshman noted, the full extent of both cemeteries extends well beyond the areas he excavated, reaching considerably further to the south, west, and southwest of the main site. Unfortunately, Tepe Sialk is now located within the city of Kashan and modern construction activities have destroyed much of its broader burial landscape.

Figure 1. Aerial photo of Tepe Sialk with marked locations of the two jar burials discussed in this report.

During various public works and private construction projects over recent decades, two notable finds—a large empty storage jar and a jar burial—were accidentally discovered approximately 500m west of Tepe Sialk South. The first jar, discovered during roadwork for Shah Hamzeh Street in 2010 and excavated by Abbas Etemad Fini, was a large vessel with a base diameter of 41cm, a maximum diameter of 140cm, and a thickness of 2cm, decorated with rope-like applied motifs. The upper portion of the jar was likely destroyed during construction. According to oral reports collected by cultural heritage officials at the time, the vessel was empty and showed no evidence of burial.

In 2015 the second jar (Figure 2), discovered approximately 120m meters southeast of the first jar during the construction of a private house at 25th Zolfaqar Street (33°58'07"N, 51°23'52"E), contained a human burial together with some animal bones. Although the upper part of this jar was also destroyed, the burial inside remained intact. The base diameter of the jar is 45cm, the maximum diameter 150cm, the thickness 2cm, and the preserved height approximate 55cm. Based on typology, the jar was dated to the Achaemenian period (Sialk VI, c. 550–300 BCE). Following initial stabilization, the jar was transferred to Bagh-e Shah in Fin, Kashan. There, students of the bioarchaeological summer school at Estark-Joshaqan (cf. Sołtysiak et al. 2017) excavated, documented, and recorded the burial under supervision of Javad Hosseinzadeh and Arkadiusz Sołtysiak.

Figure 2. Jar burial from 25th Zolfaqar Street during its excavation in 2017

The single skeleton from the jar was fairly well preserved, but incomplete, with erosion on the predominantly exposed elements. The skull was missing a large area around the left pterion, including the upper part of the orbit, and only a few fragments remained of the clavicles and scapulae. Long bones from the right upper extremity were complete and only slightly damaged, while on the left side only the humerus was preserved together with the proximal end of the ulna. Carpals, metacarpals, and hand phalanges of the right side were almost complete, while only a few elements remained from the left side. More than half the cervical, thoracic, and lumbar vertebrae were present, but the sacrum was missing completely, with only a small fragment of the iliac crest representing the pelvis. The left femur, both tibiae, and fibulae were fragmented, while both patellae and the right calcaneus and talus were preserved together with some right metatarsals and pedal phalanges. All of these elements were described and measured using standard protocols (Buikstra & Ubelaker 1994; Steckel et al. 2006), with some modifications (Sołtysiak et al. 2019). Discriminant functions for sex assessment were based on a collection of North Mesopotamian skeletons (Sołtysiak 2010) and stature estimation used regression functions by Trotter and Gleser (1958).

Because the pelvis was almost completely missing, sex assessment was based on cranial morphology and long bone measurements. The skeleton likely belonged to

Figure 3. Fifth cervical vertebra with spondylosis. Scale bar 1cm. Photograph by A. Sołtysiak.

a male individual (glabella: 5, mental eminence: 4, supraorbital margin: 3, mastoid processes: 2/3, vertical diameter of humeral head: 47.2mm, femoral head diameter: 46.8mm). Stature was estimated using the maximum lengths of the right humerus

Figure 4. Cranium of the individual from the jar burial, lateral view. Photograph by A. Sołtysiak.

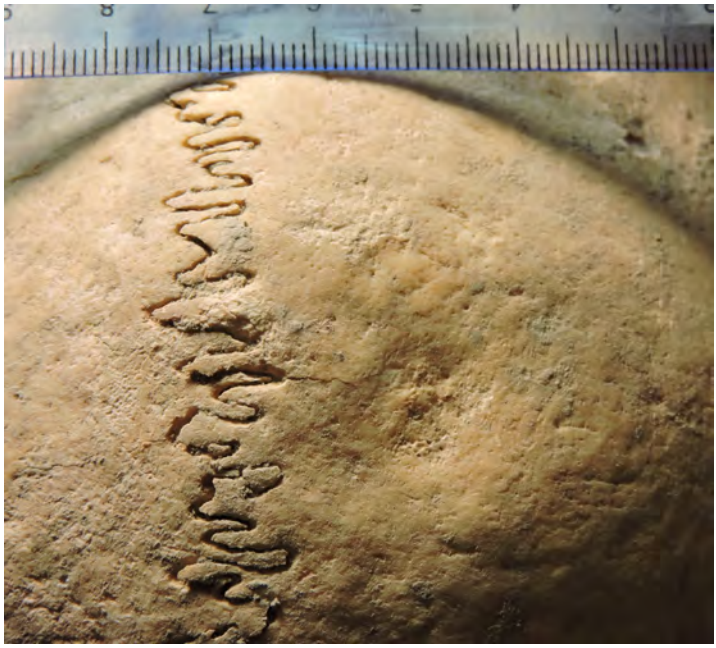

Figure 5. Compressive fracture on the cranial vault. Photograph by A. Sołtysiak

(312mm), radius (239mm), and ulna (266mm) as well as the length of the left tibia (335mm). Applying regression equations for white males resulted in an average stature estimate of 170.0±2.0cm.

Based on advanced dental wear and some instances of degenerative joint disease, the individual's age-at-death was approximated as a mature adult. Five teeth were lost antemortem (RI^1, LI^1, LM^3, LM_1, RM_2) and RM_1 was extremely worn on the distal side and exhibited an open pulp chamber. LM_2 was misplaced with its medial side facing downward and was represented only by two heavily worn roots.

There was also an uneven wear pattern on the right mandibular premolars, with RP_1 more worn on the distal side and RP_2—on the medial-buccal side. Clear dental calculus was noted on the labial surfaces of the lower anterior teeth. Dental caries were absent (0 per 20 preserved teeth) and linear enamel hypoplastic lines were very vague on the lower anterior teeth (including canines), but clear single lines appeared on both upper second molars, suggesting an episode of stress between the ages of 6–8 years.

No or minimal degenerative joint disease was recognized in the synovial joints; however, advanced spondylosis was present in the body of C5 (**Figure 3**), with mild spondylosis on two other preserved cervical vertebrae, as well as in one of six thoracic and all three preserved lumbar vertebral bodies. The lambdoid suture was irregular, with many sutural ossicles and some displacement between the parietal and occipital bones (**Figure 4**). A completely healed compressive fracture was observed on the left parietal bone, approximately 1.5cm from the sagittal suture and 5.5cm from bregma (**Figure 5**). Its regular rectangular shape (c. 12×10mm) suggests it was a result of inter-personal violence. Based on the $^{87}Sr/^{86}Sr$ ratio measured in the enamel from LM^1 (0.70799±0.00001), which aligns with the local baseline, there was no evidence that this individual migrated from another location (Trębicka et al. 2025).

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