

Human remains from Ghal e-Ben, Iran, 2019

Arkadiusz Soltysiak*¹, Hassan Fazeli Nashli²,
Mojtaba Safari³, Judith Thomalsky⁴

¹ Department of Bioarchaeology,
Institute of Archaeology, University of Warsaw,
Krakowskie Przedmieście 26/28, 00-927 Warsaw, Poland
email: a.soltysiak@uw.edu.pl (corresponding author)

² Department of Archaeology,
Faculty of Literature and Humanities, University of Tehran,
13, Poorsina St., Qods St., Enghelab St., 141556158 Tehran, Iran

³ Department of Archaeology, Faculty of Art, Nima University,
46311-55111 Mahmoudabad, Iran

⁴ German Archaeological Institute, Tehran Branch,
Khiabane Shahid Hasan Akbari 7, 19639 Tehran Elahiyeh, Iran

Ghal e-Ben is located c. 20km south of the city of Babol, within the modern town Khozrud-pey (36°23'18"N, 52°34'13"E, 67masl). It covers less than 3ha, but was almost certainly much larger before construction of a road and houses in the vicinity of the site (**Figure 1**). Excavations at the site were undertaken in January-March 2019 by a team directed by Hassan Fazeli Nashli. To assess the chronology of Ghal e-Ben, four trenches were explored in the northern and central part of the site (**Figure 2**).

Below three metres of Islamic strata, a one metre-thick layer of pure clay was identified, representing an oxbow lake that covered older strata around the mid-2nd mil-



Figure 1. Ghal e-Ben, aerial view from SW. Photograph by Mojtaba Safari.

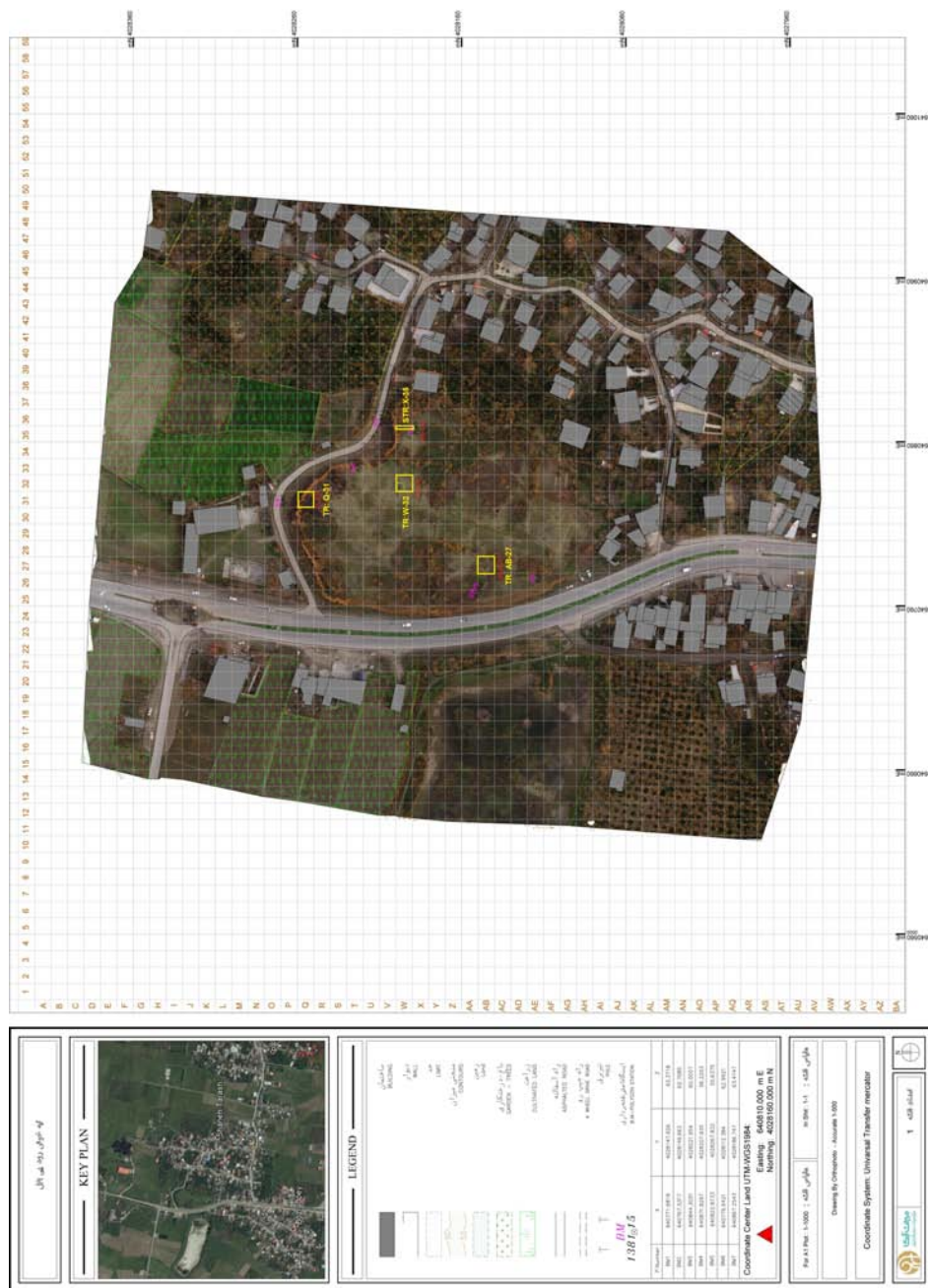


Figure 2. Ghal e-Ben, plan of the 2019 excavations. Drawing by Mojtaba Safari.

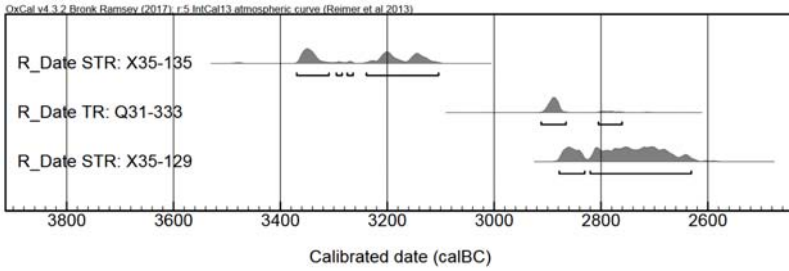


Figure 3. Radiocarbon dating of Ghal e-Ben.



Figure 4. Ghal e-Ben, grave X35/128. Photograph by Mojtaba Safari.

lennium BCE. A further eight metres of cultural strata represented deposits associated with the end of the Late Chalcolithic and the Early Bronze Age (late 4th to mid-2nd millennia BCE). Three fragments of charcoal from two trenches were radiocarbon dated at the Curt Engelhorn Center in Mannheim, Germany and corroborated that the site was inhabited, at the least, between c. 3400–2600 cal. BC (Figure 3). Apart from the remains of domestic architecture, several human burials were also found, particularly in trenches X35 and Q31.

Grave X35/128 was a simple pit with a body buried on the right side in a flexed position (Figure 4), 2m above virgin soil. Charcoal from nearby context 129 allowed dating of this grave to the Early Bronze Age (2877–2633 cal. BC). Another burial representing the same depth has been unearthed in Q31/330 and this time



Figure 5. Ghal e-Ben, grave Q31/330. Photograph by Mojtaba Safari.



Figure 6. Ghal e-Ben, grave X35/135. Photograph by Mojtaba Safari.

the flexed body was placed on the left side, on the north-south axis, head to south (Figure 5). Dating of a nearby context confirmed that this skeleton also reflected an interment date within the Early Bronze Age (2900–2762 cal. BC). Finally, another skeleton that has been found just above the virgin soil (X35/135) was accompanied by Caspian black-on-red ware and this context has been dated to the Late Chalcolithic (3363–3129 cal. BC). This individual was buried on the left side in a flexed position, face to SW, and covered by red ochre (Figure 6).

Human remains from Ghal e-Ben are currently stored in the Institute of Archaeology, University of Tehran. They were studied in June 2019 in the facilities of the



Figure 7. X35/128, vascularisation of the cranial vault. Scale bar 1cm.

Institute of Archaeology, Kashan University, using standard protocols presented in Buikstra and Ubelaker (1994) with some modifications (see Sołtysiak et al. 2019). In total, the remains of nine individuals were identified, including four adults and five subadults aged 2–6 years (Table 1). No neonate skeletons were found.

The fairly complete skeleton of a senile male (X35/128) exhibited several lesions related to advanced age, including an extreme degree of dental wear combined with a high frequency of ante-mortem tooth loss, complete obliteration of cranial suturae and bony spurs developed under the glenoid of the right scapula, and on a toe segment. The inner table of the cranial vault was highly vascularised in some areas (Figure 7) and the distal ends of both fibulae had very irregular and granulated surfaces at the muscular attachments, with porous cortical bone and trabecular bone within

Table 1. Basic characteristics of human remains from Ghal e-Ben.

Trench	Context	Sex	Age-at-death	Caries	Chronology
AB27	415	–	5–6		Early Bronze Age
Q31	305	M**	mature	2/12	Early Bronze Age
Q31	330	F	45–50	0/10	Early Bronze Age
Q31	330	?	adult		Early Bronze Age
Q31	331	–	2		Early Bronze Age
X35	121	–	3		Early Bronze Age
X35	121	–	3		Early Bronze Age
X35	128	M*	old	0/8	Early Bronze Age
X35	135	–	3–5		Late Chalcolithic

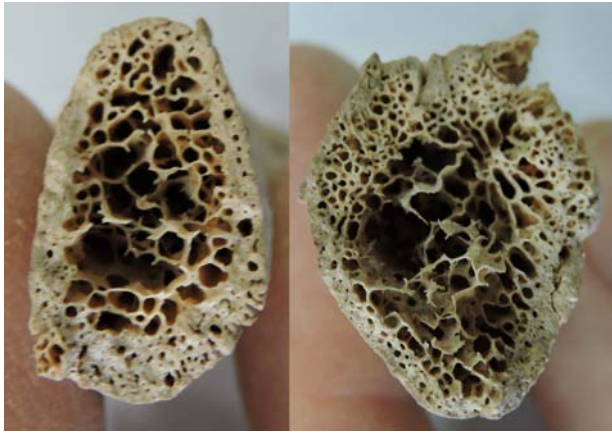


Figure 8. X35/128, cross-section of two fibulae. Scale bar 1cm.



Figure 9. X35/128, acromial ends of two clavicles. Scale bar 1cm.

the medullary cavities (**Figure 8**). The proximal ends did not exhibit such lesions. The acromial end of the left clavicle was deformed, with a thin edge at the articular facet (**Figure 9**).

The other male individual (Q31/305) had two long bones broken. The left femur was broken at midshaft and completely healed with dislocation (**Figure 10**). A fracture near the distal end of the left ulna happened not long before the death of the individual and two parts of the bone were still not completely united (**Figure 11**). There was no trauma in the fairly complete female skeleton (Q31/330); her grave also contained a few eroded bones from the right arm of another individual, with clear degenerative joint disease in the wrist bones.

All the subadult skeletons were incomplete. In grave X35/121 one articulated skeleton of a child, with missing lower extremities, was accompanied by additional



Figure 10. Q31/305, fracture at the midshaft of the left femur. Scale bar 1cm.



Figure 11. Q31/305, fracture near the distal end of the left ulna. Scale bar 1cm.

fragments of a mandible of another individual of roughly the same age-at-death. This fragment was much darker than yellowish bones of the more complete individual. In the cranial fragments, some areas of extensive vascularisation were present, similar to those in the senile male X35/128. Another incomplete subadult skeleton (X35/135) was covered by large quantities of the red ochre.

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