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Short fieldwork report

Human remains from Tepe Chalow, Iran, 2013-2015

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The topography of North-Eastern Iran is dominated by several high mountain ranges extending in a well-defined, linear pattern from east to west. The major ranges are Kopet-Dagh to the north that constitutes the frontier with Turkmenistan, and Alborz to the south in a parallel line that continues eastwards into Aladagh and Binalud in the south-east. Such a linear pattern made communication in the latitudinal axis relatively easy, with the Silk Road as the most famous example, transversing the region along the southern ranges of Aladagh and Alborz (Aubin 1971). On the other hand, routes from south to north were much less facilitated by topography and they had to cross several mountain ranges. For that reason, control over convenient mountain passes was crucial for local human groups.

One such favourable intersection was located on a small plain east of the modern town of Jajarm, north to the river Kal-e Shur and south to the mountain pass between Kuh-e Bahar and Kuh-e Saluk. Here, close to the modern village of Sankhast, an archaeological site called Tepe Chalow was found (37°06′13″N 56°53′04″E, 967 masl). Devastated by modern agricultural activity, the site was first excavated in 2011 and then between 2013–2015 by a joint Iranian-Italian expedition directed by Ali Vahdati (The Northen Khorasan Branch of the Iranian Cultural Heritage, Handicrafts and Tourism Organization) and Raffaele Biscione (Institute for Technologies Applied to Cultural Heritage, National Research Council).

Originally Tepe Chalow covered more than 40ha, but all upper strata were removed by bulldozing and scattered all over the area, thus rendering precise estimation of its size impossible. Some areas were also affected by the construction of several *qanat* lines. Still present structures included some architectural remains, lower parts of storage jars, and human burials. During four excavation seasons, 46 square trenches were explored revealing two phases of occupation at the site, the first dating to the Late

Chalcolithic and Early Bronze Age, and the second dating to the Middle Bronze Age. The latter phase is represented by pottery and artifacts typical of the Bactria-Margiana Archaeological Complex (BMAC), also referred to as the Greater Khorasan Civilization (GKC). Currently, Tepe Chalow is the westernmost known and excavated site of this archaeological culture (Vahdati & Biscione 2015).

In many trenches more or less damaged graves were found, usually quite close to the soil surface, and human remains have been studied by Arkadiusz Sołtysiak in the dig house, Sankhast, as well as in the museum in Bojnord in October/November, 2015. Standard bioarchaeological protocols were applied (Buikstra & Ubelaker 1994), with some modifications that are described elsewhere in detail (Sołtysiak 2010). As one complete skeleton was displayed in the museum, only a limited set of measurements and observations was possible in this case.

The sample includes bones from 25 individual graves and two bone scatters, including one original pit (Trench 30B) and one commingled skeletal assemblage discovered close to the surface that may represent human remains removed during ancient looting or burial of disarticulated human remains in antiquity (Trench 43). The total minimum number of individuals (MNI) in these two scatters is 7. Most skeletons belonged to adult individuals of both sexes (see **Table 1**) and the underrepresentation of neonates and infants is striking. However, it is possible that their burials were more shallow and bulldozing removed them completely.

Bones were affected by several taphonomic agents. Most common was insect tunneling resulting in holes of variable diameter, suggesting that different insect taxa were involved (**Figure 1**). Occasionally tunnels were connected to nesting chambers adjacent to the bone surface. Such taphonomic effects have also been documented at archaeological sites elsewhere in Iran (cf. Sołtysiak et al. 2010). In some burials long and fibrous crystalline deposits were attached to bone, different from crystals observed in Mesopotamia (Sołtysiak 2010; Sołtysiak et al. 2015). Apart from weathering and fragmentation due to trampling, staining was also relatively common, especially in grave Tr29 G4 and pit Tr30B SU10-12 where bones were black due to surrounding ash deposits.

In many skeletons some degenerative changes were observed, most of which was likely age-related. Stress markers such as *cribra orbitalia*, porotic hyperostosis, and enamel hypoplasia were rare. Also the frequency of dental caries was very low, with only three lesions per 159 teeth (adults only), i.e. 1.9%, less than in agricultural populations of Mesopotamia (Sołtysiak 2014). On the other hand, antemortem tooth loss, extensive dental wear, reduction of the alveolar process (most likely caused by periodontal disease), and dental calculus were common.

Because of small sample size and relatively poor preservation of most skeletons, possible differences between two temporal subsets represented at Tepe Chalow cannot

easily be recognized. There is, however, one clear pattern: in the later period (BMAC) almost no subadult individuals were buried on the site, with only one 10–11 years old child per 17 individuals. On the other hand, the number of infants in the LC/EBA subset is much lower than expected, but the overall number of subadult skeletons is higher with six infants/children per 15 individuals. This difference may reflect some change in burial customs between the Early and Middle Bronze Age.

The most complete skeleton (Tr27 G2, BMAC) belonged to a mature male with advanced degenerative joint disease, marked muscular attachments, especially in proximal femur, and a rocker mandible (cf. Houghton 1977). Also the *linea aspera* was

Table 1. The catalogue of human remains from Tepe Chalow, seasons 2013–2015.

Season	Trench	Grave	Chronology	Sex	Age	Comments
2013	Bojnord		BMAC	F?	young ad.	skeleton on exhibition
2013	11	1	BMAC	?	adult	a few bone fragments
2013	16	1	LC/EB	?	adult	a few bone fragments
2014	25	3	BMAC?	M?	adolescent	
2014	26	1	BMAC	F?	adult	
2014	26	1	BMAC	?	adult	a few bone fragments
2014	27	1	BMAC	M	20-40	mainly lower body parts
2014	27	2	BMAC	M	mature	fracture of ulna
2014	29	1	BMAC	?	adult	a few bone fragments
2014	29	3	BMAC	M??	adult	many teeth lost AM
2014	29	4	BMAC?	M	40-45	black staining
2014	29	5	BMAC	M?	40-45	degenerative joint disease
2014	29	6	LC/EB	?	adult	a few bone fragments
2014	29	7	BMAC	–	10-11	a few bone fragments
2014	30	1	LC/EB	–	6	
2014	30B	SU10-12	LC/EB	F??	adult	a few bone fragments,
				–	6-7	MNI=3
				?	adult	
2014	31	1	LC/EB	–	2.5	
2014	31	2	LC/EB	–	2.5	
2014	31	SU8	LC/EB	–	0.75	a few bone fragments
2014	35	1	BMAC	F??	adult	a few bone fragments
2015	38	4	EB	–	12-13	a few bone fragments
2015	40	1	LC/EB	M	adolescent	
2015	41	0	BMAC	?	adult	lower limb
2015	41	1	BMAC	?	adult	a few bone fragments
2015	41	2	BMAC	M??	adult	
2015	41	4	BMAC	?	adult	a few bone fragments
2015	43	SU1-6	EB	F?	adult	bone scatter, MNI=4
				F??	adult	
				?	adult	
				M?	adult	

Figure 1. Two examples of insect tunneling: (a) Tr29 G3, (b) Tr27 G2.

Figure 2. Deformed proximal phalanges of the big toe, mature male Tr27 G2.

Figure 3. Photograph and radiograms of fractured ulna, mature male Tr27 G2.

well developed. There were several changes in the foot: the tuberosity of the left navicular was strongly reduced and deformed (the right was not affected), there was marked deformation of the distal ends of both big toe proximal phalanges (**Figure 2**), and large osteophytes in some other pedal phalanges. The alveolar process was extremely reduced (by 6mm) and large calculus deposits were present on the lingual side of the mandibular molars. The right ulna was broken c. 6cm from the distal end and completely healed with slight dislocation (**Figure 3**). It is an oblique fracture, so an accident is more likely the cause and not interpersonal violence (cf. Jurmain et al. 2009). The styloid process was slightly deformed, perhaps as a consequence of slight rotation of the distal end.

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