

The development of complexity at third-millennium BC al-Khashbah, Sultanate of Oman: results of the first two seasons, 2015 and 2016

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Summary

The transition from the Hafit to the Umm an-Nar period on the Oman peninsula in the third millennium BC is regarded as a period of substantial social and economic change. Although many thousands of tombs from the Hafit period remain, other archaeological evidence, such as settlements, is scarce. In 2015 therefore, a new archaeological research project conducted by the University of Tübingen and funded by the German Research Foundation was launched at al-Khashbah to investigate its Hafit and Umm an-Nar period remains. During the first two seasons research consisted of an intensive field survey, aerial survey, two geophysical surveys, as well as archaeological excavations in selected areas within the site. Among other archaeological remains, al-Khashbah features three Hafit-period stone towers and six towers from the Umm an-Nar period, including the famous rectangular building. The most important discoveries are a Hafit-period settlement with monumental mud-brick architecture and a stone-built tower dating to the end of the fourth millennium BC, associated with the oldest evidence of copper processing in Oman. Both findings testify to the importance of al-Khashbah for the investigation of the development of complexity at the end of the fourth and the beginning of the third millennium BC.

Keywords: al-Khashbah, copper processing, Hafit towers, Umm an-Nar towers, survey

Introduction

In 2015 the University of Tübingen began a new archaeological field project at the site of al-Khashbah, in the governorate of al-Sharqiyyah North, Sultanate of Oman. The project seeks to record changes in the settlement pattern from a long-term perspective with a special focus on the development of complex societies in the third millennium BC. No excavations have been conducted here before, but Gerd Weisgerber and his team from the Deutsches Bergbau-Museum Bochum in Germany began to document some of the stone-built towers of al-Khashbah in the late 1970s and 1980s, within the framework of his project in al-Maysar (Weisgerber 1980: 99–100; Yule 2001: 384). Furthermore, al-Khashbah was part of Nasser al-Jahwari's Wādī 'Indām survey that took place between 2004 and 2009 (al-Jahwari 2013; al-Jahwari & Kennet 2010: 203–207). The site of al-Khashbah covers an area of about 12 km², and is characterized by a row of shallow limestone outcrops that cross Wādī Samad from east to west. Al-Khashbah is the easternmost third-millennium BC site with a considerable number of the so-called tower structures (Cable & Thornton 2013: 391, fig. 20/9). Indeed, over the past two years eight stone-built towers were identified (Buildings

II–IX; Fig. 1), of which two have been almost completely destroyed by modern building activities.

The surveys

One focus of the first two seasons of the Tübingen project in al-Khashbah was on survey activities, among them field walking, aerial photographs, magnetometry, and ground-penetrating radar (GPR), as well as remote sensing. Altogether 310 buildings and other architectural features were recorded during the surveys (Fig. 1). Most of them date to the Hafit period, and comprise 205 cairns, two towers made of stone (Buildings VIII and IX), one complex mud-brick structure, Building I (see below), and one undefined structure. In addition there is one stone tower built in the Hafit period, which was also in use in the Umm an-Nar period (Building V). The Umm an-Nar period is also mainly represented by tombs, but with a total number of twenty-one, probably enhanced by eleven badly preserved tombs with uncertain dating, they are far fewer in number than Hafit tombs. This can most likely be explained by an increase in individuals per tomb in the Umm an-Nar period (Blau 2001: 560) and not by a dramatic decrease in population size following the Hafit period. The presence of an Umm an-Nar tomb with white

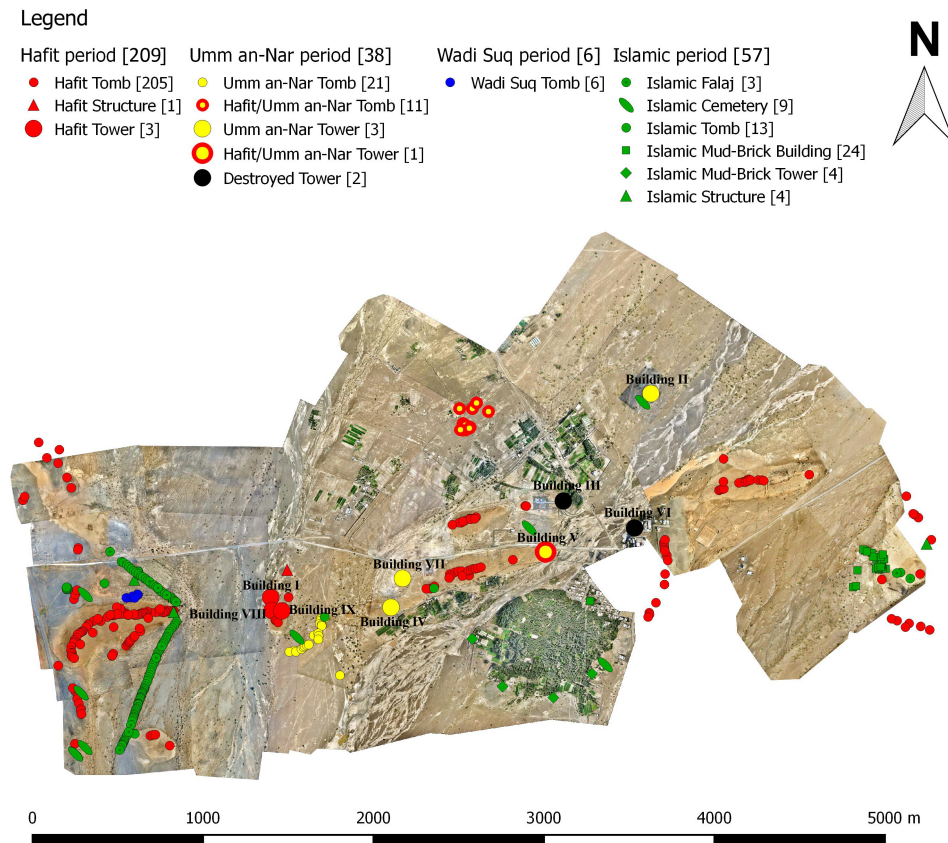


FIGURE 1. *A survey map of al-Khashbah with identified buildings and other architectural features grouped chronologically.*

so-called ‘sugar lumps’ is noteworthy. Besides the tombs, al-Khashbah features six Umm an-Nar period towers (Buildings II, III¹, IV², V³, VI⁴, and VII⁵). In one case, Building V, we know from the excavations that the tower was built in the Hafit period but was also used in the later Umm an-Nar period. For the other towers, a foundation in the Umm an-Nar period is assumed, attested by large quantities of that period’s pottery on the surface. The subsequent Wadi Suq period is only represented by six, probably large and possibly subterranean tombs, which we also know from other sites, such as Sharm in Fujairah (Riley & Petrie 1999). After the Wadi Suq period there

is a long gap in al-Khashbah’s history of occupation. There exists no Iron Age evidence from this survey at the site,⁶ contrary to what is common in most regions of the northern interior of Oman. Al-Khashbah was not reoccupied before the Islamic period. Besides three *falaj* irrigation systems and the oasis itself, there is also a small settlement to the east, called Ṣufrāt al-Khashbah, which dates to this period. Most of these Islamic features have comb-decorated pottery in common, labelled Coarse White Ware WHT.CRS by Power (2015), which is typical for the eighteenth to twentieth century AD (Döpper & Schmidt, forthcoming: fig. 7).

Intensive field walking conducted in 2015 helped us not only to understand the different periods of occupation in al-Khashbah, but also to identify different functional areas within the site (Döpper & Schmidt, forthcoming). In total, twenty-two areas covering more than 20 ha were chosen for the survey (Fig. 3), and more than 18,000

¹ Labelled ‘Structure 2’ by Yule 2011.

² Labelled ‘Structure 1’, ‘Structure 5’, or ‘Al-Hind’ by Weisgerber 1980: 99–100; Yule 2001: 384; al-Jahwari & Kennet 2010: 203–205; Yule 2011.

³ Labelled ‘Structure 3’ by Weisgerber 1980: 99–100 and al-Jahwari & Kennet 2010.

⁴ Labelled ‘Structure 4’, ‘Structure 1’, ‘Tamr Hansel’, or ‘Tauer Hanthel’ by Weisgerber 1980: 99–100; Yule 2001: 384; al-Jahwari & Kennet 2010: 206; Yule 2011.

⁵ Labelled ‘Structure 4’ by Yule 2011.

⁶ In his survey al-Jahwari collected thirty Early Iron Age and fifty-five Late Iron Age pottery sherds in al-Khashbah village (al-Jahwari 2013: 188–190).

objects were found (Al-Khashbah Survey 2015; Fig. 4). Every object was assigned GPS (Global Positioning System) coordinates in order to be analysed in a GIS (Geographic Information System). One of these areas in which finds were collected from the surface is the unique rectangular tower Building IV. Reconstructions of Building IV, provided by Paul Yule (1993: 143–144, fig. 2a), as well as Nasser al-Jahwari and Derek Kennet (2010: 204, fig. 4), show slightly different interpretations in terms of the inner layout, open enclosure, or platform, as well as the course of the eastern outer wall. Building IV, currently the only rectangular Umm an-Nar building known, is characterized by four sides, almost equal in length from 29.5 to 30 m (Fig. 2). On each side, the wall forms an outward extension or projection, except on the eastern side, where the extension does not sit in the middle but is slightly shifted towards the south. This provides space



FIGURE 2. An aerial photograph of Building IV, Umm an-Nar period, looking north (C. Schmidt).

for a possible entrance, represented by a huge stone block. Apart from an accurate layout of Building IV, the

Key

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■ Surveyed Areas

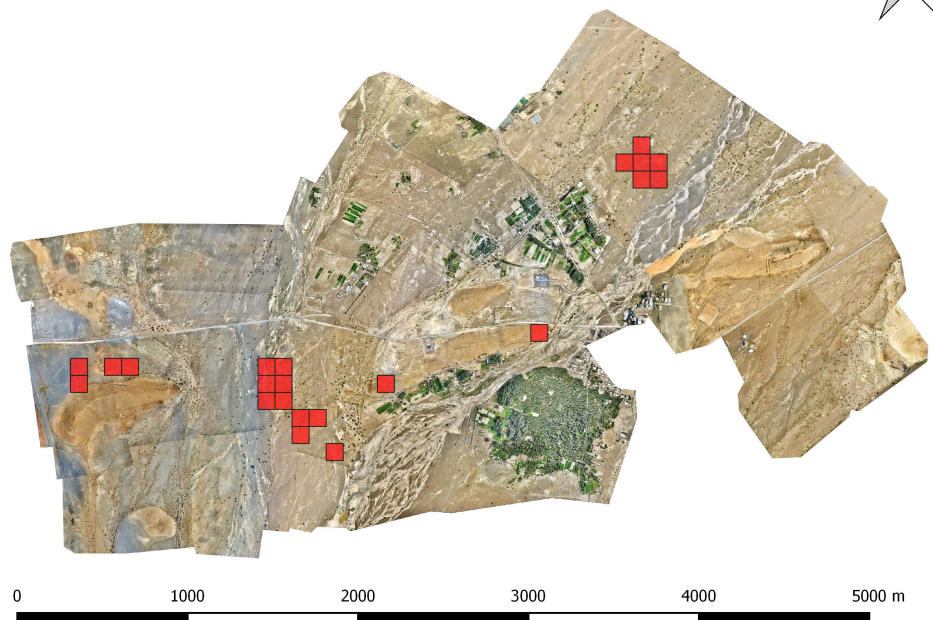


FIGURE 3. Areas of the 2015 surface survey at al-Khashbah.

Find class	Quantity
Glass and frit objects	4
Ground-stone tools	58
Pottery	7197
Lithic	617
Metal objects/slag	7102
Jewellery	55
Stone vessels	26
Animal bones	171
Clay objects/furnace fragments	2830
Total	18,060

FIGURE 4. *Finds from the 2015 surface survey at al-Khashbah.*

FIGURE 5. *Examples of petroglyphs in Building IV from: a. eastern wall; b. southern wall; c. northern wall; and d. western wall.*



precise position and design of 101 petroglyphs pecked into the stone blocks of the walls were also documented (Fig. 5). The motifs are numerous and range from riders on camels and horses, to men with raised arms and a variety of symbols and geometric motifs. Most of the petroglyphs are to be found on the north-eastern corner of the building, where the wall is preserved to a height of up to 2.2 m. About 30% of them are situated on the northern, western, and southern walls. There are a few modern Arabic inscriptions and we assume an Islamic date for the other petroglyphs. Only Umm an-Nar pottery was found during the surface survey of Building IV, namely beige-on-buff domestic ware with a typical decoration of straight and wavy lines; this was complemented by a few slag and furnace fragments. Having GPS coordinates for every single find enabled us to identify a difference in the internal and external distribution of the building's material. Most of the objects were found outside Building IV (Al-Khashbah Survey 2015), indicating that the main activities here took place beyond its walls.

Another area that has been intensively surveyed is Building II. This structure lies somewhat isolated from the other towers, occupying a cone-shaped rock right beside the wadi to the

north-east of al-Khashbah (Fig. 6). Building II is a tower with a concentric stone wall surrounding the hilltop. The wall is 28 m in diameter and double-faced. In addition, there are other walls on the hillside, but they are highly eroded. Most objects found here during field walking are examples of Umm an-Nar pottery, while some Islamic pottery comes from the foot of the hill where a small Islamic cemetery is situated. In addition to the survey



FIGURE 6. *An aerial photograph of Building II, Umm an-Nar period, looking south-west (C. Schmidt).*

Lab no. MAMS	¹⁴ C age	±	δ13C [‰]	cal 1 sigma	cal 2 sigma	Material
24454	4037	29	-22.1	cal BC 2616–2491	cal BC 2830–2475	charcoal
24455	4013	30	-29.9	cal BC 2570–2488	cal BC 2617–2470	charcoal
24456	4096	29	-29.6	cal BC 2837–2578	cal BC 2860–2501	charcoal
24457	4020	24	-30.4	cal BC 2572–2491	cal BC 2616–2473	charcoal

FIGURE 7. Calibrated dates for four charcoal samples from Building II in al-Khashbah (lab: R. Friedrich, Curt-Engelhorn-Zentrum Archäometrie, Mannheim, Germany; INTCAL13 [Reimer et al. 2013], and SwissCal 1.0 [L. Wacker, ETH-Zürich]).

activities, small-scale excavations took place at Building II in 2015. The aim was to recover stratified material in order to date the building. On the basis of these excavations, it can be demonstrated that this tower dates back to the beginning of the Umm an-Nar period, c.2600 cal BC, which corresponds with the pottery collected from the surface (Fig. 7). The material that was taken for the ¹⁴C analysis is charcoal from the filling of the outer ring wall and from an adjacent floor inside the building.

The early Hafit copper workshop Building V

Building V has a prominent position on the eastern edge of a long rock outcrop that overlooks the wadi. It features a round stone wall with a diameter of 25 m which is, as far as the excavations suggest, preserved up to a height of 1.1 m. In addition to the ring wall, the excavations uncovered a series of three smaller walls, which do not run parallel to the main wall (Fig. 8). The reason for this is difficult to explain at present, but it is hoped that continuing the excavation here will provide the answer. All four walls are founded on the bedrock. The main wall features a small foundation pit. One of the most important discoveries concerning Building V is its date. Charcoal samples from different areas in between the four walls were analysed, all providing the same result: the building was founded at the end of the fourth millennium BC (Fig. 9), which makes it one of the oldest monumental buildings in eastern Arabia. Besides its early date, there is clear evidence of the function of Building V. Both on the surface and in well-stratified layers within the excavations, thousands of copper-slugs, prills, and furnace fragments were found, indicating intensive copper processing. It is thought that Building V, therefore, represents an early Hafit copper workshop, and offers one of the oldest fragments of evidence of copper processing on the Oman peninsula.

The towers and mud-brick buildings in Area B

The second area where both survey activities and intensive excavations were undertaken is Area B. The area is divided into two parts, a limestone outcrop, which features two very badly preserved stone-built towers, Buildings VIII and IX (Fig. 10), and a small, elevated area north of it. Although the rocky outcrop with the two monumental stone buildings yielded the highest density of slag in the entire survey in al-Khashbah, not a single pottery sherd was found there. Directly to the north of the rocky outcrop is an area in the plain that is up to 1 m higher in elevation than the surrounding plain (Fig. 11). Except for some Islamic sherds from a well to the east, no pottery was found here during survey either. Most finds again consist of a large quantity of slag and furnace fragments, although not as many as on the proximate rocky outcrop. Additionally, many fragments of stone tools, or more often lithic debris, were found. This means that the area also served as a place for intensive copper processing and possibly the production of stone tools. Very important information regarding the architecture of Area B was gathered during a magnetic survey conducted in 2015 by Jason Herrmann (University of Tübingen). The resulting picture shows at least three roughly rectangular structures (20 x 20 m), which seem to overlap slightly with each other (Fig. 12). In addition to these, smaller structures were identified, especially to the east.

During the 2016 season, we began to clarify the results from the previous magnetometry in Area B. The focus was on the nature of the large enclosures, which turned out to be ditches up to 3 m deep and 4 m wide. These ditches were dug into a natural, very homogeneous, light-coloured soil. One of the ditches was cut into a gravel layer, probably an ancient wadi bed, and therefore would have functioned perfectly as a drainage feature. The interior space surrounded by the ditches consists of large mud-brick structures, collectively called Building

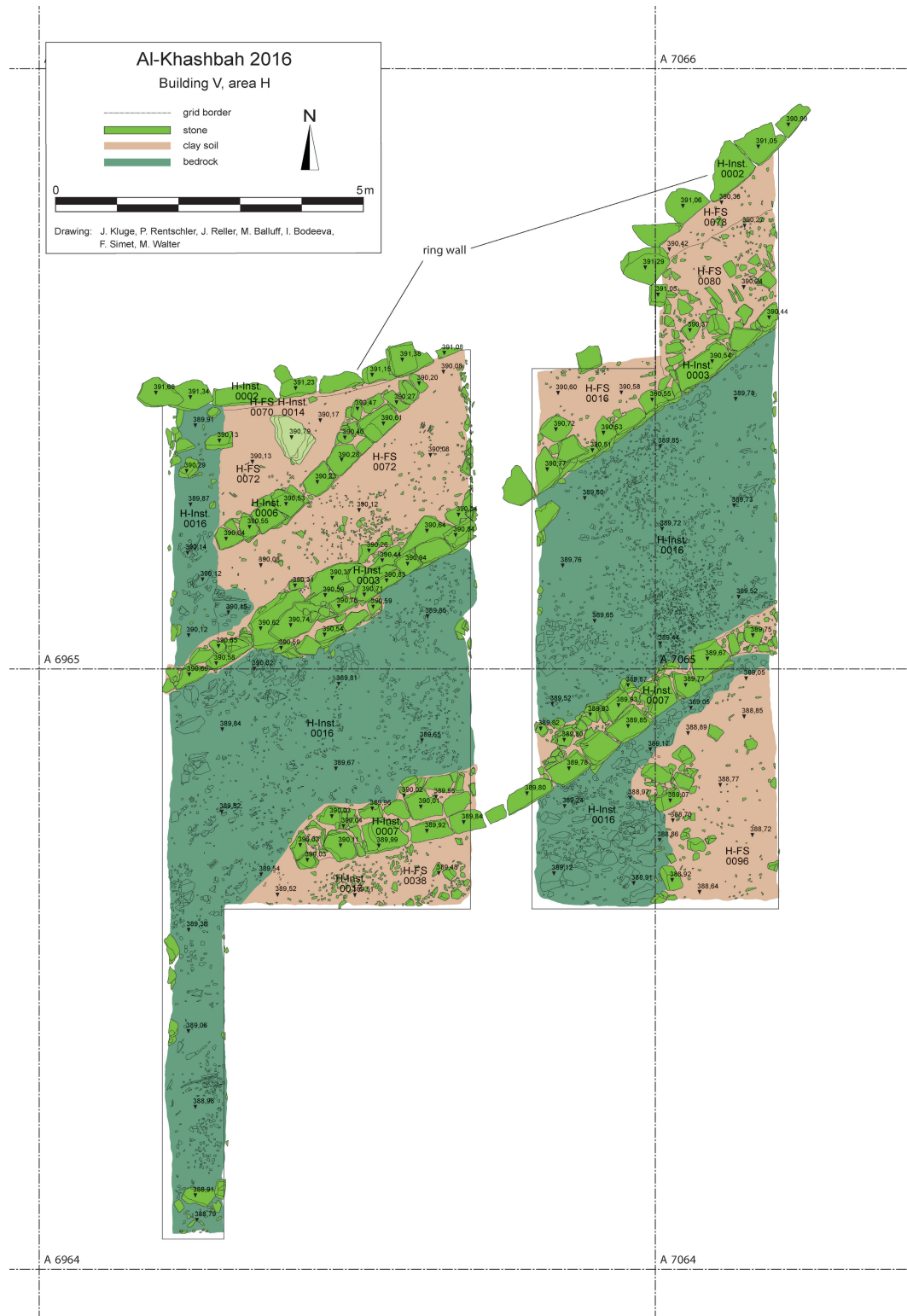


FIGURE 8. An excavation plan of Building V, Hafti period.

Lab no. MAMS	¹⁴ C age	±	δ13C [‰]	cal 1 sigma	cal 2 sigma	Material
24458	4464	24	-34.9	cal BC 3324–3036	cal BC 3333–3026	charcoal
24459	4446	24	-25.4	cal BC 3309–3025	cal BC 3330–2946	charcoal
27882	4500	28	-21.9	cal BC 3335–3106	cal BC 3346–3097	charcoal
27884	4498	30	-25.0	cal BC 3334–3105	cal BC 3347–3096	charcoal
27885	4513	31	-23.2	cal BC 3344–3112	cal BC 3353–3099	charcoal
27886	4538	30	-23.5	cal BC 3359–3121	cal BC 3363–3104	charcoal

FIGURE 9. Calibrated dates for six charcoal samples from Building V in al-Khashbah (lab: R. Friedrich, Curt-Engelhorn-Zentrum Archäometrie, Mannheim, Germany; INTCAL13 [Reimer et al. 2013], and SwissCal 1.0 [L. Wacker, ETH-Zürich]).

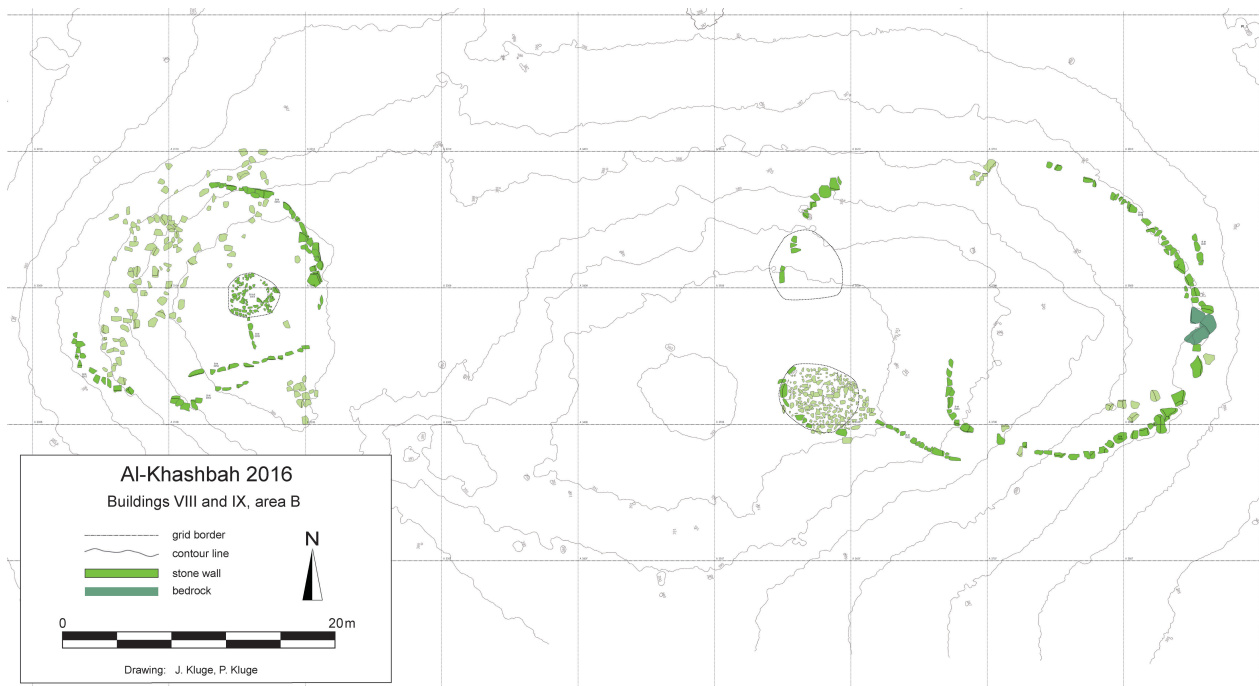


FIGURE 10. A plan of Buildings VIII and IX in Area B, Hafit period.

I (Fig. 13). Whether the area surrounded by the ditches is completely filled with mud bricks or the mud-brick structures are only a part of several features of the big enclosures cannot be ascertained at present. In most cases the width of the mud-bricks is 43 cm, while the length is either 43 or 54 cm. Finds from Building I's excavations are rather limited. There are some stone tools for grinding and hammering, which were most likely used in the course of copper processing, and some beads and a copper tool were also found. There is no pottery whatever. The question of the date of Building I was clearly answered

by ten charcoal samples from different areas within the building and its surrounding ditches (Fig. 14). All these samples give a coherent date *c.*2800 cal BC, and mud-brick Building I can therefore be placed securely within the Hafit period, making it one of the oldest monumental buildings on the Oman peninsula, contemporary with phase I of the tower 'Building III' at the site of Hili-8 (Cleuziou 1989*a*; 1989*b*). As the investigation of this complex structure is at an early stage, however, further conclusions, especially regarding the layout of the mud-brick architecture, cannot yet be offered.



FIGURE 11. *An aerial photograph of Area B, with Building I in the foreground and Buildings VIII and IX in the background, Hafit period, looking south-east (C. Schmidt).*

Conclusions

As far as the towers and other monumental buildings in al-Khashbah are concerned, we know at least that Building V, with its late fourth-millennium BC date, was founded in the Hafit period and remained in use until the Umm an-Nar period. Buildings VIII and IX exclusively date to the Hafit period, as does the mud-brick structure Building I in Area B. As for the two destroyed towers III and VI there is no way to determine their exact age, but an Umm an-Nar date is assumed, based on references in existing literature (Weisgerber 1980: 99–100; Yule 2001: 384; al-Jahwari & Kennet 2010: 206). Based on the surface pottery, the neighbouring Buildings IV and VII, as well as Building II, can be assigned to the Umm an-Nar period. As to the function of the monumental buildings of al-Khashbah, there appears to be a clear distinction between Hafit and Umm an-Nar period towers. Whereas the Hafit period Buildings I and V seem to be dedicated to copper processing, there are almost no signs that the Umm an-Nar towers were used in the same way. This is of course only a preliminary picture and cannot be generalized for Oman more broadly. Regarding the dating of the towers, the ^{14}C data recorded so far seem to indicate that these buildings were not used simultaneously: Building V is the oldest, followed by Building I, and shortly after by Building II. For the development of al-Khashbah in general, the site has only very limited remains from periods other than the third millennium BC and the Islamic period. We therefore need to ask, why are remains from these two periods so prominent here, and

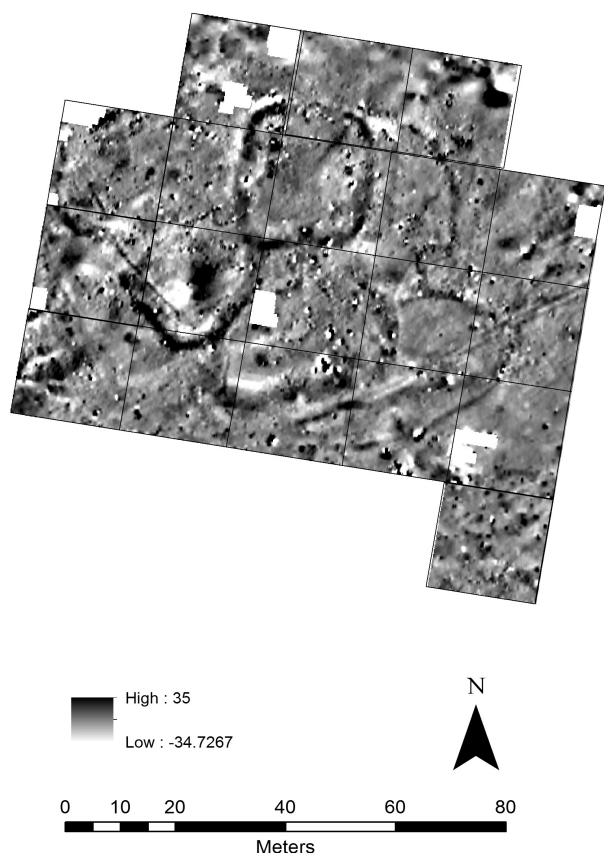


FIGURE 12. *Result of magnetic survey in Area B, 2015 (J. Herrmann).*



within the modern palm grove of al-Khashbah. It is much more difficult to identify the subsistence basis of the third millennium BC. Al-Khashbah is in a region with too little annual rainfall for rain-fed agriculture and no irrigation is attested at the site during this period. This makes it almost impossible to assume a sedentary population growing cereals in their fields for their daily diet. In our opinion, therefore, al-Khashbah is an excellent example of a third-

Lab no. MAMS	¹⁴ C age	±	δ13C [‰]	cal 1 sigma	cal 2 sigma	Material
27867	4350	29	-9.1	cal BC 3010–2911	cal BC 3079–2902	charcoal
27868	4115	27	-26.5	cal BC 2852–2621	cal BC 2863–2578	charcoal
27870	4086	33	-26.1	cal BC 2837–2506	cal BC 2860–2495	charcoal
27871	4304	28	-21.4	cal BC 2919–2892	cal BC 3010–2883	charcoal
27872	4141	26	-27.3	cal BC 2863–2636	cal BC 2872–2625	charcoal
27873	4123	26	-25.9	cal BC 2856–2627	cal BC 2865–2581	charcoal
27874	4145	27	-24.5	cal BC 2864–2639	cal BC 2873–2627	charcoal
27875	4057	26	-29.6	cal BC 2826–2498	cal BC 2834–2488	charcoal
27876	4195	27	-24.9	cal BC 2881–2707	cal BC 2890–2679	charcoal
27877	4180	26	-28.9	cal BC 2877–2701	cal BC 2884–2671	charcoal

FIGURE 14. Calibrated dates for ten charcoal samples from Building I in al-Khashbah (lab: R. Friedrich, Curt-Engelhorn-Zentrum Archäometrie, Mannheim, Germany; INTCAL13 [Reimer et al. 2013], and SwissCal 1.0 [L. Wacker, ETH-Zürich]).

millennium BC site in eastern Arabia, which was used only occasionally and by people who mainly followed a nomadic lifestyle. They might have come to al-Khashbah for special purposes, among which is copper processing. Craft specialization is by no means only related to sedentary communities, as is often assumed. At the Iron Age site of Faynān in Jordan, clear evidence exists that the copper smelting activities were carried out by a nomadic population (Beherec et al. 2016; Levy 2009; Levy, Adams & Muniz 2004). It has also been demonstrated that other cultural achievements usually associated with sedentary communities, such as monumental architecture and tombs, can also be associated with nomadic peoples (Morgunova & Khokhlova 2006; Parzinger 2006; Schmidt 2007). Thus, unless it is proved otherwise there is no reason to regard the people at al-Khashbah during the Hafit and Umm an-Nar period as anything other than nomadic pastoralists.

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References

- Beherec M.A., Levy T.E., Tirosh O., Najjar M. et al. 2016. Iron Age nomads and their relation to copper smelting in Faynan (Jordan): trace metal and Pb and Sr isotopic measurements from the Wadi Fidan 40 cemetery. *Journal of Archaeological Science* 65: 70–83.
- Blau S. 2001. Fragmentary endings: a discussion of 3rd-millennium BC burial practices in the Oman Peninsula. *Antiquity* 75: 557–570.
- Cable C.M. & Thornton C.P. 2013. Monumentality and the third-millennium ‘Towers’ of the Oman Peninsula. Pages 375–399 in S.A. Abraham, P. Gullapalli, T.P. Raczek & U.Z. Rizvi (eds), *Connections and*

- complexity: new approaches to the archaeology of South Asia*. Walnut Creek, CA: Left Coast Press.
- Cleuziou S. 1989a. The chronology of protohistoric Oman as seen from Hili. Pages 47–78 in P.M. Costa & M. Tosi (eds), *Oman Studies. Papers on the archaeology and history of Oman*. (Serie orientale Roma, 63). Rome: Istituto italiano per il medio ed estremo Oriente.
- Cleuziou S. 1989b. Excavations at Hili 8: a preliminary report on the third to seventh seasons of excavations at Hili 8. *Archaeology in the United Arab Emirates* 5: 61–87.
- Döpper S. & Schmidt C. (forthcoming). Continuity and discontinuity of settlements in northern Inner-Oman. In *Proceedings of the 10th International Congress on the Archaeology of the Ancient Near East (ICAANE), 25–29 April 2016, Vienna*.
- al-Jahwari N. 2013. *Settlement patterns, development and cultural change in northern Oman Peninsula: A multi-tiered approach to the analysis of long-term settlement trends* (British Foundation for the Study of Arabia Monographs, 13) (British Archaeological Reports, International Series, 2483). Oxford: Archaeopress.
- al-Jahwari N. & Kennet D. 2010. Umm an-Nar settlement in the Wādī ‘Andam (Sultanate of Oman). *Proceedings of the Seminar for Arabian Studies* 40: 201–212.
- Al-Khashbah Survey. 2015. 24 May 2016. *Project Al-Khashbah*. 26 September 2016. www.archaeoman.de/al-khashbah-webgis/.
- Levy T.E. 2009. Pastoral nomads and Iron Age metal production in ancient Edom. Pages 147–177 in J. Szuchman (ed.), *Nomads, tribes, and the state in the ancient Near East: cross-disciplinary perspectives*. Chicago: The Oriental Institute.
- Levy T.E., Adams R.B. & Muniz A. 2004. Archaeology and the Shasu Nomads – recent excavations in the Jabal Hamrat Fidan, Jordan. Pages 63–89 in W.H.C. Propp & R.E. Friedman (eds), *Le-David Maskil: a birthday tribute for David Noel Freedman*. Winona Lake, IN: Eisenbrauns.
- Morgunova N. & Khokhlova O. 2006. Kurgans and nomads: new investigations of mound burials in the southern Urals. *Antiquity* 80/308: 303–317.
- Parzinger H. 2006. *Die frühen Völker Eurasiens: Vom Neolithikum bis zum Mittelalter*. Munich: Beck.
- Power T. 2015. A first ceramic chronology for the Late Islamic Arabian Gulf. *Journal of Islamic Archaeology* 2/1: 1–33.
- Reimer P.J., Bard E., Bayliss A., Beck J.W. et al. 2013. IntCal13 and Marine13 Radiocarbon Age Calibration Curves 0–50,000 years cal BP. *Radiocarbon* 55: 1869–1887.
- Riley M. & Petrie C.A. 1999. An analysis of the architecture of the tomb at Sharm, Fujairah, UAE. *Arabian Archaeology and Epigraphy* 10: 180–189.
- Schmidt K. 2007. *Sie bauten die ersten Tempel: das rätselhafte Heiligtum der Steinzeitjäger; die archäologische Entdeckung am Göbekli Tepe*. Munich: Beck.
- Weisgerber G. 1980. ‘...und Kupfer in Oman’ – Das Oman-Projekt des Deutschen Bergbau-Museums. *Der Anschnitt* 32/2–3: 62–110.
- Yule P. 1993. Excavations at Samad Al Shān 1987–1991, Summary. *Proceedings of the Seminar for Arabian Studies* 23: 141–153.
- Yule P. 2001. *Die Gräberfelder in Samad al Shān (Sultanat Oman) – Materialien zu einer Kulturgeschichte (Orient-Archäologie 4)*. Rahden: Leidorf.
- Yule P. 2011. *Al-Khashbah 3rd millennium archaeological zone, threatened?* Accessed 6 November 2016. <http://heidicon.ub.uni-heidelberg.de/heidicon/141/170/385245.html>

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