

Beyond Tombs and Towers
Domestic Architecture of the Umm an-Nar Period in Eastern Arabia

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Domestic Architecture of the Umm an-Nar Period
in Eastern Arabia

Edited by Stephanie Döpfer

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Titelfoto: Der Fundort Al-Zebah nahe Bat (Foto: Conrad Schmidt).

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Contents

Preface of the Editor	VII
Chapter 1: Introduction (<i>Stephanie Döpfer</i>)	1
Chapter 2: The Domestic Architecture of Umm an-Nar Island (<i>Jonas Kluge</i>).....	7
Chapter 3: The Early Bronze Age Settlements of the Sohar Hinterlands: Scratching the Surface (<i>Bleda S. Düring and Samatar A. Botan</i>).....	17
Chapter 4: Umm an-Nar Settlement at Dahwa (DH1), Oman: Preliminary Results of the Archaeological Investigation, 2014–2016 (<i>Nasser Said Al-Jahwari, Khaled Douglas, Mohammed Al-Belushi and Kimberly D. Williams</i>)	29
Chapter 5: Bat and the Umm an-Nar Settlement Tradition (<i>Jennifer Swerida</i>)	51
Chapter 6: The Umm an-Nar Settlement of Al-Zebah (<i>Conrad Schmidt</i>)	71
Chapter 7: Al-Zebah and its Position in the Regional Settlement Pattern of Central Inner-Oman (<i>Stephanie Döpfer</i>)..	87
Chapter 8: Exploring Cultural, Social and Economic Complexification: Settlement Life through the Umm an-Nar Period at Ras al-Jinz RJ-2 (<i>Valentina M. Azzarà</i>).....	97

Preface of the Editor

The conference “Beyond Tombs and Towers – Domestic Architecture of the Umm an-Nar Period in Eastern Arabia” was held October 6th–7th 2016 at Leiden University, Faculty of Archaeology, in the Netherlands. The conference was the first of its kind dedicated specifically to domestic architecture of the Umm an-Nar period in the Sultanate of Oman and the United Arab Emirates. Besides presenting the current state of research, a second aim of the conference was to establish a basis for further research on domestic architecture in Eastern Arabia.

Archaeologists from France, Germany, the Netherlands, Oman, and the USA gathered at Leiden to present a range of original and stimulating papers that reflect the dynamism of research on the topic. At the beginning of the two-day meeting, Peter Akkermans, head of the Near Eastern Archaeology department at Leiden University, delivered the welcome address for the conference, which was followed by lectures on the domestic architecture of Ras al-Jinz, Dahwa, and settlements in the Sohar Hinterlands. The second day was devoted to the sites of Umm an-Nar Island, Bat, and Al-Zebah. The conference was closed with an inspiring final discussion focussing on settlement structure, chronology, resource exploitation, trade, and mobility.

The present publication contains the extended papers delivered during the conference. Due to other obligations, Sophie Méry’s (CNRS Paris) paper “The final phase of the Early Bronze Age in the U.A.E. and the Sultanate of Oman as a substantial period of cultural change (2200–2000 BCE)” and Aydin Abbas’ (Bochum University) paper “The domestic architecture of Maysar” were unfortunately not submitted for this publication. The articles in this volume cover most of the investigated domestic architecture of the Umm an-Nar period in Eastern Arabia and can, therefore, serve as compendium source for other scholars.

I would like to express sincere gratitude to all the participants for their good spirits and high academic standards that made the conference a successful meeting and all authors for delivering a wide range of interesting discoveries and innovative perspectives on domestic architecture as well as their patience and support during the editorial process. Further thanks go to Leiden University for hosting the conference as well as to the Fritz Thyssen Foundation for funding the conference and the publication of its proceedings. Finally, I am very grateful to Harrassowitz Verlag for its cooperation in bringing this publication to the readers and to Conrad Schmidt for accepting this conference proceeding in his series *Arabia Orientalis*.

Frankfurt am Main, June 2018 Stephanie Döpfer

Chapter 1: Introduction

Stephanie Döpfer

The Umm an-Nar period (2700–2000 BC) in Eastern Arabia was a time of fundamental changes in terms of subsistence strategies, resource exploitation, and social complexity.¹ In the material record, it is best known for its collective tombs and monumen-

tal structures, so-called ‘towers’, which have been the central focus of past archaeological research in the region. Although the specific function of these towers is still a matter of debate,² there is a general agreement that sites featuring such towers were centres of the

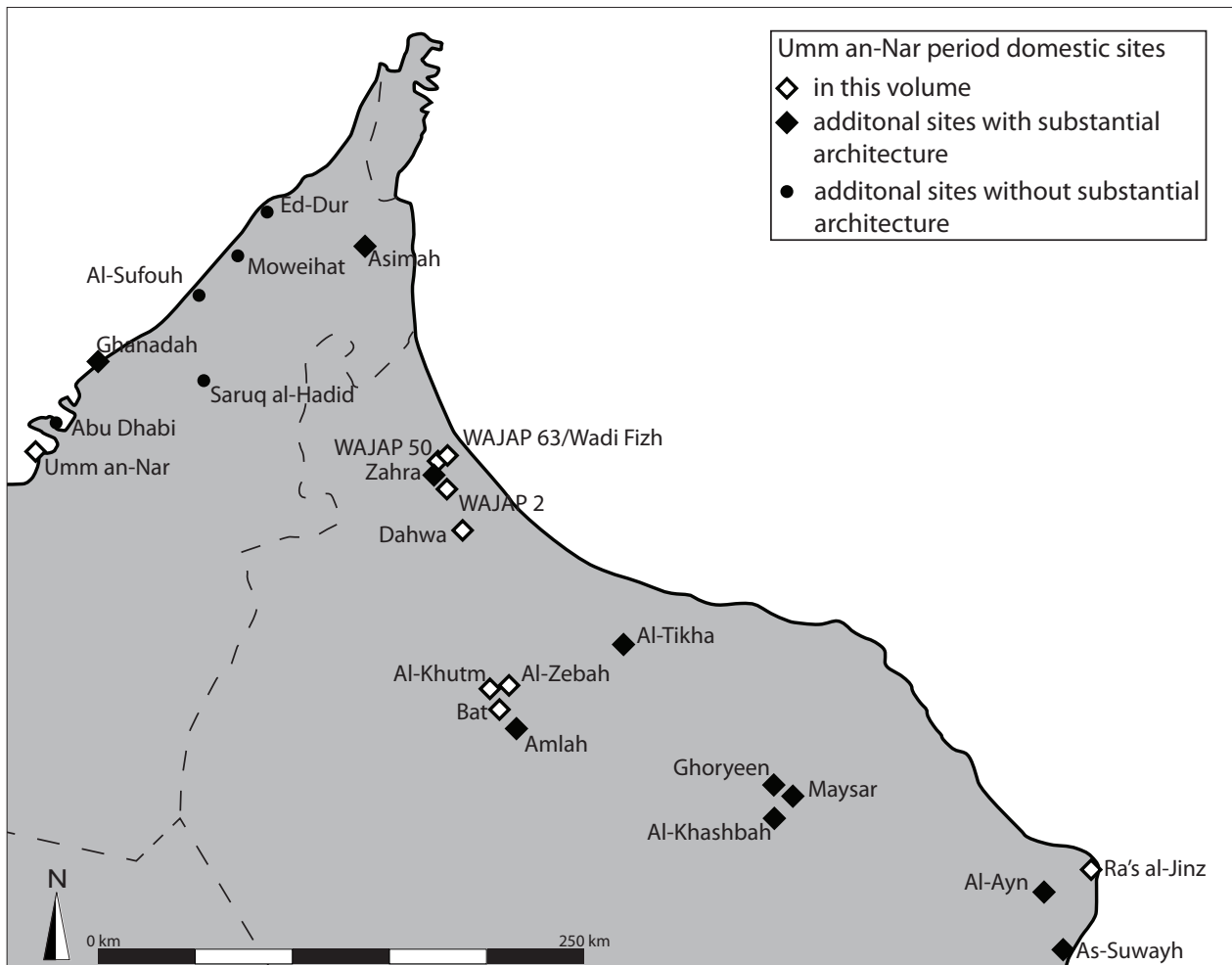


Fig. 1: Sites with Umm an-Nar period domestic architecture in Eastern Arabia mentioned in the text.

¹ Cleuziou – Tosi 2007; Méry 2013; Magee 2014.

² Hastings – Humphries – Meadow 1976: 13; Frifelt 1976: 59; Weisgerber 1981: 198–204; Frifelt 1989: 113; Reade 2000: 135–136; Frifelt 2002: 104–110; Orchard – Orchard 2002: 230–232; Cleuziou 2009.

Umm an-Nar societies and provided essential facilities for smaller sites in their hinterland.³ However, these centres represent only a fraction of all Umm an-Nar period sites. Domestic architecture at smaller sites in the hinterland of the monumental tower sites has received much less scholarly attention. Therefore, an international group of scholars gathered at the Faculty of Archaeology of Leiden University for a two-day meeting “*Beyond Tombs and Towers – Domestic Architecture of the Umm an-Nar Period in Eastern Arabia*” held from the 6th to 7th of October 2016. A variety of aspects pertaining to these domestic sites were discussed, such as architecture, chronology, settlement structure, resources used and subsistence practiced, the degree of mobility and sedentarism adapted by the people, as well as the material culture and the integration of domestic sites into the interregional exchange. Cutting-edge field projects were presented alongside with the revision of previously excavated material.

When discussing domestic architecture in Eastern Arabia, one has to be aware of the terminology. In most archaeological publications elsewhere in the world the term ‘settlement’ would denote places where people lived. However, in publications pertaining to Eastern Arabia, it also includes sites with towers, regardless of whether people lived there or not. It is therefore necessary to differentiate between sites with monumental towers and more humble structures that can be interpreted as places where people actually lived and fulfilled the task of their daily life. Different terms have been suggested for the latter, such as ‘residential structures’⁴, ‘common houses’⁵, ‘unfortified settlements’⁶, and ‘rectangular structures’⁷. Within this publication, such structures will be referred to as ‘domestic architecture’.

Research on domestic architecture in Eastern Arabia began already in 1959 with the discovery of Umm an-Nar period remains at the eponymous site of Umm an-Nar Island in the United Arab Emirates. Between 1962 and 1965 those remains were excavated by Danish archaeologists, with the results were published in 1995 by Karen Frifelt⁸. In chapter 2, Jonas Kluge gives a thorough re-evaluation of these early excavations, in which he underlines the differences between this rather organised coastal settlement and the more loosely arranged ones known from the interior.

Rectangular houses comparable to those found on Umm an-Nar Island were investigated at different sites in the United Arab Emirates and the Sultanate of Oman in the years following the initial excavations

at Umm an-Nar Island (Fig. 1). Karen Frifelt⁹ herself continued researching domestic architecture at the so-called ‘Settlement Slope’ at Bat. In several sondages along this slope, Frifelt identified stone walls as foundations of houses; the accumulation of clay at the foot of the slope indicated that the upper parts of these houses were built of mud-brick.¹⁰

Renewed excavations of the settlement slope started in 2013 by the American-Japanese Bat Archaeological Project (AJBAP).¹¹ The pottery found during this work and the resulting radiocarbon dates suggest an occupation of the site from the Middle Umm an-Nar period to the beginning of the Late Bronze Age (2450–1600 BC).¹² In chapter 5 of this volume, Jennifer Swerida presents her pioneering study treating the chronological development of domestic architecture in Bat throughout the Umm an-Nar period. She could demonstrate that, while Early Umm an-Nar period structures at Bat were solely towers, in the Middle Umm an-Nar period substantial domestic architecture was discovered at the Settlement Slope. Similar domestic architecture was identified at the site of Al-Khutm, about 3 km to the north-west of Bat proper. The Late Umm an-Nar period witnessed a reduction in rectilinear domestic structures. At Al-Khutm, only a small number of Late Umm an-Nar pottery sherds could be found, while on the other hand, the Settlement Slope in Bat continued to be in use.

In the winter of 1974/1975 the British Archaeological Expedition discovered the site of Amlah-4.¹³ Their main focus was on the tower site, but an “extensive lay-out of boulder walling” was reported as well, and a small test trench excavated.¹⁴ The minimally published very limited results of this undertaking were that the stone walls were built directly on the ground, and that the stones used for these walls were smaller than those of the nearby tower. Since no pottery sherds were discovered, the dating of the structure into the Umm an-Nar period is uncertain.

Between 1977 and 1981, Gerd Weisgerber directed an expedition of the German Mining Museum, which conducted excavations at the site of Maysar. Two zones with domestic architecture could be identified here: Maysar-1 and Maysar-6. The main settlement, Maysar-1, covers an area of approximately 90 x 300 m and is separated from the northern part of the settlement by a small wadi channel.¹⁵ Several stone walls constructed of large pebbles were visible on the surface. The walls were built as double sided walls, with the inner part filled with smaller stones,

3 Frifelt 1976; Frifelt 1985; Orchard 2000; Cleuziou – Tosi 2007: 145–147; Magee 2014: 101.

4 Magee 2014.

5 Cleuziou – Tosi 2007.

6 Potts 2006.

7 Schreiber 1998.

8 Frifelt 1995.

9 Frifelt 1976: 60, pl. 9–10; Frifelt 1985: 99, 100 fig. 6.

10 Brunswig 1989: 19.

11 Kerr 2016.

12 Kerr 2016: 73.

13 De Cardi – Collier – Doe 1976: 111–114.

14 De Cardi – Collier – Doe 1976: 114.

15 Weisgerber 1980: 77–89; Weisgerber 1981: 191–196.

slag or furnace fragments, and occasionally pottery sherds. All of these materials were also visible in large quantities on the surface of the site, demonstrating intensive copper processing here. This corroborates the evidence from several surface mining pits that were identified along the flanks of the nearby wadi terrace, called Maysar-2. Within House 4 of the settlement Maysar-1, a deposition of copper ingots was found together with several fire places and other installations like small platforms.¹⁶ Those installations were all built directly onto the wadi gravel, which served as the buildings' floor. At House 3, a stone-lined well was discovered, whose fill included large amounts of pottery sherds. The majority of these sherds could be re-assembled to form medium-sized jars. A special find is a pottery kiln in the northern part of the settlement Maysar-1.¹⁷

Approximately 1 km to the south-west of Maysar-1 on a small, oval hill, the settlement of Maysar-6 is located.¹⁸ It differs from the settlement of Maysar-1 insofar as no slag or furnace fragments were visible on the surface. Excavations revealed at least four different layers with small rooms of 3 to 6 m² in area. The walls of these rooms were built of a combination of mud-bricks and stone. Finds were generally rare in these excavations but included animal bones interpreted as food waste. Based on these results, the excavators supposed a functional difference between Maysar-1 and Maysar-6. According to them, Maysar-1 was predominantly a workshop area, while Maysar-6 acted as a living area.¹⁹ Currently, a re-evaluation of the results of the excavations at Maysar is being undertaken as the PhD project of Aydin Abar²⁰ at the University of Bochum.

From 1978 onwards, the Umm an-Nar period sites Zahra 1 and Wadi Fizh 1 were investigated in the context of the Sohar hinterland by Tony Wilkinson²¹. He identified them as small sites in the vicinity of the Arja mining complex. In 2014, Bleda Düring began a systematic and long-term archaeological survey in the Wadi al-Jizzi region, which included a re-analysis of Zahra 1 and Wadi Fizh 1 (chapter 3). This project provides valuable insights into the previously neglected Early Bronze Age archaeology of the region; Düring also identified two more sites with domestic architecture that date to the very end of the Umm an-Nar period, Site 2 and Site 50.

Between 1985 and 1995 the coastal site of Ras al-Jinz (RJ-2) in the Ja'alan was intensively investigated, with excavations resuming in 2006. Four periods of occupation could be identified, of which the youngest three date to the Umm an-Nar period.²² In chapter 8, Valentina Azzarà demonstrates an increasing segregation of activities and changes in the architectural layout of the site, hinting at the specialisation of construction workers as well as a strengthening of social relationships among members of each group.

Shortly after the beginning of the excavations at Ras al-Jinz, archaeological research was undertaken by Burkhard Vogt²³ at Asimah between 1987 and 1988 on behalf of the Department of Antiquities and Museums of Ras al-Khaimah. In the northern part of the Asimah valley, remains of one rectangular structure measuring 8.90 x 6.55 m were uncovered and labelled As99. The stone-built structure is divided into two roughly equally sized elongated rooms; they are connected by a passage half-way along the dividing wall. No outer entrance could be traced but several parallel walls obliquely abut against the north side of the building. According to the excavators, those walls might indicate a later addition. Within the filling of the building only minimal finds were made. These were copper droplets, grinding stones, shell fragments, animal bones, and a handful of Umm an-Nar period pottery sherds. At the site of Asimah North on the opposite side of the wadi, some fireplaces and other installations connected with heating, cooking or storing were discovered together with few isolated post-holes. These were located beside a large number of pits, and in an area that yielded abundant quantities of pottery sherds. It is striking that nearly 20 % of the sherds discovered at Asimah North can be classified as Harappan.²⁴

At nearly the opposite end of the Oman Peninsula from Asimah, the settlement of Khor Bani Bu Ali (SWY-3) was discovered during the survey of the Joint Hadd Project in 1988. It is located about 70 km to the south of Ras al-Hadd in the coastal plain. Excavations of the site conducted between 1996 and 1998 uncovered an almost square building measuring 5.10 x 5.00 m.²⁵ It consisted of two rectangular rooms, and its walls built of boulders and unworked sandstones were laid directly onto the ground without any foundations. Fragments of mud-bricks and mortar were found in the filling of the rooms. No distinct floors could be identified within the building, but the progressive accumulation of sediments mixed with various artefacts demonstrated different periods of abandonment according to the excavators. Compar-

16 Weisgerber 1981: 192, 207–208 Abb. 38–40, 209.

17 Weisgerber 1980: 86 Abb. 47, 89.

18 Weisgerber 1981: 205.

19 Weisgerber 1981: 205.

20 The working title of Aydin Abar's thesis is: "Social aspects of production and processing in Bronze Age Oman". For more information see <http://www.bergbaumuseum.de/index.php/de/forschung/projekte/ritak/soziale-aspekte>.

21 Costa – Wilkinson 1987: 97, 99, 105.

22 Cleuziou – Tosi 2000; Azzarà 2009.

23 Vogt 1994: 152–159.

24 Vogt 1994: 157.

25 Méry – Marquis 1998; Méry – Marquis 1999.

isons to the architecture of Building IV of Ras al-Jinz RJ-2 and the dominance of a sandy orange ceramic ware were taken as arguments for a date at the very end of the 3rd millennium BC.

Since the beginning of the current millennium, several new sites were discovered and investigated, that have provided valuable new data on domestic architecture in Eastern Arabia. Among these sites are Al-Ghoryeen, Al-Ayn ALA-2, Al-Zebah, and Al-Tikha. The site of Al-Ghoryeen was discovered during Nasser Al-Jahwari's survey of Wadi Andam between 2004 and 2006, located at the confluence of Wadi Mahram and Wadi Andam.²⁶ The site consists of an Umm an-Nar period tower, 49 tombs, and an area of 200 x 150 m with domestic architecture. No excavations took place, but a sketch plan has been created by Al-Jahwari. It shows the remains of buildings of a variety of different sizes and plans. Umm an-Nar period pottery sherds found on the surface in and around these buildings provides a clear date for the buildings in the 3rd millennium BC.

The site of Al-Ayn is situated on a small terrace bordering a wadi.²⁷ Besides a possible Umm an-Nar period tomb (ALA-1), a rectangular structure (ALA-2) was uncovered between 2005 and 2007. It is one of about 12 to 15 similar structures at the site. The walls of the 12 x 12 m large room are built of large pebbles directly on the surface. Along the internal side, flat slabs were placed vertically against the wall. The material from the filling indicates that the superstructure was made of mud-bricks. No internal separation of the room was visible. Two construction phases can be identified of which both date into the Umm an-Nar period.

In 2011 archaeological investigations started at the site of Al-Zebah, approximately 7 km to the north-west of Bat.²⁸ The results of these excavations are presented by Conrad Schmidt in chapter 6. He further provides an extensive comparison of the different architectural elements characteristic for Al-Zebah in the context of other Umm an-Nar period domestic sites. Chapter 7 presents an analysis of the situation of Al-Zebah in the broader settlement pattern of the region by Stephanie Döpfer.

The Umm an-Nar period settlement of Al-Tikha was discovered in 2013 just north of the modern city of Rustaq, during the Rustaq-Batinah Archaeological Survey.²⁹ Scattered over an area measuring 1700 x 1600 m are the remains of three Umm an-Nar period towers, several tombs, and a number of rectangular stone buildings. The ongoing excavations con-

ducted by the Sultan Qaboos University (chapter 4) revealed several distinct Umm an-Nar period domestic settlements in the region of Dahwa. The main site, DH1, with its 17 houses gave overwhelming evidence for interaction with the Indus Valley civilisation. Large quantities of sherds of Black Slipped Storage Jars were found.

In addition to these stone or mud-brick built rectangular houses, less substantial Umm an-Nar period remains, predominantly sherd scatters and hearths, have also been discovered, which probably also represent domestic sites. These sites are likely to have a less permanent character and were most probably only temporarily inhabited by mobile people. To these sites belong Ghanadha, Ed-Dur, Mowehat, Al-Sufouh, Abu Dhabi and Saruq al-Hadid. From 1982 to 1984 excavations took place on the island of Ghanadha.³⁰ Besides several fireplaces and large quantities of burned stones, a simple limestone wall was found. In 1986 the sherd scatter of Ed-Dur was investigated.³¹ Rescue excavations were conducted at Mowehat in 1986/1987 focussing mainly on the 3rd millennium tombs but also mentioned settlement area finds at a distance of about 300 m from the tombs.³² This area was investigated by Carl Phillips³³, who identified several hearths and scatters of pottery and shell. From 1994 to 1995 an Australian team explored the scatters of pottery sherds and ash lenses at Al-Sufouh,³⁴ and in the winter of 1995/1996 rescue excavations at the Abu Dhabi airport revealed further pottery scatters.³⁵ Between 2008 and 2009 different fire-places and post-holes were found at Saruq al-Hadid,³⁶ all adding to our understanding of the different kinds and complex nature of Umm an-Nar period settlements in Eastern Arabia.

Within this volume the current state of research on domestic architecture of the Umm an-Nar period in Eastern Arabia is brought together for the first time. Through the wealth of new data originating from recent and ongoing field projects and the intensive re-evaluation of older excavations, new possibilities have emerged. Extensive analyses and often astonishing new ideas for long-standing debates continue to develop, for example on issues of chronology, subsistence, or the degree of mobility of the people living and using the domestic architecture. The contributions of the different scholars within this volume cover sites across all of Eastern Arabia and from different phases within the Umm an-Nar period. They discuss various aspects of domestic sites including but

26 Al-Jahwari – Kennet 2010: 167, 168 fig. 8–9.

27 Blin 2012; Blin 2007.

28 Döpfer – Schmidt 2013: 37–46; Schmidt – Döpfer 2014: 210–216.

29 Kennet – Deadman – Al-Jahwari 2016: 159–160.

30 Al-Tikriti 1985: 11.

31 Boucharlat *et al.* 1988.

32 Al-Tikriti 1989: 90; Haerinck 1991: 2.

33 Phillips 2007.

34 Iacono – Weeks – Davis 1996.

35 de Cardi 1997.

36 Herrmann – Casana – Qandil 2012: 63–64.

not limited to the layout of the sites, their architecture, their material culture, their social and economic organisation, and their broader interregional interactions. By assembling such diverse fields of evidence,

these studies are crucial for enriching our understanding of the developments that took place during this fascinating period of Eastern Arabia's history.

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Mehr als Kupfer in Oman: Ergebnisse der Expedition 1981, *Der Anschnitt* 33/5–6: 174–263.

Chapter 2: The Domestic Architecture of Umm an-Nar Island

Jonas Kluge

The small island of Umm an-Nar is situated in the archipelago of Abu Dhabi, a few hundred metres off the coast. The island itself is about 3 km in length and 2 km in width and characterised through two flat limestone plateaus on which the *c.* 45 Umm an-Nar period graves can be found (Fig. 1). The corresponding settlement, in shape of a small tell of approximately 300 x 150 m, is located on the eastern coast of the island, where a small creek forms a natural harbour, protected from the sea and the wind.

The climatic conditions of the 3rd millennium BC seem to have been very similar to the recent conditions so that the situation in the past was not unlike as it was in the early 1960s when the excavations took place, although the sea level was higher, allowing ships to reach the island.¹ Today, due to the growth of the modern city of Abu Dhabi, the situation has changed largely. The island itself has been altered and widened to create space for an oil refinery. Although the site is well preserved and protected, further archaeological research is currently inexecutable. Furthermore, the question of the integration of Umm an-Nar in the local settlement system is impossible to answer due to the rapid changes in the region.

The archaeological record of Umm an-Nar was first mentioned in 1958 during a visit of Globb and Bibby, after the site was reported by a representative of an oil company, following a series of excavation campaigns during the next seven years, which first concentrated on the monumental graves, later on the settlement itself.² However, due to the limited time, the excavation of the settlement was restricted to about four weeks per campaign. In 1975, an Iraqi expedition under Al-Tikriti continued the work on Umm an-Nar Island but focused mainly on the necropolis.³

2.1 The architectural remains

During the excavations, three different parts in the settlement were investigated. In the western part, a building partially visible on the surface was completely excavated. Due to the layout, the room sizes and the findings – especially a jar sealing – it was interpreted as a warehouse.⁴ Furthermore, at the highest part of the tell, a trench of 10 x 13 m was opened to comprehend the stratigraphy of the site. In this trench remains of at least five buildings, corresponding to two main phases were uncovered. Of those buildings just one was completely excavated, of the rest, an entire plan could not be revealed. This area was called House Complex 1014.⁵ Thirdly, a long trench was dug through the tell, showing a densely built-up area, although no coherent plan of those buildings could be traced due to the small width of the trench.

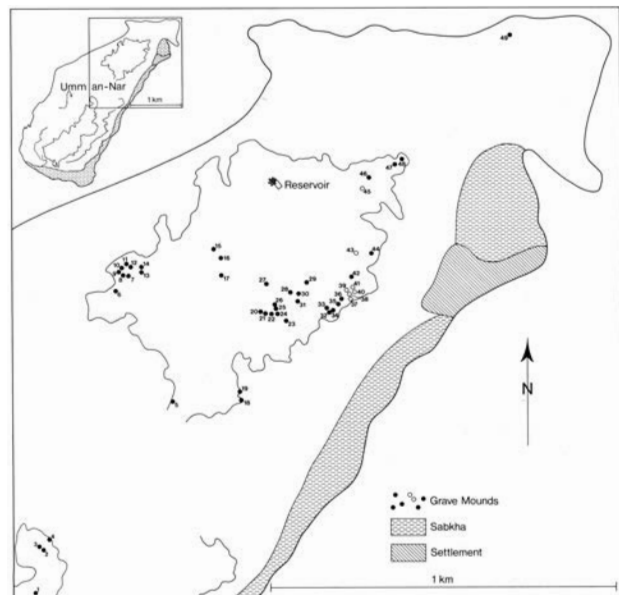


Fig. 1: Plan of Umm an-Nar Island with location of the settlements and the graves (Frifelt 1991: 15 fig. 4).

1 Frifelt 1991: 12.

2 Frifelt 1991: 9.

3 Potts 1990: 99; Al-Tikriti 1983: 120–129.

4 Frifelt 1995: 24–25.

5 Frifelt 1995: 92.



Fig. 2: Plan of the House Complex 1014; older phase A in grey, younger phase B in white (Frifelt 1995: plan 4 with edits by Jonas Kluge).

To understand the domestic architecture of Umm an-Nar Island, one depends on the results of the small area of the House Complex 1014, relying mainly on the one completely excavated house in this area and the Warehouse (Fig. 3), which is of more official character. The completely excavated domestic building of rectangular shape is located at the southern part of the area and consists of three rooms (Fig. 2). The corners of the western side are rounded, while the extent to the east could not be traced since this side was destroyed through a later pit.⁶ All in all, the house seems to have been quite small, covering an area of only *c.* 16 m². In the southern half, a long room with the size of *c.* 4 x 2 m extends over the whole length of the building. In the corresponding northern part of the building, this area has been divided into two smaller rooms, each measuring *c.* 2 x 2 m. The entrance of the house must have been in the destroyed eastern wall.⁷ Further doorways have been found between the two smaller rooms and from room 228 into 227. There are traces of a fireplace in room 228, but no further installations or floors were recognised during the excavation.⁸ The house can be dated to the younger phase of the settlement since it overlays another wall in the western part of the building, dating to the older phase of the settlement. Those two phases are separated by a sterile, 10 cm thick layer of sand, indicating either

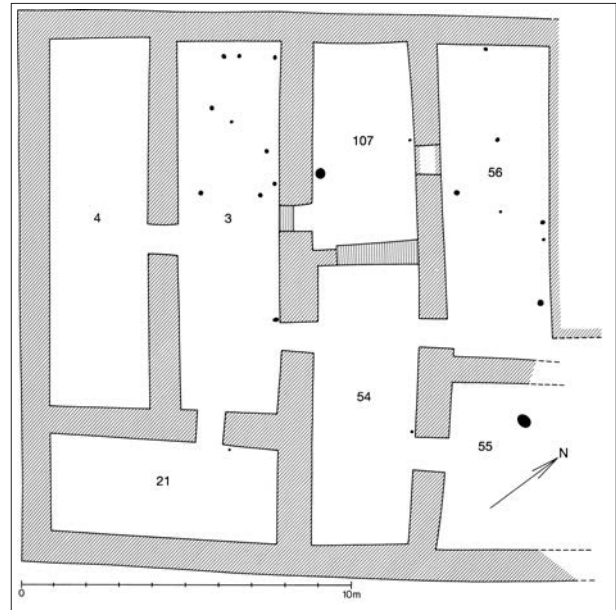


Fig. 3: Plan of Warehouse 1013 with postholes indicating a potentially older phase (Frifelt 1995: plan 2).

a building activity of the rebuilding in the younger phase or a gap in the settlement occupation.⁹

Westward of this house, another house (room 496) was located, which can be dated to the older phase, based on the level of the preserved wall. Northward, a third building was present. The excavated part consists of a potentially open space (room 498) of at least 5 x 4 m. The small room 283 in the south-eastern corner dates probably to the older phase because it possesses the same flight as the older wall in the south.¹⁰ A fourth building is located at the North-East, consisting of two excavated rooms (498 and 499). The building is separated from the north-western building by a wall over 1 m thick. The two rooms are connected by a large doorway.¹¹ As demonstrated with this overview, to understand the domestic architecture of Umm an-Nar Island, its similarities and differences, compared to the known domestic architecture of the interior of the eastern Arabian Peninsula, one can only rely on few architectural remains.

The building techniques used show some quite interesting features. The preserved walls in the House Complex 1014 consist of flat, roughly worked limestones, which are laid flat into simple walls, measuring between 0.40 m and 1.00 m in width and ten to twelve preserves layers, corresponding to 1.40 m in height (Fig. 4a).¹² Further stone debris in the rooms

6 Frifelt 1995: 96.

7 Frifelt 1995: 94.

8 Frifelt 1995: 94.

9 Frifelt 1995: 97.

10 Frifelt 1995: 94.

11 Frifelt 1995: 95–96.

12 Frifelt 1995: 93.

indicates that the walls were originally higher. The spaces between the stones are filled up with clay and clayish sand, which functions as a kind of mortar.¹³ The use of mud-brick walls as known from other coastal sites as Ras al-Jinz is not attested at Umm an-Nar Island.¹⁴ In a few cases, white stones of the façades of the Umm an-Nar period graves have been secondary reused as part of the walls.¹⁵ Phase A, the older phase, is characterised by a more carefully construction of the walls, while Phase B, the younger phase, is distinguished by the reuse of older stones and stones of the graves.¹⁶ The sizes of the rooms, not exceeding more than 2 m, indicate conventional roofing with a flat roof. Doorways have been excavated at three locations. They are between 0.60 and 1.00 m wide and feature door sills made of flatly laid limestones (Fig. 5). The discovery of door sockets near those door sills suggests that all rooms could be closed by means of simple doors.¹⁷ The lack of observed floors or installations has been mentioned before. Interesting is also the general layout of the settlement. All walls of both phases are following the same orientation, in Phase B some houses even share some walls, displaying organised planning of the settlement.

It is important to note that the building techniques might not be the same all over the site. For example, the walls of the earlier described Warehouse are only preserved to a height of about 0.50 m and no huge amount of collapsed stone debris is mentioned in the reports, leading already the excavators to the hypothesis that a superstructure of different material, eventually of palm trees, must have existed.¹⁸ This might indicate the use of more than one building technique at the site, although the excavated material is too sparse to resolve this question for sure.

The building techniques used on Umm an-Nar Island are entirely different, compared to those used in the settlements in the interior.¹⁹ First, the layout of the single buildings varies considerably. In the interior, the buildings form single, large, free-standing complexes, consisting of several large rectangular rooms and courtyards. The individual houses are several metres apart and show no similarity in orientation. There seems to have been no organised planning of the settlement, rather a coexistence of the single house complexes, as can be observed in the layout of the settlement, e.g. in Al-Zebah²⁰, Al-Ghoryeen²¹ or Zahra²².

13 Frifelt 1995: 93.

14 Cleuziou – Tosi 2000: 29; Azzarà 2009: 1–16; Azzarà 2015.

15 Frifelt 1995: 97.

16 Frifelt 1995: 91.

17 Frifelt 1995: 97.

18 Frifelt 1995: 12.

19 For a more detailed analyses of Umm an-Nar domestic architecture see Kerr 2016.

20 Döpfer – Schmidt 2015: 69.

21 Al-Jahwari – Kennet 2010: 208.



Fig. 4: a) Simple stone walls at Umm an-Nar Island (Frifelt 1995: 94 fig. 152), b) Similar walls of the Barbar horizon in Qala'at al-Bahrain (Højlund – Andersen 1994: 63 fig. 87).

Second, the building technique of the walls from the interior is that of a double-sided wall, filled with materials like clay soil, smaller stones or pebbles, and in the case of Maysar, with slag.²³ When excavated those walls are not preserved higher than three to four courses or about 40 cm. Those walls are erected directly on the surface with no foundations. It is assumed that those walls might be substructures for walls made of mud-bricks or organic material, although when excavated no traces of mud-bricks or mud-brick debris can be found. As for organic material, one might argue for a roofing of those rooms with tents.²⁴ This idea is

22 Costa – Wilkinson 1987: fig. 35.

23 Weisgerber 1980: 90.

24 Döpfer – Schmidt 2015: 77.



Fig. 5: Elevated door sill in room 499 (Frifelt 1995: 96 fig. 157).

supported by the room sizes of most of the building: one of the largest rooms known is over 9.10 m wide, a width which is nearly impossible to be roofed with the wood available on the Oman Peninsula. Another option might be the roofing with palm leaves in a manner of a *barasti*-hut, as it could be observed until recently in Eastern Arabian. As mentioned, this option also might be assumed for the Warehouse of Umm an-Nar Island. The use and cultivation of palm trees in the 3rd millennium BC was demonstrated with the excavation of Hili.²⁵ The best comparison for building techniques like those of Umm an-Nar Island can be found further west in the region of Bahrain. For example, the excavation in Qala'at al-Bahrain revealed an architecture looking quite similar to the architecture used on Umm an-Nar (Fig. 4b).²⁶

Third, in the large courtyards and rooms of the domestic settlements in the interior, large numbers of simple fireplaces can be found, indicating possible periods of abandonment and return in short intervals, when it was easier to create new fireplaces than to clean the older ones.

Fourth, there are considerable differences in the house sizes. While the fully excavated house on Umm an-Nar Island measures about 16 m², house sizes in the interior reach up to 550 m². This might also indicate a difference in the social organisation and family composition. As there are no existing textual sources about family structures in the Umm an-Nar period, one can only speculate about the number of inhabitants, although it is obvious that for the large houses of the interior a larger number of inhabitants might be assumed. Possible concepts of a core family or an extended family might have existed. For the

small house on Umm an-Nar Island with just 16 m² a core family might be assumed, as there is simply not enough space for an extended family.²⁷

The architecture of Umm an-Nar Island features spare similarities with other sites of the Umm an-Nar period but bears a strong resemblance with the architecture of sites further up the Gulf. All in all, there is the impression of the sites in the interior seems to have been more seasonal in character than the more permanent sites on the coast like Umm an-Nar Island.

2.2 Subsistence and material culture

The subsistence of the settlement of Umm an-Nar is primarily covered by the exploitation of maritime resources. Studies of the animal bones show the following results: Nine different species of mammals (dugong, dromedary, ox, oryx, gazelle, goat/sheep, and whale), five species of birds (cormorant, snake bird, duck, and flamingo), one species of reptile (turtle), and three species of elasmobranches (shark, sawfish, and stingray), together with different species of fish, gastropods, and bivalves could be distinguished by the Danish expedition.²⁸ The study of human teeth from the graves on Umm an-Nar Island shows that the agricultural products played a minor role in the diet.²⁹ Thus, Umm an-Nar Island consisted of an economy of fisher, hunter, and stock-breeder. Unsurprisingly, due to given geological and climate conditions, this differs from the sites of the interior, where an economy of farmers and stock-breeders is assumed.³⁰

Striking is the lack of water on Umm an-Nar Island. No traces of a spring could be discovered in the early 1960s, and today no analysis, either on the island itself or on the nearby mainland, can be done, since the growth of the modern city of Abu Dhabi renders this impossible. Although the use of cisterns might be deduced from the existence of an old Islamic cistern on the island, it is not attested by the results of the Danish excavations.³¹ In any case, a cistern might not be able to supply water for the whole year. The usage of wells, as it is proven for example in the excavations in Maysar,³² cannot be assumed due to the location of the site at the coast. Therefore, until new data concerning this topic is available, we do not understand fully how the water supply did function.

The study of the material culture recovered during the excavation of Umm an-Nar Island shows some

25 Potts 1990: 131.

26 Højlund – Andersen 1994: 59–68.

27 For family sizes in the Umm an-Nar period see also Azzarà this volume.

28 Potts 1990: 128.

29 Potts 1990: 130.

30 Potts 1990: 127–135; Al-Jahwari 2009: 122–133; Magee 2014: 102–107.

31 Frifelt 1991: 14.

32 Weisgerber 1981: 99.

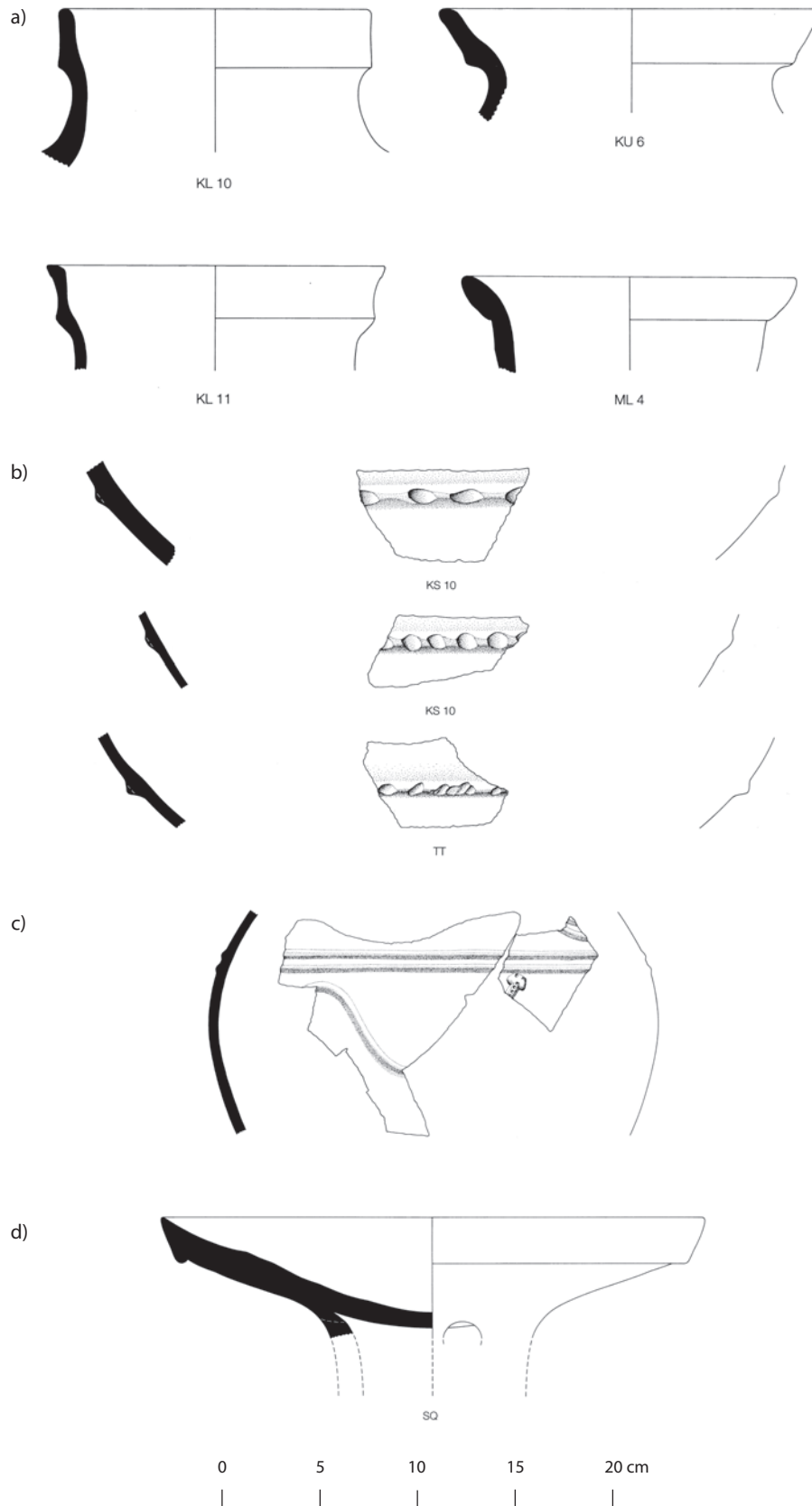


Fig. 6: Pottery of different origin indicating cultural contacts: a) Band Rim jars of Mesopotamian origin (Frifelt 1995: 124 fig. 167), b) East Arabian/pre-Barbar pottery (Frifelt 1995: 152 fig. 203), c) Ridged Red pottery (Frifelt 1995: 162 fig. 216), d) Indus pottery (Frifelt 1995: 167 fig. 224).

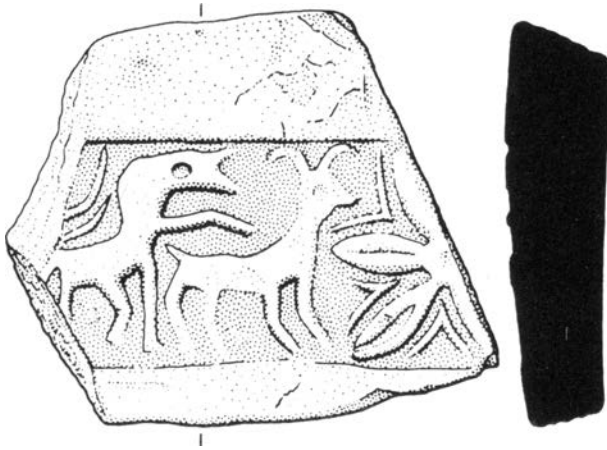


Fig. 7: Seal impression from the Warehouse (Frifelt 1995: 184 fig. 255).

interesting features, demonstrating widespread inter-regional connections on the one hand and displaying the maritime orientation of the settlement on the other hand. As the material culture has been already described and processed in an excellent way in the publication of Umm an-Nar Island by Frifelt, the following description will focus only on the interregional contacts.

The pottery found during the excavations of Umm an-Nar Island can be divided into several groups, displaying different places of production and contacts. The local 'Buraimi Ware' originates from the settlement area and not from the graves, indicating a local domestic type of pottery. It is characterised by geometric or linear decorations of black lines and waves in the upper part of the vessel and belongs to the finer part of Méry's³³ Domestic/Red Sandy Ware. Similar pottery has been found in other domestic settlements in the interior of Oman.³⁴ An analysis of the clay shows that this type of pottery might be produced inland at the oasis of Hili.³⁵ The funerary ware of the Umm an-Nar period, both Black-on-Red and Grey Ware, can be found, to a small extent, in the settlement, possibly intended for the graves. It was probably locally produced in the region around Hili as well.³⁶

Imported pottery is dominated by the pottery of Mesopotamian origin (Fig. 6a). It is characterised by storage jars, often with a banded rim and a buff to brown, sand-tempered ware. Best comparisons can be found on the site of Abu Salabikh and as petrographic analyses have shown this pottery is of a south Mesopotamian provenance.³⁷ The Mesopotamian storage jars can be dated in the Early Dynastic III period,

supporting the dating of the settlement on Umm an-Nar Island around the first centuries of the second half of the 3rd millennium BC. On the Oman Peninsula pottery of Mesopotamian origin has been found mainly at coastal sites like Umm an-Nar Island, but also at Ghanadha, Al-Aysh, and Ras al-Jinz.³⁸

The Indus pottery is represented in lesser quantities than the Mesopotamian imports but seems to have been likewise of great importance (Fig. 6d). Although they are sometimes hard to recognize due to the poor preservation of the typical black coating, sherds of possible Indus origin have been found around the Warehouse and the domestic quarters, dating to both phases of the settlement. Imported Indus pottery is also known from different Umm an-Nar period sites, both at the coast and the interior with Umm an-Nar Island being one of the western most sites known today.³⁹ The Indus pottery imports represent the most eastern contacts of Umm an-Nar Island, which can be observed at this site.⁴⁰

The pottery furthermore shows contacts with other regions along the Gulf with few sherds of the pre-Barbar pottery (Fig. 6b) and with the south-eastern Iran or western Pakistan, demonstrated by the Incised Grey Ware and the Ridged Red pottery (Fig. 6c) found in the settlement, although they might be only imitations and produced locally on the Arabian Peninsula.⁴¹

Of importance is the discovery of a seal impression on a shoulder sherd of a large storage vessel in the Warehouse (Fig. 7). Amiet⁴² compared it with other seal impressions from Ebla and Hama in Syria dating to the second half of the 3rd millennium, indicating that the trade extended until central Syria. Similar impressions are known from vessels with specialised functions, mainly the transportation of wine or oil.⁴³

Other objects found during the excavations emphasize the maritime character of the settlement. Fishhooks and other copper objects were produced locally for personal use in the different houses (Fig. 8c). Nearly all rooms contained fragments or scraps from the process of smelting and re-smelting copper. Objects were produced with the cold-hammering technique. Unique for the Umm an-Nar culture is a fish spear.⁴⁴ Other objects relating to fishing are net sinkers, of which nearly three hundred pieces were found during the excavation. 41 of those were excavated *in situ* near the door sill in room 499 (Fig. 8a). Finally, fragments of bitumen were found in large numbers all over the site. Many of those fragments bear im-

33 Méry 2000: 125–168.

34 Weisgerber 1980: 89; Döpper – Schmidt 2013: 45; Thornton – Ghazal 2016: 195–200.

35 Blackman – Méry – Wright 1989: 66–67.

36 Frifelt 1995: 169.

37 Frifelt 1995: 123.

38 Frifelt 1995: 123; Cleuziou – Tosi 2000: 53.

39 Cleuziou – Tosi 2000: 44; Cleuziou – Méry 2002; Thornton – Ghazal 2016: 204–207.

40 Frifelt 1995: 165–168.

41 Frifelt 1995: 161–162.

42 Amiet 1985: 10.

43 Mazzoni 1984: 31.

44 Frifelt 1995: 195.

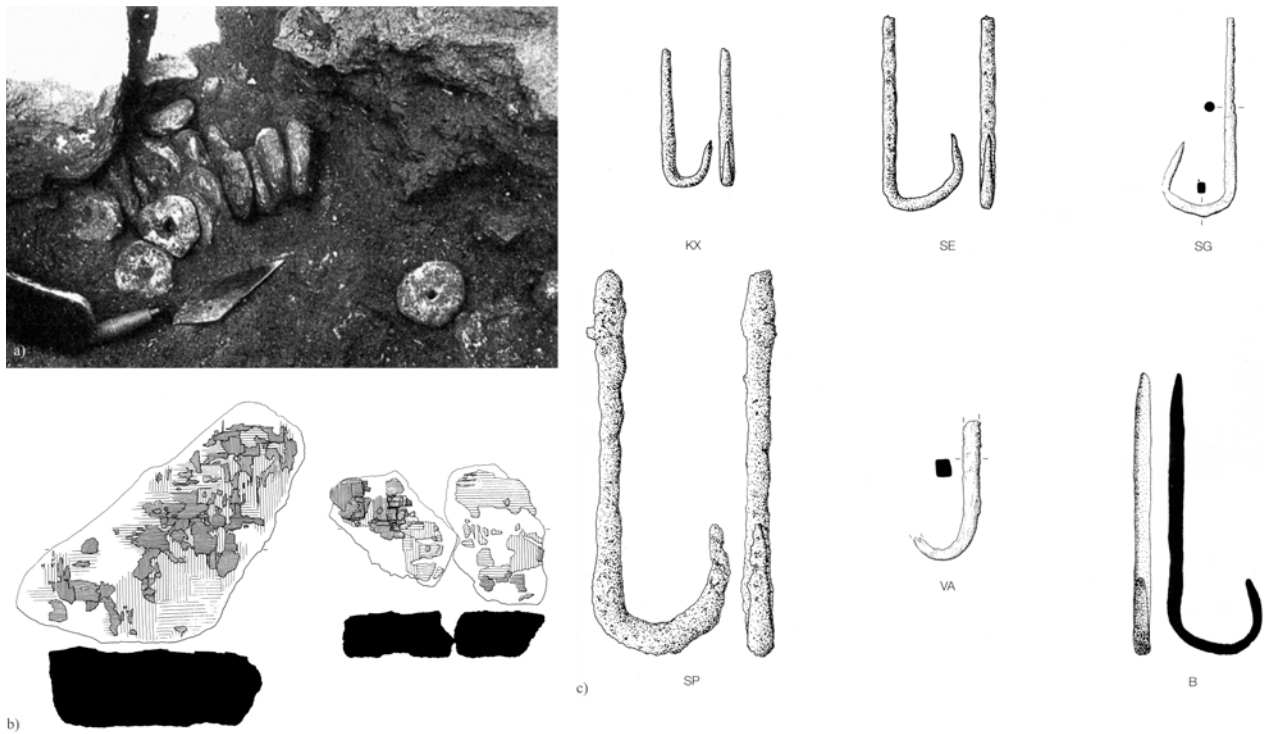


Fig. 8: Objects reflecting the maritime character of Umm an-Nar Island: a) Net sinkers *in situ* in room 499 (Frifelt 1995: 97 fig. 159), b) Bitumen with imprints of reed mats (Frifelt 1995: 227 fig. 341), c) fishhooks from the House Complex (Frifelt 1995: 193 fig. 270).

prints of reed mats, which were most likely used for different purposes ranging from waterproofing vessels and basket for transportation to caulking reed boats (Fig. 8b). The bitumen was imported as raw material from Mesopotamia as analyses showed.⁴⁵

2.3 Conclusion

The domestic architecture of Umm an-Nar Island shows some unique and characteristic features, which distinguishes the site from other Umm an-Nar period settlements. First, the site exhibits a regular, planned character, where all buildings have the same orientation, even after the reconstruction in the second phase. The appearance of the settlement is that of accumulated, small village, in which the buildings are placed very close to each other and in some cases even share walls. Although not excavated, the settlement might have possessed streets or alleys. This stands in contrast to other sites, especially those of the interior, where the settlements consist of large buildings, which form single, free-standing house complexes with large gaps in between. The composition of a densely built settlement, organised by streets and alleyways is incomparable to other known coastal settlements such as Tell

Abraq, Ghanadha Island or Ras al-Jinz for example. The site of Ghanadha is interpreted as a temporarily occupied campsite with no architectural remains.⁴⁶ Ras al-Jinz, situated at the far east of the Oman Peninsula, exhibits evidence of architectural planning of the different houses through standardised room sizes, mud-bricks and orientation of the different housing units, although the different buildings form single, free-standing house complexes, which are separated by open spaces.⁴⁷

Second, the use of some interesting building techniques can be observed on Umm an-Nar Island. Simple quarry stone walls with a mixture of sand and clay as mortar and door sills are features, which usually cannot be found at sites of the interior. In fact, this construction method has best parallels further west at sites on Bahrain, the ancient Dilmun. In contrast, in the interior the main building technique is the double-sided wall, which seems to have been used as a substructure for an upper part made from a perishable material like a tent or palm reed in a style of a *barasti*. Interestingly, this construction type is also assumed for the Warehouse, indicating that different types of houses were present on Umm an-Nar Island. The question is, if those different building techniques are

⁴⁵ Frifelt 1995: 226.

⁴⁶ Al-Tikriti 1985: 9–19.

⁴⁷ Cleuziou – Tosi 2000: 27–40; Azzarà this volume.

limited to certain types of structures, e.g. domestic buildings or 'public buildings', cannot be answered due to the limited excavations.

Third, the room sizes of the buildings on Umm an-Nar Island allows the possibility of small, roofed structures, in some cases with courtyards, while the large house complexes of the interior are very hard or even impossible to be roofed.

Fourth, the small size of the house on Umm an-Nar Island implies a low number of inhabitants, maybe just a core family of three to four people, while the large house complexes of the interior can be easily inhabited by a larger number of people, possibly by a large extended family. This suggests different kind of families and a different social organisation. However, one should keep in mind, that only one house has been fully excavated on Umm an-Nar Island. It would need further excavations to clarify if the encountered situation is normality or an exception.

All in all, the site of Umm an-Nar Island can be characterised as a small, densely populated village with a more permanent character than the sites of the interior, which seem to have been a kind of seasonal campsites used at a certain time period over the year. Nevertheless, some questions, especially about the water supply on Umm an-Nar Island cannot be answered satisfyingly with the presently available data. Further investigations in the future are needed. Furthermore, the material culture of Umm an-Nar Island differs to some extent from those of the interior. This can be explained by the position of the settlement on the coast of the Gulf. Naturally, the findings and subsistence

of a coastal site differ from those of sites of the interior, evident by the existence of objects like fishhooks and net sinkers, as well as the huge amount of animal bones, although it has to be pointed out that agricultural products were consumed to a minor extent as well. Some other differences, especially the variation in pottery, might arise due to the intensive integration of Umm an-Nar Island in the interregional trade over the Gulf. Umm an-Nar Island is expected to be one of the ports from where copper was shipped to their various destinations. Subsequently, other goods reached Umm an-Nar Island, which normally did not reach the sites of the interior. The pottery of Umm an-Nar Island shows, in addition to the local domestic and funerary wares, contacts with Mesopotamia, Bahrain, the Indus culture and south-eastern Iran or western Pakistan. The largest amount of foreign pottery seems to have derived from Mesopotamia, although the extent of Indus pottery could not be satisfactorily answered, due to poor preservation. This observation can be explained by the position of Umm an-Nar Island as one of the most western sites of the Umm an-Nar culture. From this location, it is logistical simpler to trade with ancient Dilmun and Mesopotamia than with the Indus culture. The geographical position and function as a port of trade might therefore explain the differences in material culture and maybe also the ones in the architecture. Nevertheless, as mentioned above, further investigations at this site are needed in the future, as Umm an-Nar Island, even after more than fifty years remains a place full of questions and possibilities.

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Chapter 3: The Early Bronze Age Settlements of the Sohar Hinterlands: Scratching the Surface

Bleda S. Düring and Samatar A. Botan

3.1 Introduction

This paper presents the Early Bronze Age settlement data from the Sohar hinterlands. This part of Oman attracted the attention of the earliest generation of archaeologists working in Oman, who recognised the archaeological potential of the region, which included: first, the major historic trading city of Sohar, which seem to have become an important settlement from at least the Sasanian period onwards;¹ second, the substantial coastal water aquifers at the Sohar coast, which are fed by the large water catchment of the Wadi al-Jizzi, and facilitate a relatively dense occupation throughout the millennia; third, the presence of one of the few natural passages through the Omani mountain range, which has been of major importance for travel and trade throughout the millennia; and, finally, the Sohar hinterlands have rich copper deposits, which have been exploited in the Early Bronze Age, the Iron Age, the Sasanian period, the Middle Islamic period, and over the last 50 years. Therefore, it is certainly not coincidental that both the “Harvard Archaeological Survey” (in 1973) and Karen Frifelt (in 1972–1973) investigated this region in what are in effect the first serious archaeological explorations of the Sultanate of Oman.²

Given the properties of the Sohar hinterlands, there is every reason to assume that the Sohar region would have been an attractive landscape for people in the Early Bronze Age.³ In combination with the relatively early archaeological investigation, one might expect the region to feature prominently in discussions of the Early Bronze Age in Eastern Arabia. However, this is clearly not the case.⁴ No doubt, this situation is partially a result of an apparent lack of a particular type of monumental structure, which consists of the so-called ‘Umm an-Nar towers’.⁵ Likewise,

the Sohar region is lacking cemeteries with well-built ‘sugar lump’ tombs of the Umm an-Nar period.

For better or worse, the archaeology of Early Bronze Age Eastern Arabia is currently heavily biased towards monumental sites, and in particular towards sites with multiple tower structures accompanied by a cemetery of ‘sugar lump’ tombs. Research has therefore been centred on spectacular sites such as Hili, Bat, Bisyah, and Al-Khashbah.⁶ This type of sites are not present in the Sohar region – or for that matter most of the Batinah – and for that reason it is commonly disregarded in studies of Early Bronze Age Eastern Arabia. What is even more remarkable, however, is that studies dealing with Early Bronze Age domestic buildings and settlements have also ignored the Sohar region.⁷ This is the case despite the fact that good Early Bronze Age settlement evidence for the site of Zahra has been published by Costa and Wilkinson.⁸ This omission is difficult to understand. In fact, in terms of Early Bronze Age settlement evidence, the Sohar region is relatively rich in data. In this paper we would like to do two things: first, to present settlement data from both the earlier survey of Costa and Wilkinson and that of the “Wadi al-Jizzi Archaeological Project”, in order to discuss the characteristics of these settlements and the buildings; second, to consider how these settlements are situated in the broader cultural landscape, and how the organisation of the landscape compares to other parts of Eastern Arabia.

1 Williamson 1973; Kevran 2004.

2 Humphries 1974; Frifelt 1975.

3 Uerpmann – Uerpmann 2012: 83.

4 Cleuziou – Tosi 2007: 107; Magee 2014: 99.

5 Cable – Thornton 2012: 391.

6 Cable – Thornton 2012: 391.

7 E.g. Al-Jahwari 2008; Azzarà 2015: 181–205; Kerr 2016: 28, 120.

8 Costa – Wilkinson: 1987: 97–99.

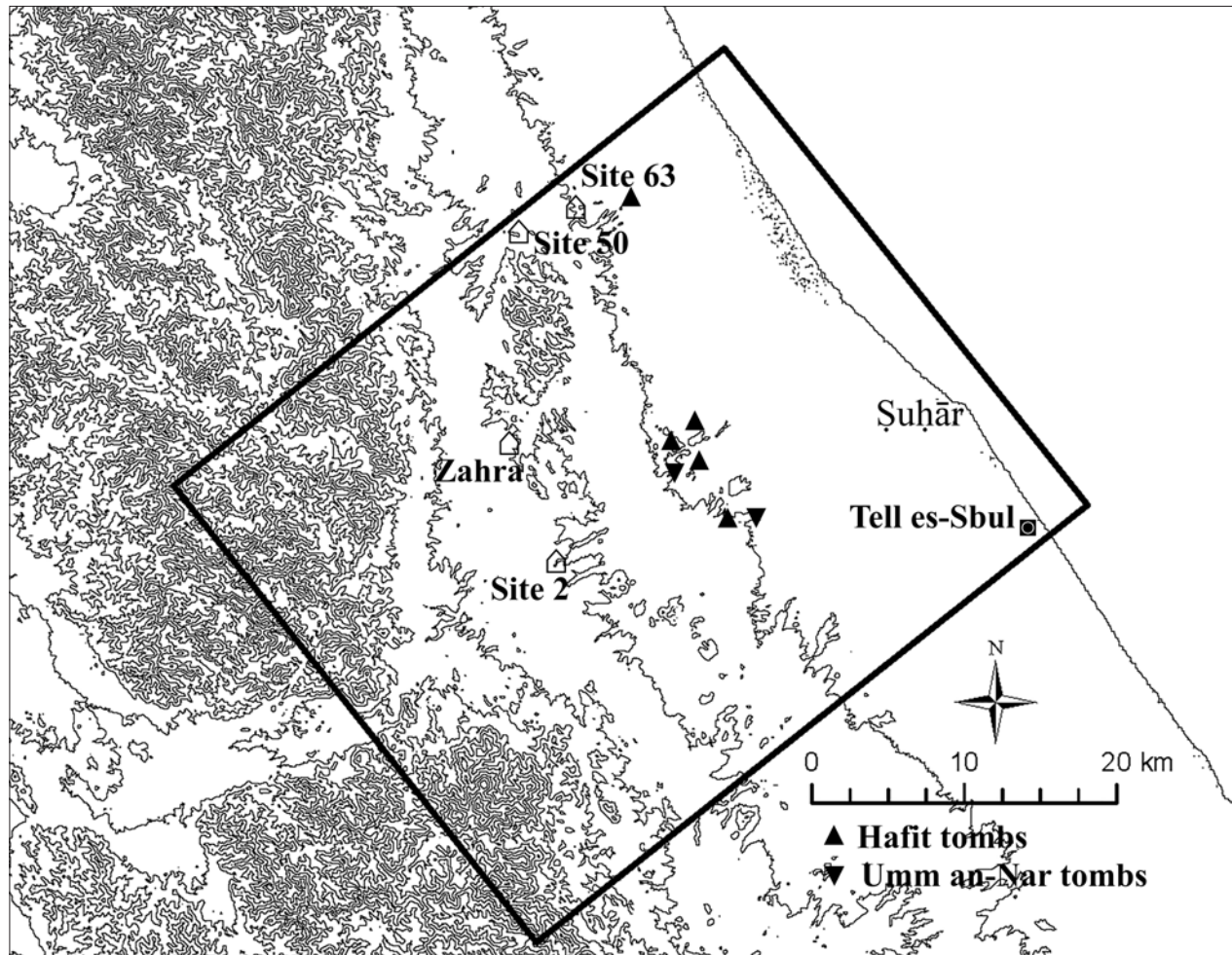


Fig. 1: Map of the Wadi al-Jizzi Archaeological Project research region showing the Umm an-Nar settlements, the main locations of Hafit and Umm an-Nar tombs, and the location of Tell al-Sbul.

3.2 Early Bronze Age settlements in the Sohar region

All the Early Bronze Age settlement evidence data we have in the Sohar hinterlands dates to the Umm an-Nar period. Although we have a substantial presence of Hafit tombs on the spurs adjacent to the major natural route along the Wadi Suq/Wadi al-Jizzi leading into and across the Hajar al-Gharbi, as well as smaller amounts of Hafit tombs along the Wadi Fizh, no evidence has so far been retrieved for settlements dating to the Hafit period. This is perhaps not so surprising, given that Hafit settlements have been elusive across Eastern Arabia, and only a few have been found so far, at Hili 8, Ras al-Hadd HD6, Wadi Shab GAS-1, and at Al-Khashbah.⁹ Most of these Hafit settlement sites were found in the course of excavations initially targeting later periods, and the only area where Hafit

settlements were found through survey appears to be the Ja'alan (by the French-Italian team directed by Cleuziou and Tosi).

By contrast, for the Umm an-Nar period we have a number of settlement sites in the Sohar region, and it could even be argued that this settlement evidence, in terms of density of remains and quality of Umm an-Nar settlement data, is fairly unique in Eastern Arabia. If we define this category of sites as relatively small hamlets or villages comprising of a group of buildings but lacking a tower structure or associated tombs, relatively few sites are known across Eastern Arabia. Settlement sites include Al-Ayn, Khor Bani Bu Ali-SWY-3, Ras Al-Jinz 2, and Al-Zebah.¹⁰ Larger and more complex settlements, with towers or associated tombs are known from the eponymous site of

⁹ Cleuziou –Tosi 2007: 84–97; Magee 2014: 94–98; Azzarà 2015: 110–180; Schmidt – Döpfer 2017.

¹⁰ Méry – Marquis 1998; Méry – Marquis 1999; Blin 2007; Blin 2012; Azzarà 2015; Kerr 2016: 119–171; Döpfer – Schmidt in press.

Umm an-Nar Island, Al-Ghoryeen, Maysar, Hili 8, and Dahwa.¹¹ Thus for the entirety of Eastern Arabia, we have a total of only four small settlement sites, as well as five ‘complex’ villages for which we have good evidence.¹² Seen in this light, the two definite Umm an-Nar settlements, and a possible third and fourth one, which will be presented here, are a significant addition to the known corpus of sites.

3.2.1 Zahra 1

The site of Zahra 1 was first identified and documented by Costa and Wilkinson.¹³ At the locality of Zahra they also documented a substantial settlement dating to the Iron Age (labelled Zahra 2) as well as the remains of a field and irrigation system dating to the Islamic period. The Umm an-Nar component of the sites consists of two small hamlets located at the northern edge of the locality, on opposite sides of a deeply incised wadi.

The pottery found by Costa and Wilkinson¹⁴ and pieces collected by us subsequently, suggest a date for this settlement in the later Umm an-Nar period. The fragments belong to the Sandy Ware/Sandy Domestic Ware which has been found at sites such as Bat, Hili 8 (phase IIc2), and Kalba.¹⁵ Intriguingly, Costa and Wilkinson¹⁶ also found a sherd (G) that appears to belong to Black-on-Red funerary pottery. This is puzzling since there are no known tombs located at Zahra 1. However, this situation is mirrored at Site 63, to be discussed below. The suspension vessel found at Zahra 1 has parallels in the late 3rd millennium, mostly from tombs.¹⁷ Sherd O is part of a bowl. The best parallel can be found at the Umm an-Nar settlement of Al-Zebah.¹⁸ What is intriguing is the fact that four of the rim-types found by Costa and Wilkinson¹⁹ do not have any parallels within the published literature, but *do* occur at WJAP Site 63. There is a possibility that these rim-types are part of a local tradition. The alternative is that these rim-types actually occur more broadly, as several Umm an-Nar settlements await final publication.

The masonry at Zahra 1, Site ‘U’, consists of larger stones placed with flat sides facing outwards along the two wall faces, and has a packing of gravel and

soil in the centre. These walls typically did not have a flat top surface. Walls vary between 100 and 70 cm in width. Their construction method and the lack of substantial stones in the surroundings make it clear that these were not buildings with substantial stone walls. Instead they constitute the wall footing, which might have carried superstructures made of organic materials.

East of the wadi was a hamlet identified as ‘R’, and to the west was another small settlement labelled ‘U’. Directly adjacent to the ‘U’ locality a small dam feature (Dam 3 on Fig. 2) was found that probably retained water for the growing of crops on a relatively small area of fields. Behind settlement ‘R’ there was a similar dam feature, which however, like the one associated with settlement ‘U’, could not be securely dated to the Early Bronze Age.

Since the late 1970s, when Costa and Wilkinson documented this site, a large part of the Zahra 1 and 2 sites has been destroyed by the development of a modern farm, which has included indiscriminate bulldozing of prehistoric buildings, and a large part of the site has unfortunately been lost, and this includes the larger cluster of Early Bronze Age buildings at ‘R’.

Settlement ‘R’ seems to have comprised of about seven buildings, mostly with about two rooms, and varying considerably in size, from about 50 to *c.* 200 m². All of these buildings are of considerable size, and many of them have room spans exceeding five metres. This has considerable implication for how we can reconstruct and interpret these buildings, and this is a point we will return to below.

Settlement ‘U’, located across the wadi, had about six buildings, again mostly consisting of two rooms. Apart from a small structure, measuring 18 m², buildings are again quite large, ranging between about 80 and 170 m² (Fig. 2). Like in hamlet ‘R’, there does not appear to be an orientation of buildings along a street or open spaces, although both settlements have a linear orientation along the wadi edge.

Interestingly, both settlements had furnace fragments associated with them, clustered on the southern side of the hamlets, suggesting that a modest amount of copper production took place there. We would not necessarily agree with the idea that this was a mining settlement, as suggested by Costa and Wilkinson, however. The amounts of furnace fragments at the still extant hamlet ‘U’ are small, and could have easily derived from one or two demolished smelting furnaces. Of course, the surface assemblages might have been depleted by repeated visits of archaeologists, and we will return to this issue with the better preserved dataset of Site 63, which will be discussed below.

11 Weisgerber 1983; Cleuziou 1989; Frifelt 1995; Al-Jahwari – Kennet 2010; Al-Tikriti 2012; Kerr 2016: 119–171; Al-Jahwari this volume.

12 Of course many more Umm an-Nar towers are known (Cable – Thornton 2012), and we assume that most of these would have been surrounded by a settlement.

13 Costa – Wilkinson 1987: 97–99.

14 Costa – Wilkinson 1987: 173–175.

15 Cleuziou 1989: 74–75; Eddisford – Phillips 2009: 104.

16 Costa – Wilkinson 1987: 174.

17 Méry 1997: 176.

18 Schmidt – Döpper 2016: fig. 7e.

19 Costa – Wilkinson 1987: fig. 86k, l, m, and p.



Fig. 2: Aerial photo of settlement 'U', Zahra Site 1, with plan of Costa and Wilkinson superimposed.

3.2.2 WAJAP Site 63

Site 63 located in the Wadi Fizh, like the Zahra site, was first identified by Costa and Wilkinson, who noted “highly weathered collapsed buildings” and “occasional walls are visible”, and they also noted the presence of furnace fragments and small amount of fragmented pottery.²⁰

In the 2017 season we mapped this site in some detail. Although many buildings were indeed difficult to work out, the combination of using high resolution aerial imagery and careful scrutiny has resulted in a fairly clear plan of this Early Bronze Age settlement site (Fig. 3). The Umm an-Nar settlement has about 17 buildings. They can be distinguished readily from the adjacent Late Islamic village because the masonry, state of preservation, and proportions of buildings from both periods is distinct. One issue that complicated matters in some places, however, was that the Umm an-Nar period buildings had been reused to keep livestock (personal communication of residents of the adjacent village), and some walls had been build up/added in the Late Islamic period. Again, the masonry was quite distinct, enabling us to plan the Umm an-Nar buildings with some confidence. The Early Bronze Age walls consist of double faced walls, with large stones placed with flat faces outwards on both sides and have a rubble and gravel core. They are between about 70 and 100 cm wide. By contrast, the Islamic period walls are built with smaller stones in a terrace construction, thus tapering inwards as they rise.

Like at the Zahra settlements ‘U’ and ‘R’, no clear organisation of buildings around streets or courts can be discerned at Site 63. Instead buildings are loosely dispersed along the ridge of the hill on which they are situated. This is perhaps not very surprising given the small size of the settlement we are dealing with. At the same time some clusters of about three buildings do occur at Site 63, and the same might also be the case for the less well understood settlements ‘R’ and ‘U’ at Zahra 1. These building clusters might tell us something about the social fabric of the community, but it also makes it difficult in some cases to distinguish between one building and the next.

The buildings at Site 63 vary considerably in size, from about 30 m² to over 300 m². What is remarkable is the enormous size of many of these structures. The buildings take on two main forms. First, there are buildings consisting of one or two rooms, such as for example buildings 42, 44, and 48. Second, there are a number of large rectangular walled spaces that have interior proportions of up to 10 x 12 m, such as buildings 35, 46, and 70. Clearly, these spaces are too large to have been roofed, unless there were extra walls sub-



Fig. 3: Plan of the Umm an-Nar settlement at WAJAP-S63 (Site 63), located in the Wadi Fizh, near the village of Falaj.

dividing these spaces, like they have been found at ‘the Warehouse’ at Umm an-Nar Island,²¹ which is moreover similar in size, or the various buildings at Ras al-Jinz 2.²² However, such division walls were not noted in the survey, and they do not seem to be the most likely explanation for these structures. Instead of interpreting these structures as (very) large buildings, we think it makes more sense to interpret them as large courtyards, similar to the excavated structure at Al-Ayn²³ in which for example livestock might have been kept or tents might have been pitched. In most of these large courtyard structures there are rooms of about 2.5 m wide (which could have been roofed), along the sides, which might have been used as living spaces, storage rooms, workshops, or some combination of the these functions. Interestingly, higher

20 Costa – Wilkinson 1987: 105.

21 Frifelt 1995; Al-Tikriti 2012.

22 Azzarà 2015.

23 Blin 2007; Blin 2012.



Fig. 4: Plan of WAJAP Site 2.

densities of Umm an-Nar pottery were found in the rooms than in the courts. Such an arrangement of the larger courtyard structures could suggest a seasonal use of the site, something which has been suggested also for other Umm an-Nar settlement sites.²⁴

One of the large buildings at Site 63, namely 55, is different from the other structures, in that it has a number of partition walls that demarcate a number of rooms, in what looks like a tripartite arrangement of the building. Thus, from the surface, this appears to be the only ‘complex’ building in the settlement. In its north-west corner there is a small platform or room (locus 6) that was littered with large amounts of furnace fragments. These are also found in considerable quantities on the slope of the hill to the north of the building, as well as in small quantities throughout the settlement. Some 850 furnace fragments were counted at the site, as well as about 80 slag pieces. This suggests that some copper production took place at the site. This production might have been quite limited in scale, however, given that the deconstruction of a single smelting oven could have resulted in substantial amounts of furnace fragments, and it is postulated

here that the fragments of Site 63 probably derived from no more than a handful of furnaces.

The pottery found at Site 63 can be defined over a number of fabrics. Most are in a sandy fabric, of which there is a variety with few inclusions, and another one with some mineral temper. This pottery corresponds to the Sandy Domestic Ware that has been found at sites such as Hili 8 (mainly in phase IIc2) and Kalba.²⁵ The mineral tempered sandy fabric corresponds with the Ridged Ware described at Kalba by Eddisford and Phillips²⁶, which again appears to date to Hili 8 phase IIc2. One of the most reoccurring shapes is a globular pot with a simple everted rim, which finds parallels with the domestic wares from phases II d and II e at Hili 8.²⁷ Large jars and deep bowls with an everted rim and a flattened lip, which start occurring at Hili in phases II e and II f, are also present at Site 63.²⁸ These rim-types also occur at various other Umm an-Nar sites, such as Bat²⁹ and Al-Zebah.³⁰ The parallels at other sites suggest a date for

24 Blin 2007; Al-Tikitri 2012: 90; Döpper – Schmidt in press; Schmidt this volume.

25 Cleuziou 1989: 76; Eddisford – Phillips 2009: 107.

26 Eddisford – Phillips 2009: 104.

27 Cleuziou 1989: pl. 26.

28 Cleuziou 1989: 76–77.

29 Méry 2000: fig. 91.

30 Schmidt – Döpper 2016: fig. 7e.

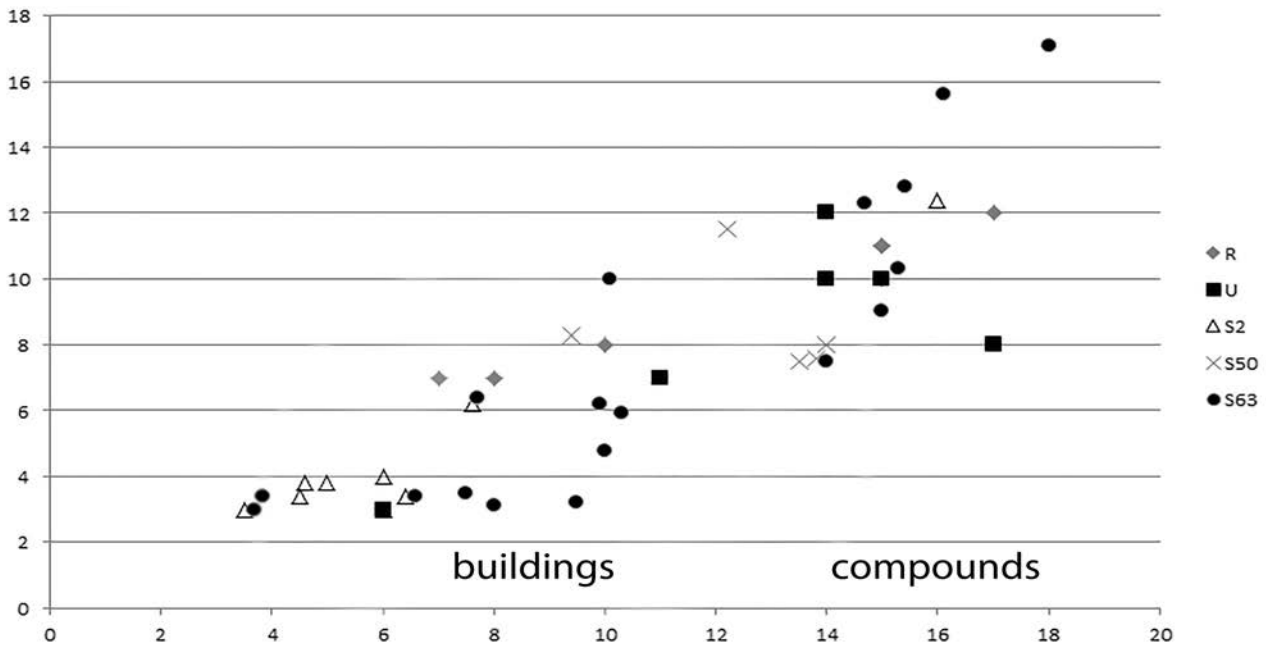


Fig. 5: Scatter diagram of the width and length of domestic buildings possibly dating to the Umm an-Nar period in the WAJAP survey region.

Site 63 between *c.* 2500 and 2300 BC. An exceptional type of pottery found at Site 63 is a very coarse ware with slag temper, which is so far unique in the Umm an-Nar period and most likely represents a local fabric. Further, small quantities of Umm an-Nar Black-on-Red funerary pottery (which is puzzling as it does not normally occur on settlements) and Indus pottery were found. The latter is a mica rich fabric of which Indus Black Slipped Jars were made.³¹ In comparison to Dahwa³², however, the quantities of Indus pottery are very small, and these differences can probably be taken as a proxy for a limited involvement of the settlements in broader exchange networks.

3.2.3 WAJAP Sites 2 and 50

Two other sites investigated in the Wadi al-Jizzi Archaeological Project that we briefly want to mention are sites 2 and 50, both of which could date (in part) to the Umm an-Nar period.

Site 2 is located along the Wadi al-Jizzi at the interface of the mountains and the plain. We have suggested that this is a settlement dating to the Wadi Suq period,³³ on account of the pottery we found with it. However, we also found one Indus black slipped sherd at this place, which means that it could also date (in part) to the very end of the Umm an-Nar period.

Like the Zahra hamlets ‘U’ and ‘R’, we are dealing with a small number of buildings, nine in this case, arranged in a linear pattern along a wadi bank, and again without an orientation to a street or court. However, there are also some differences with the Zahra 1 settlements, as most buildings are single roomed and smaller than those of Zahra (Fig. 4). One building of the settlement is clearly bigger, and has up to seven spaces. Most importantly, no Umm an-Nar pottery was collected at this site.

At WAJAP Site 50, located in the upper Wadi Fizh, the structures and assemblages documented date mainly to the Late Islamic period (a cemetery) and Iron Age (buildings and a cemetery),³⁴ but there are also a few structures that could potentially date to the Umm an-Nar period, although we lack good dating evidence. In particular, we found a number of large stone compound structures – with widths of about 8 m, thus too wide to roof. In these buildings we found only a few Iron Age sherds. There also a few body sherds that could be Early Bronze Age. So the inclusion of these buildings here is highly tentative.

3.3 Characterising Umm an-Nar settlements in the Sohar region

When we plot the dimensions of the sites discussed so far on a scatter diagram we can discern various anomalies (Fig. 5). First, the dimensions of the buildings of

31 Méry – Blackman 2004: 227.

32 Al-Jahwari *et al.* this volume.

33 Düring – Olijdam 2015.

34 See Düring – Olijdam – Botan 2017.

Site 2, apart from the one large multi-roomed structure, are clearly amongst the smallest in the size distribution range. This suggests that this settlement is different from the other Umm an-Nar settlements in the region, and reinforces the idea that we might be dealing with a chronological difference, and that our earlier assessment that it fits better in the subsequent Wadi Suq period might hold. Another conclusion that can be drawn from the scatter diagram is that the Umm an-Nar buildings occur in two size clusters: smaller buildings ranging between about 5 x 3 m to *c.* 12 x 8 m, and the larger compound structures that are over a 100 m² in size. How can we interpret this distribution? Clearly the smaller buildings could easily have been used as domestic structures or workshops. The larger, compound structures, as has already been argued might have consisted of walled courts in which animals might have been kept or temporary *barasti* type structures or tents might have been placed.³⁵ However, given the existence of rooms situated on the sides of these courts, the livestock idea is most convincing at present.

If we focus on the settlements where the evidence is most convincing, that is Zahra 1 and Site 63, we can conclude that settlements consist of a fairly small size hamlets, of between 5 to 17 buildings. Given the repeated occurrence of this type of grouping, it can be suggested that such a unit constituted a social residential (neighbourhood) unit in Umm an-Nar settlements, and that the settlement at Zahra 1 would have consisted of two such units. These neighbourhoods might have been used by groups that can be estimated between 25 and 170 people in size, but below 100 seems more likely. Thus we are dealing with a number of fairly small size communities, probably spread rather thinly across the landscape. The existence of large walled compounds in these small settlements might have been linked to the importance of livestock.

The three settlements concerned were so small that they did not need formal public spaces in the form of streets, courts, or towers. Instead they are arranged as roughly linear arrangements of building along a wadi edge or on the crest of a low hill. This means that no single building stood out in terms of location in these settlements, and neither do we see clear evidence for buildings that are clearly larger. However, as discussed, building 55 at Site 63 might have been the only large building with a series of rooms and is associated with copper production evidence. This could suggest that some form of differentiation between buildings did exist.

In two settlements (Zahra 1 and Site 63), substantial amounts of 'furnace fragments' were found, and Costa and Wilkinson suggested for this reason that

Zahra 1 was a mining settlement. Here we would like to note some problems with this interpretation. As we have discussed, the extant evidence suggests that copper production was a relatively minor economic activity, and these settlements are we think better understood as small farming villages, perhaps used seasonally, by farmers who had livestock and grew crops in the surroundings, and that these villagers also undertook copper production as an extra activity. At Zahra, two dams/small field systems possibly dating to the Umm an-Nar period were found. No similar features were found at Site 63, possibly due to later activities in the same landscape, but given the water is relatively abundant in the nearby Wadi Fizh, it is likely that agriculture was practiced there as well.

3.4 Early Bronze Age landscapes in the Sohar region

In a recent study Al-Jahwari and Kennet³⁶ have postulated a hierarchy of Umm an-Nar settlements with: first, large multi-tower sites at the top, second, settlements with a single tower and Umm an-Nar tombs, and third, small villages without towers or tombs. Clearly, in this typology the Wadi al-Jizzi sites fall in the last category, as the settlements discussed here have neither a tower nor associated tombs. However, upon reflection, the situation seems more complicated. In the entire Batinah region of Oman towers are conspicuous for their almost complete absence.³⁷ While Rustaq is now an exception to this pattern, as multiple towers were found there in close proximity to each other,³⁸ the rest of the Batinah still lacks evidence for *any* towers. This absence of evidence could of course be explained in various ways. One idea could be that insufficient research has been done in the Sohar region and that towers might have been robbed or are difficult to identify. This argument can of course not be disproven, but we do not think it is plausible that we have missed these structures.

Another, and in my mind more likely option, is that the arrangement of sites in the Sohar region is more similar to what we know from Emirates than it is to the inland and mountain sites of central Oman. In the northern part of the Oman Peninsula we have only a few known towers, occurring as single towers, at sites such as Tell Abraq and Kalba 4, and these are mud-brick structures which were located at the base of tell sites under habitation layers dating to the 2nd millennium BC (Wadi Suq, Late Bronze Age) and Iron Age. They date to the later Umm an-Nar peri-

35 See Costa 1985: pl. 4 for an example what this might have looked like.

36 Al-Jahwari – Kennet 2010.

37 Cable – Thornton 2012.

38 Kennet – Deadman – Al-Jahwari 2016.

od.³⁹ In the Sohar region we have only one site that could potentially be similar: Tell al-Sbul, also known as Site SH11 from the Harvard Survey.⁴⁰ However, none of the 814 sherds or 24 soft stone vessel fragments we collected at this site could be securely dated to the Umm an-Nar period, so if there is any Early Bronze Age occupation at the site it is securely sealed by later occupation layers. The site of Dahwa⁴¹ in the Saham region could possibly fit the middle tier in the settlement classification of Al-Jahwari and Kennet. It is certainly much larger than any of the sites in the Sohar region, and is thus probably similar in size to type site of Al-Ghoryeen, with its 50 buildings.⁴² Moreover, Dahwa has associated tombs. However, it lacks a tower.

In the Sohar region, the situation is different (Fig. 1). We have, as discussed, a number of small Umm an-Nar settlements in the hinterlands, close to the mountains where water is relatively abundant. It is likely that further settlements existed along the Sohar coast, where there is much ground water, although we lack any evidence for this so far. Umm an-Nar tombs have been documented in three locations in the Wadi al-Jizzi region. First, Frifelt excavated an Umm an-Nar tomb approximately where the district of Falaj al-Qaba'il is located today. Two to three partially preserved tombs (incomplete due to stone robbing) were found in this location, one of which was excavated by Frifelt⁴³. The tombs were built of undressed boulders and cobbles. The excavated tomb had at least six rooms, four of which were preserved. It contained assorted bones and skulls, as well as two small jars, one of which can be dated to the early Umm an-Nar, although Méry⁴⁴ dates it to the Hafit period. So far, we have not been able to relocate these graves, if they still exist, or find additional examples in the vicinity of Falaj al-Qaba'il. A strange location where we found five Umm an-Nar tombs measuring about 7–8 m across is next to a small hill in the Wadi al-Jizzi gravel floodplain. Parts of the outer arcs are still visible, but overall preservation appears to be poor. No pottery was observed. There is a possibility that these graves are mostly subterranean, which would explain the paucity of finds, and the limited preservation of positive structural remains.

Very similar tombs were found at the third location where we found Umm an-Nar tombs, at the site of Wili. Here we documented a total of 213 preserved tombs, and it is clear that bulldozing activities and erosion by the wadi have erased at least a third of the cemetery. The graves can be differentiated into various types. First, there are a number of very large cir-

cular structures, some measuring up to 12 m in diameter. In a few cases these had section of the outer walls or inner dividing walls still preserved. These very large structures are undoubtedly Umm an-Nar period tombs. The tombs are relatively low in elevation and very few artefacts were found in association with these graves. Most tombs at Wili were much smaller, however. These include circular and oval structures, the smallest of which are only 4 m in diameter. Some of these structures were well built, but others were constructed haphazardly. Further some of the tombs had an inner oval cist, which is not typical for the Umm an-Nar period, but suggest we are dealing with a continuation of the cemetery into the Wadi Suq period. Indeed a few of these cists have been exposed in river sections, and clearly show subterranean oval burial chambers. These graves have very good parallels at the Wadi Suq cemetery (our Site 12) where Frifelt excavated. If we plot the distribution of the Umm an-Nar settlement and cemetery site in the Sohar region, a remarkable, but puzzling pattern becomes apparent (Fig. 1). First, on the coast we so far lack any clear evidence for Umm an-Nar occupation, apart from a hypothetical occupation at Tell al-Sbul. Second, along the Wadi al-Jizzi gravel fan and the Wadi Suq we have Umm an-Nar period tombs. Remarkably, the Wadi al-Jizzi graves are far removed from any agriculturally productive landscape in prehistory. The graves at Wili and Falaj al-Qaba'il are located close to landscapes which were cultivated with falaj systems only from the Late Islamic period onwards, and the graves of Wadi al-Jizzi are in the middle of a vast wasteland. Our research has so far failed to document any evidence for Umm an-Nar period towers or settlements in vicinity to these tombs. Especially for Wili, with its substantial number of graves, we were expecting non-funerary assemblages and structures, but nothing has surfaced.

Why are the known Umm an-Nar tombs located in these landscapes, far from the settlements and agricultural areas? It is conceivable that cemeteries such as that at Wili and in the Wadi al-Jizzi flood plain were deliberately located in barren (dry) territories that were not claimed by any group as a pasturage for their livestock, and served as communal burial groups for a number of various social groups, perhaps even with each tomb serving a particular hamlet community. Ultimately, this is a rather speculative attempt to make sense of what is so far a very incomplete dataset. Nonetheless, the difference with the situation of Umm an-Nar cemeteries elsewhere is striking and calls for an explanation.

39 Azzarà 2015: 196.

40 Humphries 1974.

41 Al-Jahwari *et al.* this volume.

42 Al-Jahwari – Kennet 2010: 167.

43 Frifelt 1975.

44 Méry 2000: 175, no 6; also Potts 2012: 373.

3.5 Conclusion

The Umm an-Nar settlements in the Sohar region have not received much attention in studies of domestic architecture in recent scholarship, despite the fact that some relevant evidence has been available since the late 1980s. In this brief paper we have augmented the existing dataset of Zahra 1 with the recently surveyed Site WAJAP-63, located in the Wadi Fizh. We have demonstrated that both at Zahra 1 and WAJAP-63 we are dealing with relatively small settlements of between 5 and 17 buildings. These small settlements comprise both residential structures and larger compound structures. The latter might have been used to keep livestock in, but this is a hypothesis only. The Umm an-Nar settlements in the Sohar region have evidence for a moderate amount of copper production, but they would appear to be mainly agricultural settlements, engaged in farming and animal husbandry, possibly on a seasonal basis. This idea is corroborated by the scarcity of imported ceramics at

these sites, especially when compared to the situation at Dahwa, where imported Indus ceramics is much more common. Finally, we have discussed the arrangement of Umm an-Nar sites in the Sohar region, which lacks evidence for Umm an-Nar towers, and shows a spatial disassociation of cemeteries and settlements that is quite remarkable. Clearly we are only at the beginning of understanding the diversity of Umm an-Nar cultural landscapes, and how domestic sites fit into them.

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Chapter 4:
 Umm an-Nar Settlement at Dahwa (DH1), Oman:
 Preliminary Results of the Archaeological Investigation, 2014–2016

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4.1 Location and history of research

The site of Dahwa (DH1) (56° 41' 44.778" E, 24° 3' 2.01" N), is located approximately 24 km south-west of the coastal city of Saham and 18 km to the west of the village Falaj al-Harith, on the eastern foothills of

Al-Hajar Mountains (Fig. 1). The archaeological site is spread over an almost flat wadi terrace and rises about 8 m above the surrounding wadis (Fig. 2). Its highest point is located 163 m above sea level. Two wadis sur-

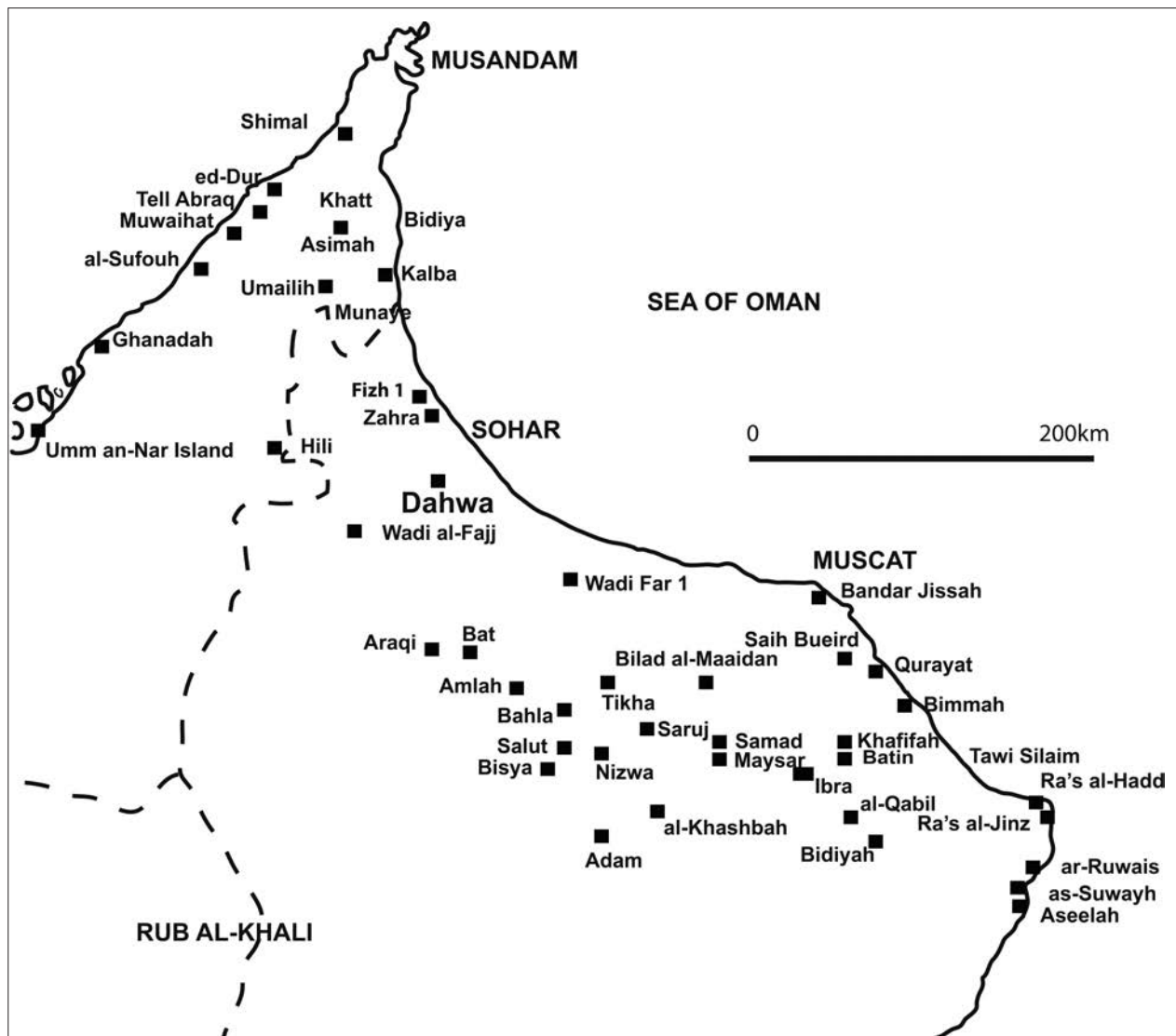


Fig. 1: Location of Dahwa and related Umm an-Nar sites in Oman Peninsula.



Fig. 2: General view of the site of DH1, facing west.

round the site: the Wadi al-Sarmi in the north and the Wadi al-Shafan in the south. Both wadis run from Al-Hajar Mountain in the west, toward the coastal area of the Sea of Oman in the east.

The site of DH1 is one of the focal points of excavation of a regionally oriented research project, conducted by the Department of Archaeology at Sultan Qaboos University, aimed at understanding the chronology, settlement organization, and ecology of the 3rd millennium BC in the Batinah Plain of north-eastern Oman. In the Dahwa region, several archaeological sites from different periods have been discovered and identified as Dahwa (DH) with different numbers (e. g. DH1, DH2, DH3, and DH4; Fig. 3).

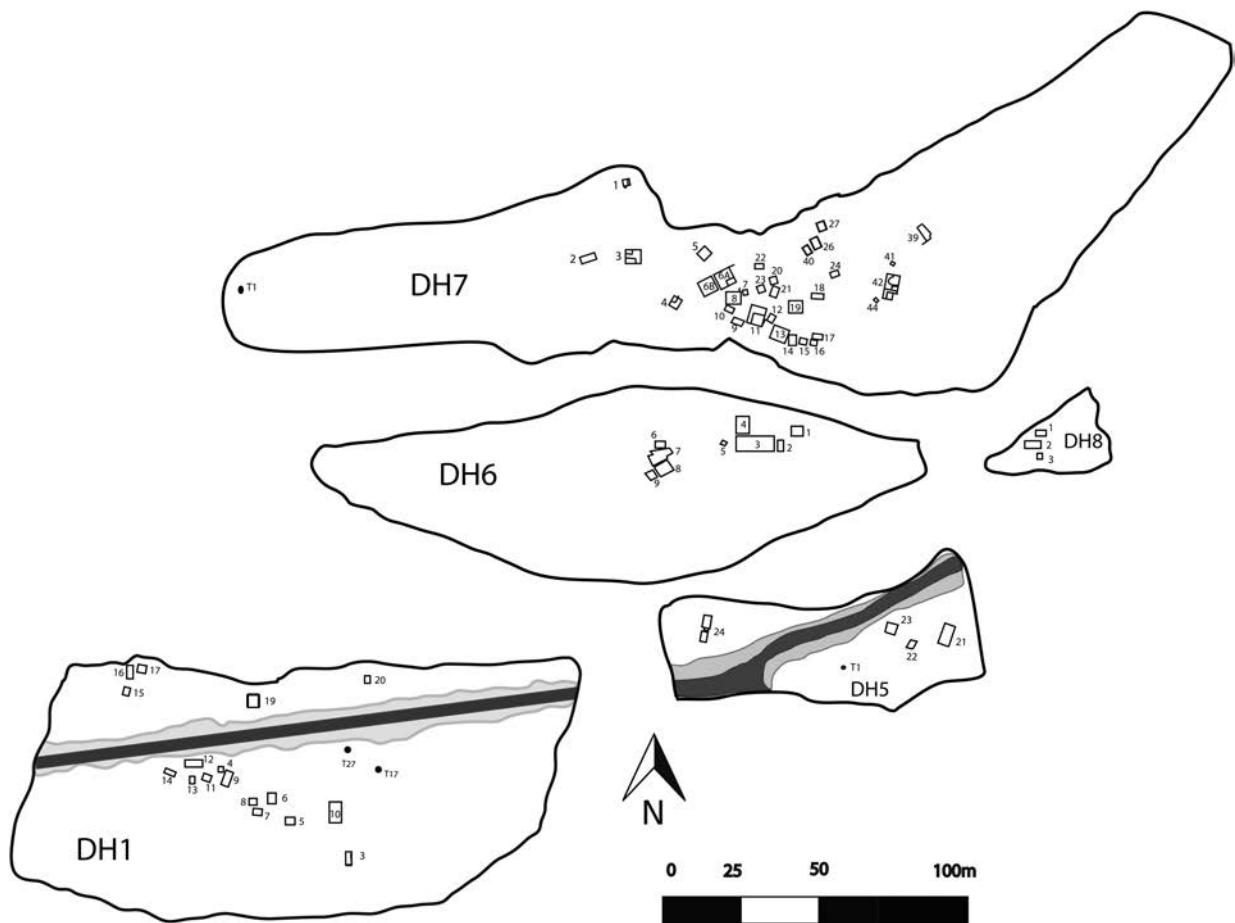


Fig. 3: Distribution of Dahwa (DH) sites.

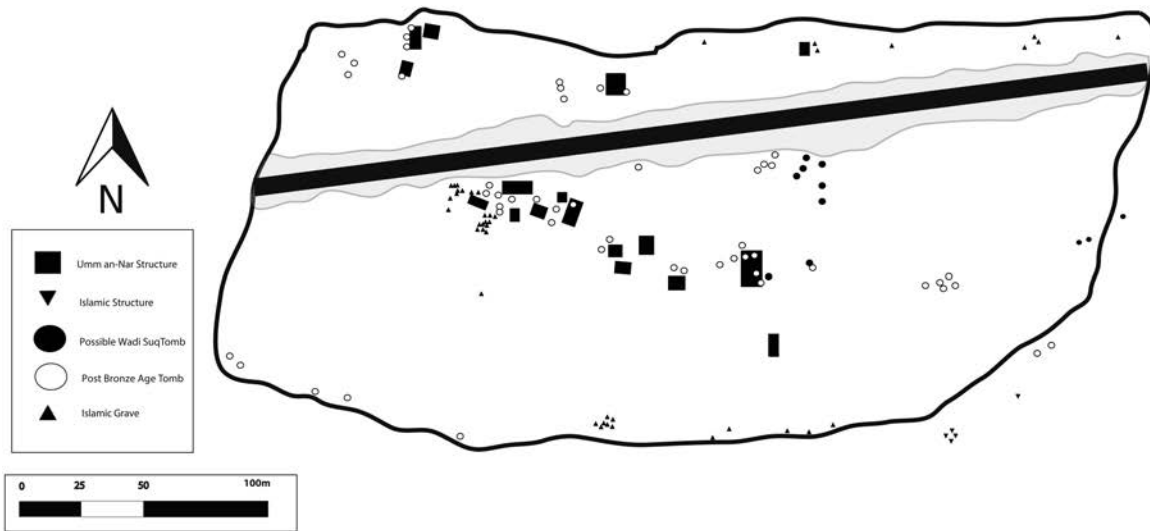


Fig. 4: Distribution of buildings and tombs (from various periods) at DH1.

The site of DH1 was first discovered in 2010 by Al-Jahwari and Al-Muzzaini. In 2013, a short preliminary survey was conducted at the site, and in 2015, an intensive foot survey was carried out with the aim to understand the spatial distribution of the settlement and its use, through collecting all surface artifacts from each building and its perimeter. In 2016, a second intensive survey was conducted to map the entirety of the visible architecture at the Dahwa sites using advanced geospatial methods. Soundings at one of the buildings (S.10) in DH1 were performed in 2014 and 2016. This article presents the results of 2014 and 2016 excavations of building S.10 at the site of DH1.

4.2 DH1: Umm an-Nar Settlement

Seventeen Umm an-Nar buildings have been identified within an area of approximately 2–3 ha and 3rd millennium BC pottery was found scattered in a peripheral area of at least 16 ha. In many cases, it was difficult to recognize the buildings from the surface because of the successive reuse that the settlement suffered after its initial abandonment following the Umm an-Nar period. Additionally, a number of post 3rd millennium BC tombs, some of which likely date to the Wadi Suq and more recent periods, were constructed at the settlement and its surroundings. Most of these tombs reused the stones from the Umm an-Nar buildings. Furthermore, the modern road leading from Saham to Yanqul runs through the site, and a large portion of the northern part of the settlement was destroyed and removed completely (Fig. 4).

The buildings at DH1 were built separately. Distances between buildings varied, and there is a large open area located in the eastern part of the settlement.



Fig. 5: Examples of DH1 buildings: a) Building S.9 and b) Building S.3.

The distribution of the buildings is irregular; they are not clustered in a central area, and major buildings cannot always be clearly recognized from the surface. Despite these facts, the buildings do appear to be more concentrated in the apparent center of the settlement compared with the periphery. No round towers are present at the settlement. The majority of the buildings (75 %) have a rectangular shape, while few of them (12.5 %) were square.

Tab. 1 summarizes the size and shape of the DH1 buildings. Smaller buildings were more concentrated in the center of the site, while the larger ones were located on the outer edges. It is difficult at this phase of the research to know for sure if the smaller buildings in the center of the site represent the core of the settlement or if the larger buildings were built later.

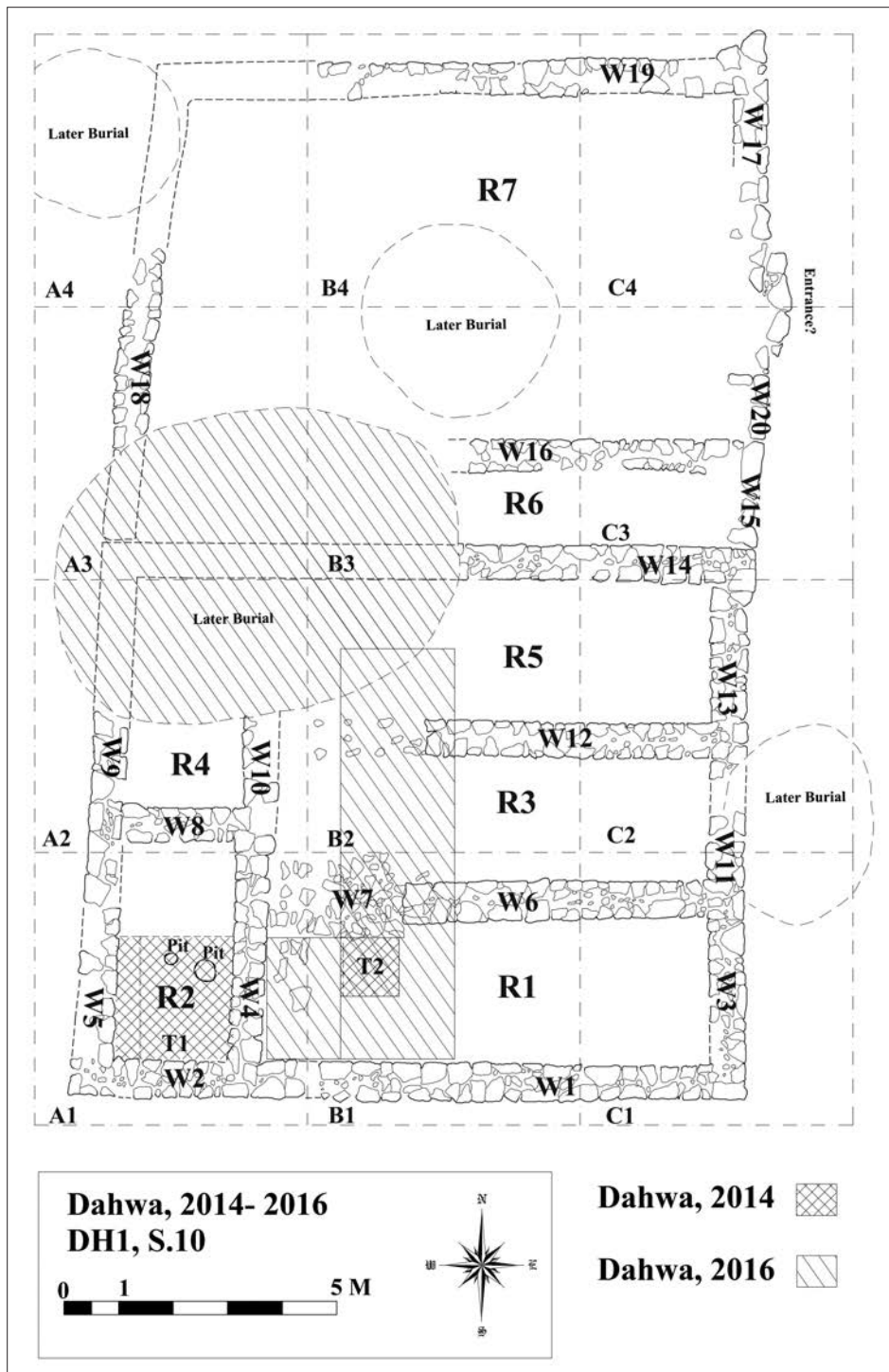


Fig. 6: Overhead plan of building S.10.

Building	Length (m)	Width (m)	Total Size (m ²)	Shape
S3	10.30	4.80	49.44	Rectangular
S4	9.80	5.00	49.00	Rectangular
S5	9.60	6.20	59.52	Rectangular
S6	12.00	10.00	120.00	Rectangular
S7	5.70	5.50	31.35	Rectangular
S8	----	4.00	----	----
S9	----	9.60	----	----
S10	19.00	12.00	228.00	Rectangular
S11	8.50	7.50	63.75	Rectangular
S12	13.00	6.00	78.00	Rectangular
S13	10.00	6.00	60.00	Rectangular
S14	8.80	3.70	32.56	Rectangular
S15	11.00	7.50	82.50	Rectangular
S16	11.00	11.00	121.00	Square
S17	11.00	11.00	121.00	Square
S18	---	---	---	---
S19	12.00	11.00	132.00	Rectangular

Tab. 1: Dimensions of Umm an-Nar buildings at DH1.

It was impossible to locate the outer entrances of most of the buildings, but it was possible to ascertain that most of the buildings were oriented north-south, and that only a few were built in a northwest-southeast direction. Based on surface observations, most buildings at DH1 were composed of several rectangular rooms, except for the very smallest buildings that simply consist of a single room. The complexity or lack of complexity of construction as indicated by the number of rooms may suggest either differences in building functions or social status, but these hypotheses cannot be tested at this time.

The buildings were constructed of local stone and while some were robbed for the construction of later tombs, a large amount of fallen stones were found inside and near to the buildings as well (Fig. 5). All stones were unhewn and collected from the surface of the site itself or the nearby wadis, where such natural stones are available in abundance. Walls were built from two rows of medium to large sized stones, with smaller stones in between the two. Mortar was used in the construction of the walls. Most buildings still stand between one to two courses tall, and overall preservation of the buildings varies between well preserved and partially damaged. The main cause of damage appears to be the removal of stones for later tomb construction. There is no evidence that construction of these building included mud-bricks.



Fig. 7: General view of building S.10 after surface clearance, southwest corner.



Fig. 8: General view of trench T1 in room R2 (left) and trench T2 in room R1 (right), facing north.

4.3 Building DH1, S.10

Building S.10 is located at the south-east border of the settlement. Based on its location, preservation, and size, building S.10 was chosen in 2014–2016 to be studied in detail and probed to gather information on its date and stratigraphy. Most walls of building S.10 were already exposed on the surface before excavation (Fig. 7). Topographically it is situated on the highest area of the settlement (163 m above sea level) and oriented perfectly north-south (Fig. 6). Parts of the building were disturbed post-3rd millennium BC (strata V–IV; Fig. 6–Fig. 7), when four tombs were built inside and on the outer walls of the building.

Building S.10 has a total area of *c.* 228 m², and it is the largest building located at DH1 (Tab. 1). It has a rectangular outer shape with a total length of 19 m and total width of 12 m. The building is composed

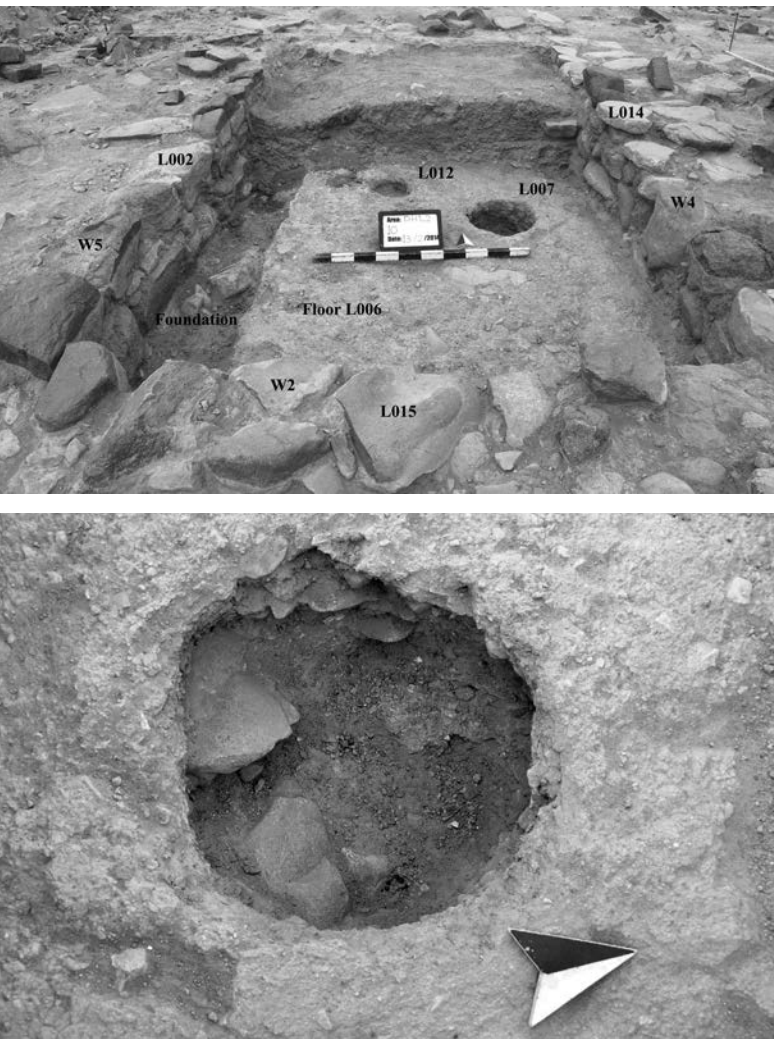


Fig. 9: a) Trench 1, Room R2, earliest floor (Floor L006) with two pits (L007 right, L012 left); b) close-up of pit L007.

of northern and southern parts (Fig. 6). The southern part is the primary space and the earliest built (phase VI.7a). It has a rectangular shape (12.30 x 10.00 m) with an overall size of (123 m²). It includes six rooms (R1–R5; R8). In order to document the building completely, a grid of (15 x 20 m), divided into 12 squares each 5 x 5 m was set.

The southern part of the building can also be divided into eastern and western sections. In this case, the eastern section contains three rectangular rooms (R1, R3, and R5) which are parallel to each other and extend east-west connected through a long corridor (R8). The western section has two rooms (R2 and R4) running north-south. The western and eastern sections are separated by walls (W4 and W10), and there is no communication between the sections.

The southern part of building S.10 seems to be built according to a specific and well thought-out plan. The three rooms on the eastern side (R1, R3, and R5) were all built equal in size (5.50 x 2.50 m; Tab. 2). The same

situation applies for the western rooms (R2 and R4) as their sizes are equal to one another as well (4.0 x 2.0 m). All walls in this part of the building were built jointly with the outer walls. This may be an indication that the entire southern part of the building was built at the same time (one phase: VI.7a). Further, the outer and inner walls show no real differences in their width (c. 60 cm; Tab. 3). They were built from two rows of large unhewn limestone and smaller stones were between the two skins. The entrance for this part of the building has not been found. It might be located on the northern side, since this is the only side that is still not exposed fully because of a later tomb (Tomb 9), which used this wall as its foundation.

Room #	Length (m)	Width (m)	Total Area (m ²)
R1	5.50	2.50	13.75
R2	4.00	2.00	8.00
R3	5.50	2.30	12.10
R4	4.00	2.00	8.00
R5	5.50	2.50	13.75
R6	----	1.30	---
R7	10.00	8.00	8.00
R8	8.80	2.50	22.00

Tab. 2: Building S.10 room dimensions.

Wall #	Length (m)	Width (m)	Height (m)
W1	8.00	0.60–0.70	0.20–0.40
W2	3.20	0.60–0.64	0.30–0.43
W3	3.70	0.59	0.20–0.40
W4	4.20	0.58	0.35–0.65
W5	4.30	0.60–0.65	0.50–0.60
W6	5.10	0.64	0.20–0.40
W7	2.10	---	1.30
W8	1.90–2.00	0.60	0.20–0.40
W9	---	0.60	0.20–0.40
W10	---	0.60	0.20–0.40
W11	2.00	0.60	0.25
W12	---	0.60	0.20–0.40
W13	2.40	0.60	0.20–0.40
W14	---	0.60	0.20–0.40
W15	3.00	0.20–0.32	0.20–0.40
W16	---	0.60	0.20–0.40
W17	3.60	0.60	0.30
W18	---	0.60	0.20–0.40
W19	---	0.58–0.62	0.20–0.40
W20	0.40	0.22	0.20

Tab. 3: Building S.10 wall dimensions.

The northern part of building S.10 is smaller than the southern part of the building (Fig. 6). It is rectangular (9.0x12.0 m) with a total area of 108 m². It is composed of one small room (R6) and a large open courtyard (R7). Room R6 is very narrow; in fact, it is the smallest room of the building (Tab. 2). Its width is c. 1.30 m, but its full length is still not exposed. Approximately 5 m of this room has been uncovered, and the western part is below the later tomb (Tomb 9). The open courtyard (R7) is quite large (10.0x8.0 m). It is enclosed by a wall that presumably was never built as high as the walls of the south part of the building because some of its large stones were standing upright which it makes it difficult to hold more courses of stone. Furthermore, very few stones have been found around the walls that could be fallen from the walls. Additionally, there is no indication of fallen mud-bricks around the walls.

The entrance of the north part is approximately 1.0 m wide and located in the middle part of the eastern wall with a stone threshold in the front. All walls of the northern part of the building are built jointly with each other, but not with the southern part of the building. Wall W15, which is the western wall of room R6 and part of the eastern wall of the courtyard (R7), was built against the outer edge of wall W14 (Fig. 6). This could be an indication that the northern part was added to the southern part of the building at a later time (e. g. phase VI.6). All walls of the northern part of the building were built less well than walls of the southern part. For example, they were not built as straight as the walls of the southern part, the sizes of the stones were irregular, and finally, the direction of the walls did not follow the same line as the southern part.

4.4 Excavations

The 2014 and 2016 excavations at the site of DH1 focused on building S.10. In 2014, two small trenches were excavated: Trench 1 (T1) in room R1 and Trench 2 (T2) in the nearby room R2 (Fig. 8). These two rooms (R1 and R2) were chosen because they were not disturbed by the later tombs as the other rooms had been.

4.4.1 Trench 1

Trench 1 is located in square A1 and extends across most of the southern half of room R2 with a dimension of 2.30x2.10 m. Excavations in T1 reached the earliest surface floor (A1:L006) of room R2 (Phase: VI.7a; Fig. 9). The floor was gray in color and composed of very hard clay mixed with small stones, running against the inner side of walls W2 and W5. Two shallow round pits (A1:L007 and A1:L012) were found in R2 (pit L007: 0.26 m deep & 0.33 m diameter; pit L012: 0.10 m deep & 0.23 m diameter; Fig. 9b). These pits may have been used for storage purposes. A few small pieces of charcoal

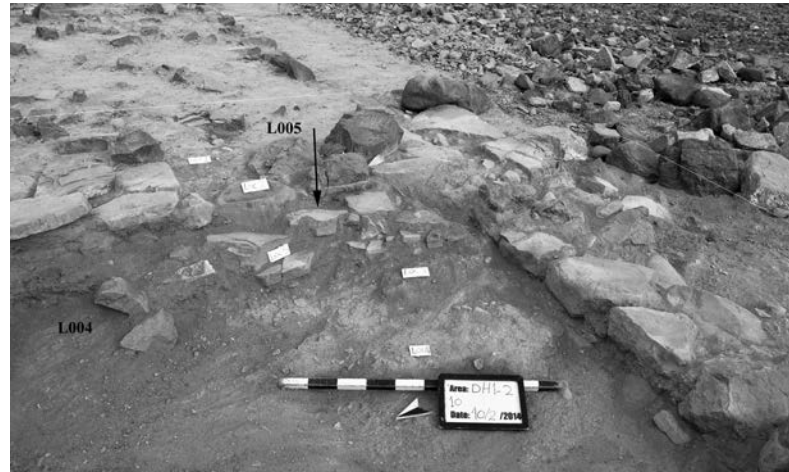


Fig. 10: Bench (L005) alongside the east wall (W4).

have been collected from the fill layer (A1:L008) inside the pit (A1:L007) in room R2 and produced a date of 2482–2309 cal. BC (MAMS 23203; Tab. 4). This may indicate the end of the use of the pit (phase VI.7a).

To the west of room R2 an approximately 0.40 m wide trench was dug inside the earlier floor (A1:L006), along the west wall (A1:L002/W5), to uncover the depth of the foundation of walls W5 and W2 (they are about 0.30 m beneath the surface floor A1:L006). The walls and floor (A1:L006) were built on a hard foundation, composed of a stone layer (A1:L009) mixed with gray clay (Fig. 9a). The walls are still standing 2 to 4 courses. Furnace wall fragments were found inside a filling layer (A1:L009; phase VI.7b) that lay underneath the earliest floor (A1:L006).

After using room R2 for a time (phase VI.7a), a new brown mud surface floor (A1:L004) covered the entire room (Phase VI.5), with a gray soil/ash layer (A1:L011) underneath. Two charcoal samples were analyzed from these two layers. They produced similar dates (MAMS 23201: 2466–2298 cal. BC and MAMS 23202: 2466–2296 cal. BC; Tab. 4). These dates are very close to the above-mentioned date of the filling layer A1:L008, which is additional evidence of the end of phase VI.7a and the beginning of phase VI.5. On top of floor A1:L004 a bench, composed of 1–2 course of flat stones approximately 0.10–0.15 m thick (A1:L005) was placed along the eastern wall (W4) of R2 (Fig. 10).

No pits were found from this phase inside the room. This might indicate that the function of the room changed between phase VI.7a and VI.5. Later, in phase VI.2 a thick brown mud floor (A1:L003) was placed inside R2 and covered the previous floor (A1:L004). This floor was used inside R2 until the building was abandoned completely and the room was filled with fallen stones and soil (Fig. 11). Unfortunately no datable material has been found on this floor (A1:L003) which it makes it impossible to date the end of use the building S.10.

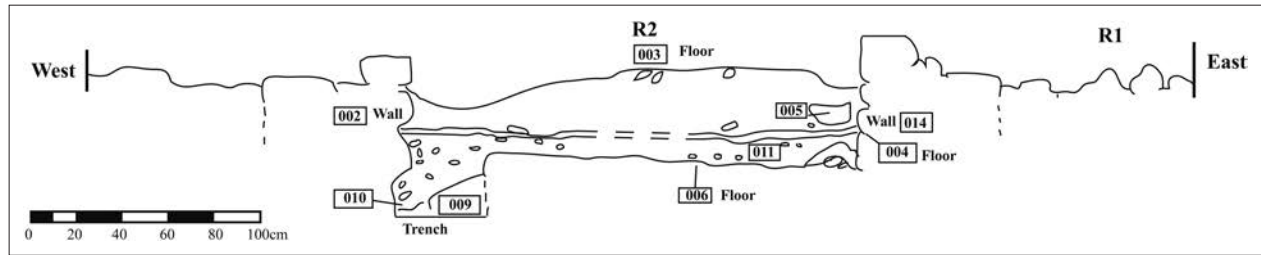


Fig. 11: The north section of Trench T1 in Room R2.

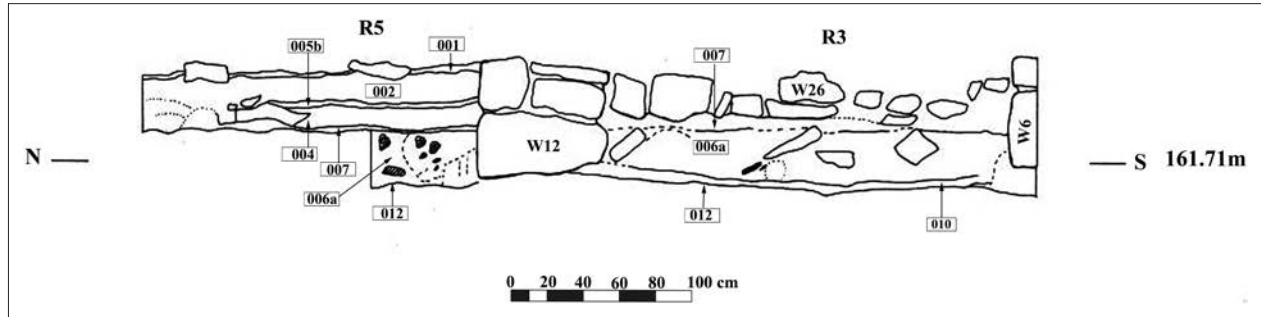


Fig. 12: The east section of the Trench T2 in Corridor R8.

Lab #	Provenience	Description of Context	Material	Uncalibrated 14C age (BP)	2 σ calibrated range BC (95.4% confidence)
MAMS 23201	S.10-A1:L004	Room R2, Floor	wood charcoal	3892 \pm 25	2466–2298 BC
MAMS 23202	S.10-A1:L011	Room R2, Ash Layer	wood charcoal	3892 \pm 27	2466–2296 BC
MAMS 23203	S.10-A1:L008	Room R2, fill layer inside Pit A - A1:L007	wood charcoal	3926 \pm 24	2482–2309 BC
MAMS 23204	S.10-B1:L006a	Corridor R8, Ash Layer	wood charcoal	3932 \pm 24	2548–2339 BC
MAMS 23205	S.10-B1:L005	Corridor R8, Floor	wood charcoal	4025 \pm 25	2618–2474 BC
UGAMS 24909	S.10-B2:L012	Rooms R3/8, Floor	burned date stone	3840 \pm 25	2456–2203 BC
UGAMS 24910	S.10-B2:L010	Rooms R3/8, Ash Layer	wood charcoal	3850 \pm 25	2458–2207 BC
UGAMS 24911	S.10-B2:L006	Room R1, Floor	wood charcoal	3910 \pm 25	2472–2306 BC
UGAMS 24912	S.10-B1:L008	Corridor R8, Ash Layer	wood charcoal	3880 \pm 25	2464–2290 BC

Tab. 4: Radiocarbon dates (Sample #s 23201–23205 were performed by the Curt-Engelhorn Center for Archaeometry at Universität Heidelberg and samples 24909–24912 were performed by University of Georgia Center for Applied Isotope Studies). Calibrations calculated with OxCal 4.3 (Bronk Ramsey 2009) with IntCal13 Atmospheric Curve (Reimer *et al.* 2013).

4.4.2 Trench 2

Trench 2 is located in squares B1 and B2 (Fig. 8). Excavation was planned in 2014 to uncover the southern part of corridor R8 (3.0x2.5 m). Time limitations reduced the trench size to 1x1 m. In 2016, this trench was extended further to the north into an L-shape, with a total length of 7.0 m (Fig. 6). The final dimensions of the trench were 2.5 m wide in the northern part and 4 m wide in its southern part. The trench was designed to cover nearly the entire east half of corridor R8 and the west end of rooms R1, R3, and R5.

As a result of the excavations, the west end of both walls W6 and W12 were uncovered, which enabled us to clarify the exact length of the three rooms (R1, R3, and R5) as 5.50 m. The inner side of the excavated walls was covered with whitish, thick plaster. For example, in the south-west corner of R8 the plaster was *c.* 40 cm thick at the bottom of walls W1 and W4 and became thinner (*c.* 15 cm) in the upper part.

The earliest floor (B1:L013, B2:L012) in corridor R8 was also uncovered (Phase: VI.7a). It was identical to the earliest floor (A1:L006) of room R2 and composed of very hard gray clay mixed with small stones. This floor was placed directly on top of a virgin soil layer (B1:L014). This layer was composed of the natural local gray soil mixed with a large quantity of small stones. The relationships between floor (B1:L013 and B2:L012) and walls W6 and W12 are not yet clear. For example, although the level of the floor is *c.* 5 cm deeper than the foundation of W6, no evidence was found to say that this floor runs underneath W6 (R1/R3). Moreover, in the north part of the trench this floor (B2:L012) was very close to the base of the south side of W12 (R3), while it was laid 2–4 cm lower than its foundation in the north side (Fig. 12). A charred date stone from this floor (B2:L012) produced a radiocarbon date of 2456–2203 cal. BC (UGAMS 24909; Tab. 4). This date is very close to the end date of phase VI.7a in the nearby room R2.

Corridor R8 seems to have been used intensively during the earlier phase (VI.7a). In the middle part of this corridor, a copper furnace was partially uncovered (B2:L011). The rest of it runs through the west section of the trench and is unexcavated. The preservation of the furnace is not good. It was laid directly on top of floor B2:L012 and it has an oval shape that was built with clay lumps. No stones were found around the furnace. Approximately 2.5 kg of small copper slag fragments were found *in situ* around the furnace (Fig. 13). Their average size is approximately 3 cm diameter. This is evidence that this furnace was used for copper processing. A fragment of a copper hook was found near to the furnace (Fig. 15d). It is not clear if the furnace was used for processing such a tool or if the tool was used in some part of the copper smelting process. No remains of molds have been



Fig. 13: Copper slag recovered from area near furnace in corridor R8.



Fig. 14: Indus Black-Slipped storage jar with other Indus coarse Storage Jar in the SW corner of the corridor R8.

found. It is worth mentioning that similar material to the furnace was observed in other parts of both sections along the trench inside corridor R8. Presumably, this is an indication that other furnaces exist in the corridor. A thick ash layer (2–3 cm thick) was found inside and around the furnace. This layer (B2:L010) extended all over floor B1:L013 and B2:L012 in the excavated part of corridor R8. A charcoal sample from B2:L010 produced a date of 2458–2207 cal. BC (UGAMS 24910). Again, this date is identical to the end date of phase VI.7a.

At the east side of the furnace, an approximately 30 cm long shell was found (Fig. 13). Preservation was not good since it was crushed by the upper lay-



Fig. 15: Examples of a) burned shell, b) worked shell, c) date stones, and d) bronze/copper hook recovered from building S10.

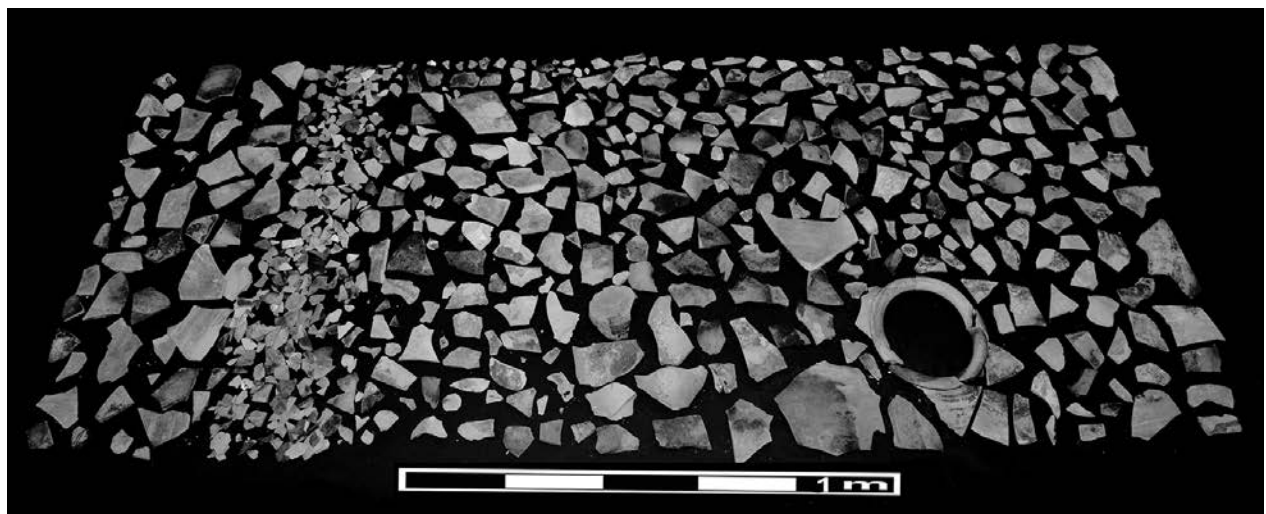


Fig. 16: Restorable Indus Black-Slipped Storage Jar broken into 624 sherds.

ers. In addition, on the southern side of the furnace more than 50 medium sized (4–6 cm long) shells were found (Fig. 15a). In a distance of about one meter to the north-east of the furnace, another group of more than 100 small shells (2–4 cm long) was found. Most of them had been burned. All the small shells have holes on their top, which indicate that they were formed as beads (Fig. 15b). Furthermore, to the south of the furnace six burned date stones were found (Fig. 15c).

In the south-west corner of corridor R8 (Fig. 6) one typical Indus Black-Slipped Storage Jar was found (Fig. 14, Fig. 16, and Fig. 17.9) together with another coarse ware Indus storage jar. Both jars were broken and their sherds were stacked on top of each other with burning traces covered by two ash layers B1:L008 and B1:L006a. Stratigraphically, these two ash layers were lying on the level covering the earliest floor (B1:L013) and the broken Indus Storage Jars (Fig. 14). One charcoal sample from each ash layer was analyzed (Tab. 4). The sample from ash layer B1:L008 produced a date of 2464–2290 cal. BC (UGAMS 24912), and layer B1:L006a produced a date of 2548–2339 cal. BC (MAMS 23204; Tab. 4). Although the date of layer B1:L008 is identical to the other above-mentioned dates, the date of the other layer (B1:L006a) appears to be earlier. Closer examination of the radiocarbon results (Fig. 18), reveals that in fact, there is a 93.9 % probability (as opposed to the 95 % probability reflected by the 2-sigma calibration) that the date falls between 2489 and 2339 cal. BC, which strongly indicates that the date for the sample from B1:L006a also fits in the established chronology (Fig. 18). This date marks the end of use of the Indus Black-Slipped Storage Jar and the other coarse ware Indus jar as well. However, it is difficult to ascertain at this phase of the excavations whether this ash layer was caused by an intentional action designed to destroy the earlier phase or was a result of copper processing inside the building.

The ash layer (B1:L008, B1:L006a, B2:L010) was later (phase VI.5) covered completely with a solid brown mud floor (B1:L006, B2:L007) that covered the entire corridor (R8) and the other rooms (R1, R3, and R5) (Fig. 12). Floor B1:L006 was excavated in the south part of corridor R8 and produced a date of 2472–2306 cal. BC which is identical to the date of floor (A1:L004; 2466–2298 cal. BC) in the nearby room R2 (Tab. 4). An odd date for the same floor that was excavated in room R1 (B1:L005) produced a much earlier date, 2618–2595 cal. BC (MAMS 23205). This date is much earlier than the date of underneath ash layer (B1:L008, B1:L006a, B2:L010) and may indicate contamination from an earlier occupation layer.

However, this floor (B1:L005, B1:L006, B2:L007) differs from the earlier one; it was made of medium hard brown clay, mixed with a few small stones. It

is identical to the floor (A1:L004) that was found in room R2. The material of this floor is not indigenous to the site, and the source of the brown soil is still not clear. By laying out this floor, it seems that the function of the building was dramatically changed during this phase (VI.5). Neither remains of furnaces nor were ashes found inside the trench after this phase. This might indicate that no copper processing was practiced in the building in this phase. Moreover, far fewer pottery sherds were found at this time compared with the earlier phase (VI.7a).

An indication of another change in the function of the building is in the next phase (VI.4) where the general plan of building was changed permanently by construction of two division walls (W7 and W26). Wall W7 separated *c.* 2.5 m long block of the southern part of corridor R8. This new part became the west section of room R1. The total length of R1 was changed to 8 m. No entrance has been found so far for R1 in this phase. The other division wall (W26) was built between W6 and W12, and separated R3 from corridor R8 (Fig. 12 and Fig. 19). No access has been found for R3 after the construction of the blocking wall (W26). Both division walls were built directly on top of floor (B1:L009b and B2:L007) of the previous phase (VI.5). The construction technique of these walls differs from the other walls of the building. They were not straight, and they were built with medium to large sized stones. Further, their courses were randomly built with irregular edges. Although the separated rooms (R1 and R3) show evidence of use in the later phases, no doorways have been found.

A stone layer and soil layer found inside rooms R1, R2, R3, and R8 covered the previous floor of phase (VI.5). It is not clear whether this layer was caused by a destruction or it was a filling layer for the above laid floor. It has been marked as phase (VI.3). This layer was not accompanied by burned remains in the excavated trench.

Phase VI.2 is the last occupation stage of building S.10. It is represented by a new brown mud surface floor (B1:L005, B2:L005b) that covered the stone and soil layer in all the excavated parts of rooms R1, R2, R3, and R8. No traces of hearths or furnaces have been discovered in this phase. A very small amount of local Sandy Ware Umm an-Nar pottery sherds were recovered here. It seems that the building was used for only a short time in this latest phase. At the end of this phase, building S.10 was abandoned. The absence of destruction layers inside the excavated areas shows that the building was abandoned peacefully. After the abandonment, the walls of the building collapsed inside, outside the rooms, and alongside the outer walls. Together with blowing wind, the building was filled with stones and sand.

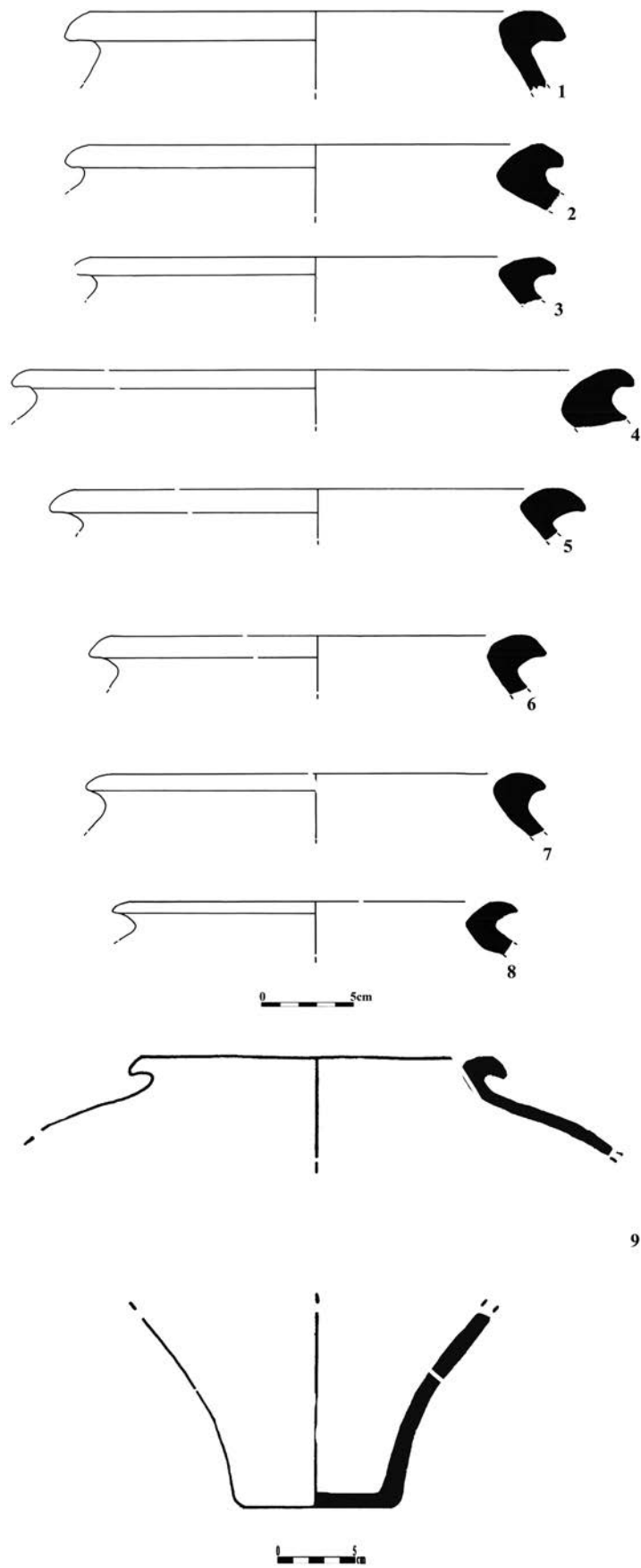


Fig. 17: Pottery from DH1.

4.5 Chronology and stratigraphy

The archaeological investigations at S.10 from 2014 to 2016 preliminarily identified six main strata (VI–I) which were further subdivided into 14 different phases. These strata begin in the Early Bronze Age and extend to recent times. A summary of the phases is shown in Tab. 5. The earliest stratum (VI) is subdivided into seven phases (VI.7–1) and belongs to the Umm an-Nar culture. Nine samples have been analyzed from this stratum. They yielded calibrated ^{14}C dates that cover nearly all of the second half of the 3rd millennium BC. The second stratum (V) belongs to the Wadi Suq period, where just one phase was identified (V.1). The third stratum (IV) marked as post-3rd millennium BC and was also represented by a single phase (IV.1). Stratum (III) dates to the Samad period and is represented by one phase (III.1). The fifth stratum (II) represents the Islamic period and includes two phases (II.2–1), while the latest stratum (I) represents the most recent use of the site.

Stratum VI is the earliest, and it belongs to the second half of the 3rd millennium BC. So far, the earliest phases of the Umm an-Nar settlement at DH1 have been exposed in only a limited area; however, the chronology, as well as the stratigraphy of the settlement has been established based on the excavation of the small trenches (T1 and T2) in building S.10. Radiocarbon dates place the construction and use of building S.10 around 2500 BC (Tab. 4). At present, seven main building phases (VI.7–1) are distinguished in this stratum, which provide evidence of a continuous sequence of use, without major cultural gaps (Tab. 5).

Phase (VI.7) is subdivided into two sub-phases: phase VI.7b is the earliest and represents the period of time before the walls of building S.10 were erected (pre-building S.10), while phase VI.7a represents the establishment of building S.10 and perhaps the other buildings at the settlement. Building S.10 was built in this phase skillfully and carefully. Unfortunately, the exact date that the building S.10 was first established cannot be determined at this point because no datable samples for ^{14}C analysis were recovered from this phase. However, the earliest floor that belongs to this phase was uncovered in room R2 (A1:L006) and corridor R8 (B1:L013, B2:L012). In rooms R1 and R3 just a small part of this floor was excavated along with corridor R8. One radiocarbon sample was analyzed from the surface of this floor. It comes from corridor R8 (B2:L012) and produced a calibrated date of 2456–2203 BC (Tab. 4). It marks the date when the earliest floor was used.

The use of this phase (VI.7a) was sealed in all excavated parts with an ash layer. Since this layer contained a large amount of burned wooden beams, four radiocarbon samples were collected and analyzed.

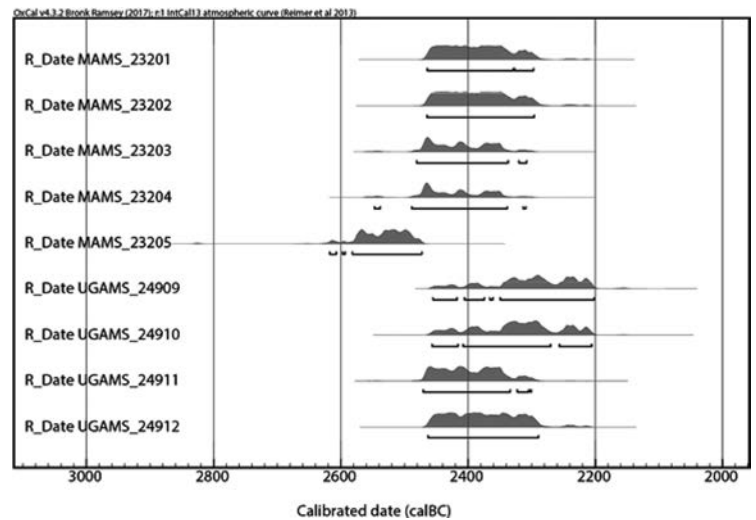


Fig. 18: Probability distributions for radiocarbon dates at DH1.

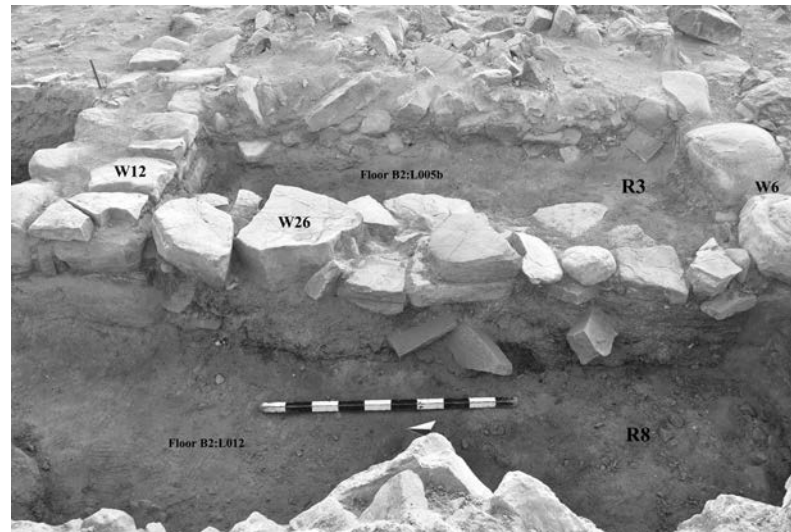


Fig. 19: The division wall W26, separating R3 in the back from corridor R8 in the front, looking east between.

Three of the samples produced almost identical dates (A1:L011 from R2: 2465–2298 BC; B2:L010 from corridor R8: 2457–2207 BC and B1:L008 from corridor R8: 2463–2291 BC), however the fourth sample (B1:L006a from corridor R8) produced a date that was almost one hundred years earlier (2548–2311 BC, Tab. 4).

The next phase (VI.6) witnessed expansion of the size of building S.10 where the north part was added to building S.10. At this phase of the excavation it is difficult to determine if the northern part was added before or after the above-mentioned ash layer was formed.

In phase VI.5 a major change took place in building S.10 where rooms R1, R2, R3, and R5, as well as corridor R8, were covered with a floor made of new material – a brown mud that covered the earlier gray

STRATUM	PHASE	OCCUPATION TYPE	DATE
	VI.7B	PRE-S.10 CONSTRUCTION	2500 BC
VI UMM AN-NAR	VI.7A	SETTLEMENT ESTABLISHED	2400 BC
	VI.6	BUILDING S.10 ENLARGED	
	VI.5	PARTIAL REBUILDING OF SETTLEMENT?	2300 BC
	VI.4	REPLAN BUILDING S.10	2200 BC
	VI.3	DESTRUCTION?	2100 BC
	VI.2	LATEST USE OF S.10	
	VI.1	SETTLEMENT ABANDONED	2000BC
V WADI SUQ	V.1	BURIALS REUSE OF UMM AN-NAR BUILDINGS?	1300BC
IV POST 3RD MILLENNIUM BC	IV.1	BURIALS	300BC
III SAMAD	III.1	BURIALS	AD650
II ISLAMIC	II.2	EARLY ISLAMIC BURIALS AGRICULTURE	
	II.1	LATE ISLAMIC DOMESTIC BURIALS COPPER MINING	AD1800
I MODERN	I.1	DOMESTIC BURIALS AGRICULTURE	PRESENT

Tab. 5: Chronology of building S.10.

plaster floor. The pit and furnace system from the previous phase (VI.7a) was abandoned completely at this time and replaced by a new system of benches that were added in some rooms. This suggests a major change in the function of building S.10. Three wood charcoal samples were collected from this floor (phase VI.5). A sample from room R2 (A1:L004) produced a date of 2465–2331 cal. BC, a sample from room R1 produced a date of 2471–2305 cal. BC, and a third sample from corridor R8 (B1:L005) produced a date of 2618–2474 cal. BC (Tab. 4). The dates of the first two samples from rooms R1 and R2 agree very well with each other. One explanation is that both events the end of phase VI.7a and beginning of the renovation phase VI.5 were occurred in a short period of time without any break in between. Further support

for this hypothesis is the fact that the bottom parts of the brown mud floor in the corridor R8 and rooms R1 and R3 that covered the ash layer had burning traces. This indicates that the floor was made while the ash and the burned wooden beams were still hot. The earlier date from this same floor in corridor R8 may have produced an earlier date because the process of formation of the floor may have incorporated mud that contained burned material from a yet earlier use of this or a nearby space.

At the end of phase VI.5, building S.10 suffered from a decline phase that comprises stratum VI.4. This decline might have continued until the end of use of the settlement. The building was re-planned where some parts of it were separated by building stone division walls (W7 and W26). This might be an indi-

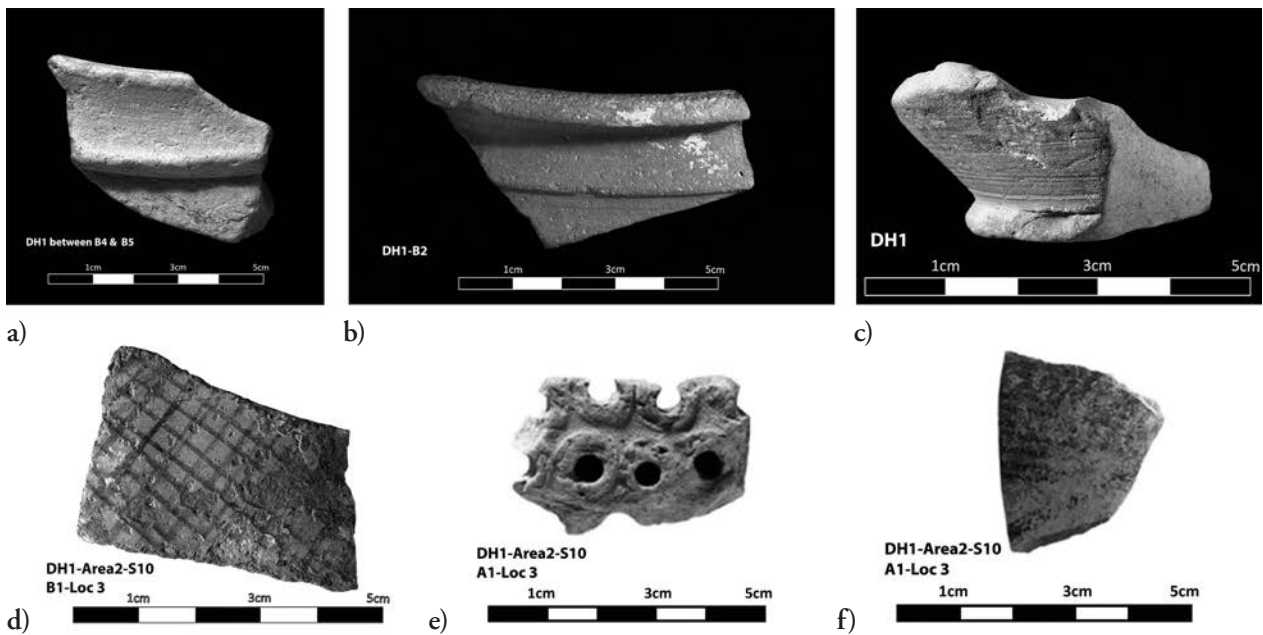


Fig. 20: Pottery from DH1: a) Indus cooking pot; b) Indus jar: red fine fabric; c) Makran fabric; d) Local fine red ware with black net painted; e) Indus perforated vessel sherd; f) Local Magan fabric with chevron painted pattern.

cation of a second functional change in the building. This phase was later ended by what seems to be a destruction event marked by a fallen stone layer that was found in multiple different parts of the excavated trenches (phase VI.3). It is difficult to prove the cause of this destruction since no burning remains have been found. Following this event, building S.10 was reused again (phase VI.2), and the large fallen stones were removed from some rooms and leveled with a soil layer. It was then covered by a new mud brown surface floor. At the end of this phase, the settlement was permanently abandoned with no evidence of deliberate destruction of the existing buildings. No traces of burning or destruction have been found through the thick fallen stone layer that covered the latest floor.

After the site of DH1 was abandoned for a while, it was reused sometime in Wadi Suq period (stratum V) as a cemetery where some burials found in the east side of the Umm an-Nar settlement as well as possibly on top of some of the settlement buildings. Other tombs were built on top of and between the Umm an-Nar buildings using both stone from the buildings and wadi cobbles. Based on their preservation, plans, and setting they have been preliminarily categorized as 'post-3rd millennium BC tombs' (stratum IV). These tombs are more concentrated in the area of the Umm an-Nar settlement, perhaps both because they utilized the existing Umm an-Nar building walls as foundation courses (as in the case of Tomb 9) and because the builders repurposed the fallen wall stones of these same buildings to build the walls of the tombs (Fig. 4).

Stratum II represents the Islamic period at the site. It includes two main phases (II.2–1). The earlier phase (II.2) belongs to the early Islamic period and is represented by very few pottery sherds while the later phase (II.1) was represented by a few very simple buildings concentrated mainly at the southern edge of the site looking towards the wadi (Fig. 3). Burials from this stratum were found all over the site. Many pottery sherds (e.g. Bahla Ware) distributed in different places at the site shows that the site seems to be used in as a seasonal camp for pastoralists.

During the recent time, Stratum I several small huts were constructed at the southern edge of the site (Fig. 3). A few modern pottery sherds were distributed in different areas of the site, which indicate that the site was not used intensively during the modern time. Modern Islamic burials were found on the western side of the site.

4.6 Pottery from DH1

All of the pottery described in this paper was found in the settlement of DH1. Although some Early Bronze Age tombs exist at the site, no funerary pottery is described here. The settlement pottery was collected from two different contexts. The first group comes from the surface, which it represents the majority. It was collected through the survey conducted at the site in 2014–2016. The second group, which is much smaller, comes only from building S.10 where a few small trenches have been excavated.

A very preliminary analysis of both groups of ceramics shows that the 3rd millennium BC ceramics can be generally categorized into two main groups: 1) local (Type A) and 2) imported (Type B) types.

4.6.1 Type A Local Ceramics

In general, the majority of the ceramics found at the settlement of DH1 were local. There are three local types: A) local Magan, B) fine red type, and C) local-Indus imitation type.

A. Local Magan: This type was found most frequently. It is wheel made with wheel marks on the interior. The surface of the ceramics has a sandy texture and varies between hard and soft surfaces. Its fabric is mostly fine, in few cases, it is medium fine, and in rare cases, it is a coarse ware. The inclusions are composed mainly of fine-grained sand less than 1 mm in diameter, and in few cases, vegetation temper is observed. Black horizontal, wavy line(s) or a chevron pattern (Fig. 20f and Fig. 21.11) was applied on the outer slipped surface. This type is represented by different forms: small jar (Fig. 22.7–8), medium jar (Fig. 22.6), small bowl (Fig. 21.5), all the vessels have a flat base (Fig. 21.6, 9).

B. Fine Red Ware: This ware is less well represented at DH1 compared to the local Magan type. The surface of this ware is harder than the local Magan type. The exterior surface is covered with red slip, a net black painted pattern was applied on the exterior (Fig. 20d and Fig. 21.12), and in some cases, circular grooves are observed (Fig. 21.14). The fabric is very fine, well fired, and wheel made. The inclusions are composed of very fine sand. Most vessels of this type are small with thin, flaring, everted rims (Fig. 22.9) and a flat base (Fig. 21.10).

C. Local-Indus imitation type: This type is quite well represented at the site. The fabric is typical local Magan Sandy Ware and the texture of this ware is similar to Type A. Most likely, the surface was covered with yellowish red slip and painted with a black horizontal band (Fig. 22.4) or parallel horizontal and wavy black bands (Fig. 21.1). The fabric color is reddish yellow, pink, and yellowish red, and vessels are mostly well fired. This type is wheel made. Inclusions are composed of few visible white, black, or sand grits, all less than 1 mm in diameter. In a few cases, vegetation temper was found. The shape and rim of the vessels of this type are similar to Indus wares. This type includes carinated bowls (Fig. 21.4), large open vessels (Fig. 21.1), medium jars (Fig. 22.4, 12), and small jars (Fig. 21.2 and Fig. 22.5, 11). The bases of the vessels are flat (Fig. 21.8).

4.6.2 Type B Imported Ceramics

Imported ceramics (Type B) at DH1 are represented by two main types: A) Indus and B) Makran pottery. The existence of the different types and wares of Indus ceramic tradition in DH1 clearly indicate an intensive connection between inhabitants of DH1 and Indus Valley culture. Should this be interpreted as an indication of an Indus community living at DH1 as may have been the case at Salut?¹ It is too early for us to test such a hypothesis, but the preliminary results described here suggest that this is an excellent site to explore this possibility.

A. Indus pottery: Indus ceramic types are rather numerous at DH1, and indicate that these ceramics served a variety of functions including storage food processing, and presentation. The total percentage of Indus sherds in compared with locally produced pottery is still being calculated. At least four types of fabrics of Indus pottery have been so far recognized: 1) fine black-slipped fabric, 2) coarse fabric, 3) sandy fabric, and 4) red fine fabric. The presence of a large amount of Indus ceramics at DH1 suggests considerable mobility and trade with the Indus Civilization.

1. Fine black slipped fabric:

This type is best known from the large Indus Black-Slipped Storage Jars (Fig. 23). This type is well represented at DH1. Rims from more than 25 typical Indus Black-Slipped Storage Jars were found at the settlement (Fig. 17). This form has been reported from different sites along the coasts of Oman and the UAE, as well as from inland settlements.² This type of jar has a distinctive curvilinear profile and thick layers of blackish to brown-purplish slip, completely coated in their internal and external surfaces (Fig. 23b). Fabric of this type is fine to medium fine ware. The fabric color is red to buff. Some vessels have no visible inclusions (white/black grits and mica) and they are made from well levigated clay. The vessels are well fired, and walls show rilling marks on their interior, suggesting wheel-made technique. This type of jars was found all over the site and is represented by different forms of their distinguished rim profile (Fig. 17). Similar jars were found in the circular stone tower (ST1) in Salut that date to the second half of the 3rd millennium BC (c. 2400–2000 BC).³ Furthermore, in building S.10 a restorable jar of this type was excavated *in situ* in the south-west corner of corridor R8 (Fig. 14 and Fig. 17.9). It was found on top of the surface floor (B1:L013/B2:L012, phase VI.7a), broken into 624 sherds (Fig. 16) covered with ash layer (B1:L008) (Fig. 14). A charcoal sample from this ash layer produced a calibrated radiocarbon

1 Frenez *et al.* 2016.

2 Méry – Blackman 2005; Frenez *et al.* 2016.

3 Frenez *et al.* 2016: fig. 4a.

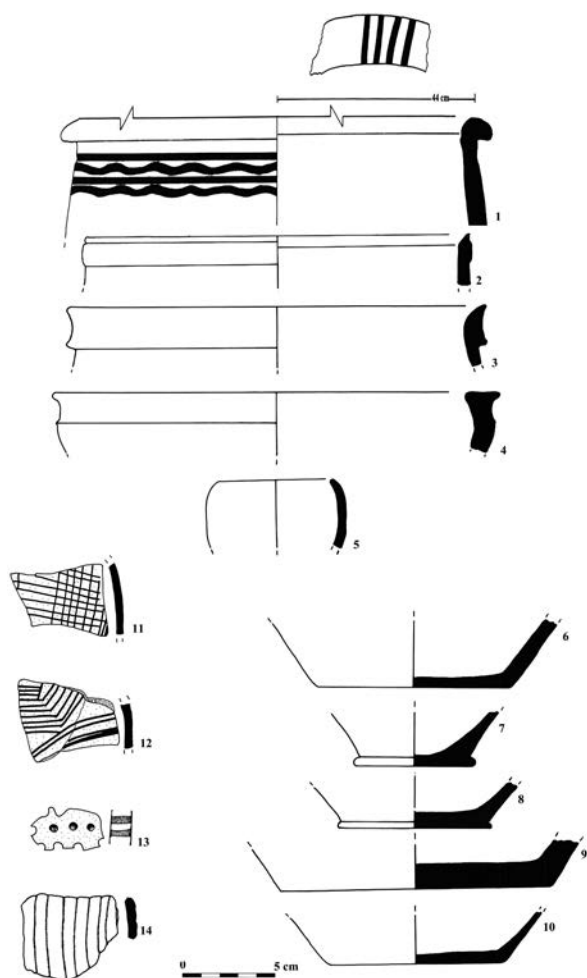


Fig. 21: Pottery from DH1.

date of 2463–2291 BC (Tab. 4). On top of the jar rim were two marks (Fig. 24). One is in a form of three nail impressions that were made before the jar was fired, while the other located on the opposite side of the rim, was made of three post-firing incised lines (Fig. 17.9). Post-firing linear incisions are reported on similar jar found in Salut.⁴ The external rim diameter is 25.5 cm, while the base diameter is 10.7 cm.

2. Coarse fabric:

This type is mainly restricted to storage jars. It is represented by few cases at the settlement of DH1. One of these jars was found *in situ* in the south-west corner of the corridor R8 in building S.10 together with a Black-Slipped Indus Jar. Unfortunately, neither the rim nor the base of this jar was found. The fabric of this type is very coarse. The external surface is covered with very thick red slip. Marks of thin rope-lines are visible underneath the slip on the outer surface. There is no slip on the internal surface. The uneven surface of the thick body sherds (0.70 cm thick) indicates a

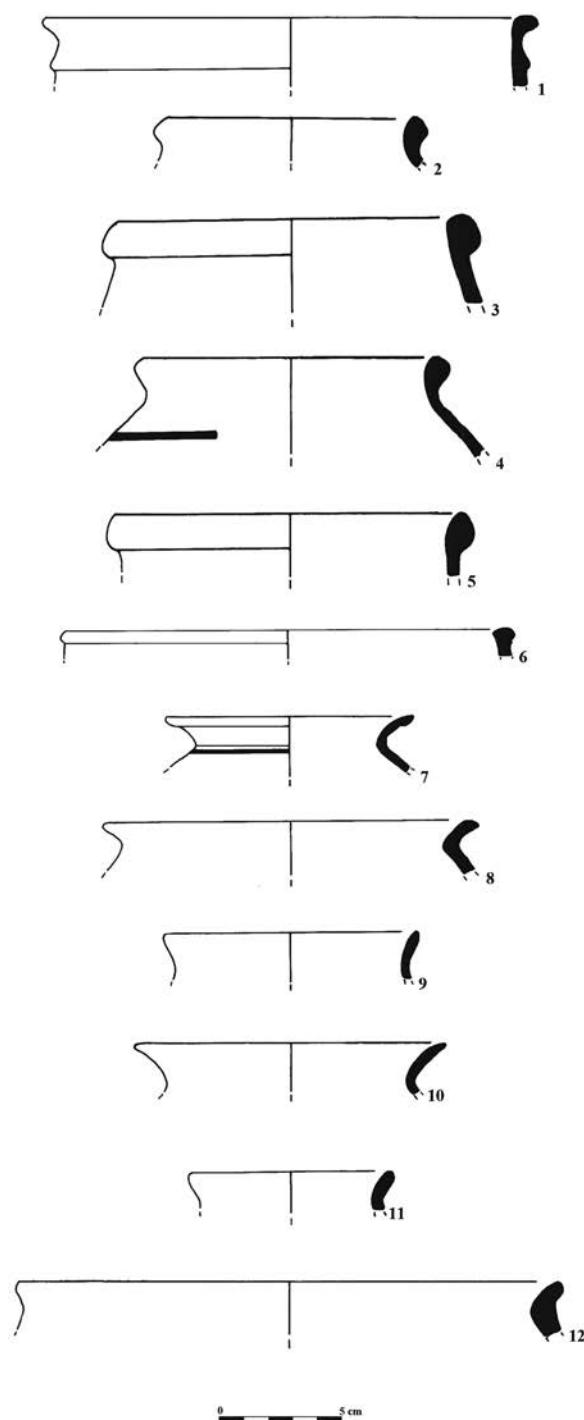


Fig. 22: Pottery from DH1.

handmade technique. The pot is well fired. The difference in the fabric between these two types of storage jars found in the same corner of corridor R8 indicate that they were used to store different material. For example, the Black-Slipped Jar was presumably used to store liquid, while this coarse type storage jar was most likely for dry material.

⁴ Frenéz *et al.* 2016: fig. 4a.2.

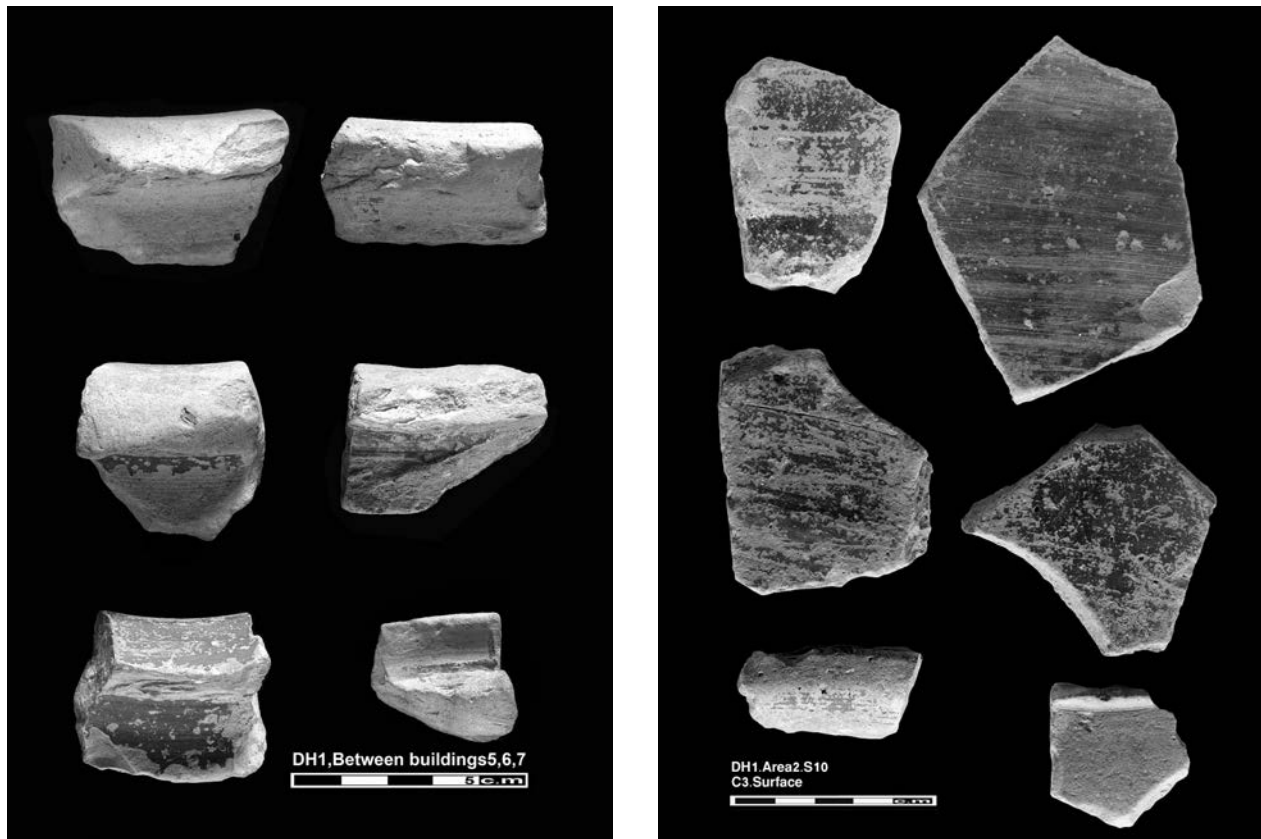


Fig. 23: Pottery from DH: a) Black-Slipped Indus Storage Jars; b) Typical Black-Slipped Indus sherds.



Fig. 24: Black-Slipped Indus Storage Jar with nail impressions (right) and incised lines (left) on a rim from DH1.

3. Sandy fabric:

This type is well represented at the site. It is represented by two sub-types:

3a: Large storage jars and medium jars belong to this type. The fabric has a sandy texture, mixed with large amount of fine black grits and mica. Traces of thin rope lines are visible on the external surface of the large Storage Jars but not on the medium sized

jars. A thick black slip layer covered both the external and the internal surfaces of the large storage jars. The external surface (but not the internal surface) of the medium jar is covered with reddish slip.

3b: Medium and small jars belong to this type. The fabric has a yellowish color and is mixed with large amount of very fine white grit. A few examples with a vegetation temper also exist. The exterior surface has creamy slip with black horizontal bands on top. In a few cases, a black slip was applied on the exterior surface, interior rim, and neck (Fig. 22.10). This type also includes perforated vessels (Fig. 20e and Fig. 24.12) that might belong to the typical tall Indus perforated jar that was probably used as strainer. Indus-style perforated vessel sherds have also been reported from Salut (ST1) and Ras al-Jinz RJ-2.⁵ Ridge cooking pots belong also to this type (Fig. 20.1 and Fig. 24.3).

4. Red fine fabric:

This type is well represented at the site. The fabric is red in color, inclusions are composed of a few fine white grits and mica, and it was well fired. Medium jars with ridge underneath the rim (Fig. 20b and Fig. 23.1) and small jars with thickened rim (Fig. 22.2) belong to this type.

5 Frenez *et al.* 2016: fig. 4d; Cleuziou – Méry 2002: fig. 5g.

B. Makran fabric: This type was represented by very few sherds. The fabric is very fine, gray in color, and inclusions are invisible. It was wheel made and well fired (Fig. 20c and Fig. 24.7).

4.7 Discussion

4.7.1 DH1 and Building S.10

Recent archaeological survey and excavations at Dahwa (DH1) in the area around Saham on the Batinah Coast has provided evidence for an Umm an-Nar settlement (DH1) dated to the second half of the 3rd millennium BC. DH1 is a large settlement, consisting of at least 17 typical Umm an-Nar stone buildings, some of which are quite large. DH1 is an important site because no other Umm an-Nar sites are known from this area. Settlement during this period had been thought to be concentrated in other regions such as Al-Dhakhilyah, Al-Dhahirah, and Al-Sharqiyah. This site, therefore, has the potential to change our knowledge of the Early Bronze Age in Oman and of the settlement history of the Batinah. It offers important new understanding of the changing nature of the ancient economy of the Batinah plain.

The largest building (S.10) at DH1 was found at the south-eastern edge of the settlement and was partially excavated during 2014 and 2016. It was shown to contain multiple phases of occupation. As described above, the building measures 228 m², and it is subdivided into eight internal rooms. In terms of chronology and stratigraphy, the recovered materials (e. g. ¹⁴C samples and pottery) as well as the structural remains (from both the surface and stratified contexts) indicate that there are initially six main strata (VI–I) that have been recognized and subdivided into 14 different phases, ranging from the Early Bronze Age to the recent time. The earliest stratum (phases VI.7–1) belongs to the Umm an-Nar period. Nine analyzed charcoal samples from this stratum yielded calibrated ¹⁴C dates, covering the second half of the 3rd millennium BC (Fig. 18). This Umm an-Nar settlement was the major occupation stratum. The construction of the settlement dates to around 2450 BC (Tab. 5). The excavation of building S.10 helps us understand the function of the building and perhaps that of the settlement in general. So far, none of other buildings within the settlement can be compared with Building S.10 in terms of size, layout, and function.

It is known that the Batinah region has always been a key center of Oman's population and agriculture.⁶ Thus, it is expected that one would find a high percentage of archaeological sites on the Batinah, which might reflect its economic importance over

time. Nevertheless, only few Umm an-Nar sites have so far been found there, mostly in Sohar,⁷ and most recently in Rustaq.⁸ The lack of Bronze Age sites in a region where more intensive settlement is expected suggests that long held assumptions about the nature of Bronze Age exploitation of the land should be challenged. For example, perhaps different land use patterns were practiced during this period and with regard to the local and international trade relationships in this specific environment. Elsewhere on the Oman Peninsula, Al-Jahwari⁹ has suggested that the economy of Bronze Age society was agricultural. Of course, this may not have been the case on the Batinah coast, but the local economy may also have differed from other better-known regions in ways that we do not yet fully understand. This is an important point that still needs to be addressed by future research.

4.7.2 DH1 Ceramics and Possible Trade Interactions

Previous fieldwork in the Oman Peninsula detailed other Umm an-Nar settlement sites across the Oman Peninsula.¹⁰ This work has documented variation in Umm an-Nar complex settlements and postulated the organization and function of Umm an-Nar period structures. The excavated building (S.10) at DH1 contributes to this understanding of Umm an-Nar settlements and is beginning to provide new information about how these settlements may have formed in response to their role in regional and international trade relationships. We make this assertion at this early stage of inquiry because of the robust evidence from the ceramic assemblage so far recovered at DH1.

The Indus Civilization was a key center of commerce and cultural interaction in the Bronze Age world. At DH1, we have discovered a large number of Indus Black-Slipped jar sherds both on the surface and in stratified contexts (Fig. 17). The large amount of Indus sherds suggests trade and goods exchange, which resulted in large quantities of Indus goods at Dahwa. This could include trade between this site and other as-yet-undiscovered nearby settlements or with coastal ports. The mechanisms of this exchange are still unclear, but vitally important to understand the site and its economy.

DH1 would have been in an excellent geographical position to influence inland trade routes linking the coast and other 3rd millennium BC sites further inland and south of the Al-Hajar Mountains. DH1 is

6 Lorimer 1908: 1411.

7 E. g. Frifelt 1975; Costa – Wilkinson 1987; Düring – Olijdam 2015.

8 Kennet *et al.* 2014; Kennet *et al.* 2015; Kennet *et al.* 2016a; Kennet *et al.* 2016b.

9 Al-Jahwari 2009; Al-Jahwari 2013.

10 E. g. Costa – Wilkinson 1987; Frifelt 1995; Schmidt – Döpper 2014.

located about 24 km from the traditional coastal trade road, which would have allowed the inhabitants of DH1 to make use of their geographic location in order to have direct contact with the coastal trade roads. These interactions most likely linked DH1 to civilizations further abroad such as Indus and Makran, and this is supported by the large amount of foreign ceramics, as well as the locally produced Indus-imitation wares documented at this site. Relationships between DH1 and sites further inland are less easy to document at this time, but DH1 is located near to the opening of Wadi Hibi, which it forms the natural passageway to cross the Al-Hajar Mountain, connecting both sides, east and west of the Mountain.

Our current stage of investigation leaves us with many questions about the role of DH1 played on a regional level. There is a strong evidence for international trade from this initial excavations and survey, but what was the role of DH1 locally? What reason is there for the large number of Indus Black-Slipped Jars and other types of Indus fabrics at this site? One hypothesis is that DH1 may have been a regional 'redistribution center' for goods traded at coastal ports and beginning their trade along coastal and inland trade routes. Perhaps this trade centered on the copper smelting that occurred at this site in abundance. DH1 is in an ideal location to receive foreign goods, produce valuable copper, and redistribute goods (perhaps copper ingots or trades Indus products) to both the coast and inland. The overabundance of wall furnace lining fragments and copper slag at the site support the notion that copper mining was a main industry for the inhabitants of DH1. Specifically in the stratified context of building S.10, the excavated furnace is also evidence of significant copper processing. Further excavation within building S.10 and other buildings at DH1 and other Dahwa sites will con-

tinue to shed light on the scope of copper processing at DH1 as well as the role this site may have played regionally and internationally.

4.8 Conclusion

Here we present the results of preliminary archaeological survey and excavation carried out at the site of DH1, south-west of the center of Wilayat Saham on the Batinah Coast of the Sultanate of Oman. DH1 is a large site that is described here for the first time. This site is important because of its location and size and because of the potentially important role this site may have played in Early Bronze Age Batinah Coast economy. Data from this site will offer information that contributes to our understanding the nature of the Umm an-Nar settlements on the Batinah Coast, as well as the entirety of the Oman Peninsula. The function of the building S.10, certainly included copper processing, but the function of the larger settlement is still being uncovered. One possibility is that this site benefited from its opportune geographic location and was 'redistribution center' for goods coming from the coast and the interior. This is supported by evidence of large scale copper smelting and an abundance of foreign ceramics and locally made imitation ware, most especially Indus Black-Slipped Jars and Indus-inspired locally produced ceramics.

The excavation results at DH1 most strongly indicate trade contact with the nearby coast and the Indus Civilization. The location of the settlement close to the traditional 3rd millennium BC inland and coastal trade routes suggest that DH1 may have held an important role in local copper production and trade with international power agents in the Early Bronze Age.

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Chapter 5: Bat and the Umm an-Nar Settlement Tradition

Jennifer Swerida

5.1 Introduction

It is by now well established that the Umm an-Nar was a period of increased social complexity that witnessed the tradition of sedentary lifestyles spread throughout on the Oman Peninsula. Yet, archaeological understanding of this early settlement tradition and the social developments that it supported have thus far been hampered by a number of factors, most notably the history of scholarship and chronological uncertainties in the region. Amid an ancient landscape populated by dramatic tombs and monumental towers, the settlement component of the Umm an-Nar archaeological record has until recently only been superficially studied. The Umm an-Nar settlement is generally thought of as a collection of rectilinear architecture closely connected to a tower monument.¹ However, due to the underdeveloped state of the scholarship, the richness and diversity of the settlement tradition and its implications for Umm an-Nar society have yet to be fully explored. Adding to the challenges faced by archaeologists of this region is the scholarly understanding of the Arabian Bronze Age chronology, which has been slower to develop than chronologies from elsewhere in the Ancient Near East.² Estimates for the Umm an-Nar period range from 2500–2000 BC to 2800–2000 BC, with no widely accepted chronological subdivisions.³ Thus, in the absence of absolute dates, studies of Umm an-Nar materials often cannot achieve a chronological specificity more exact than the 500+ year period framework. Combined, these ambiguities have so far made it difficult for archaeologists to observe broad social developments within the Umm an-Nar settlement tradition.

In situations where archaeological preservation and history of research allow, far greater chronological and interpretive precision is possible. One such case can be found at the UNESCO World Heritage Site of Bat, where the rich archaeological landscape

provides an unparalleled case study of Umm an-Nar settlement composition and development that spans the full length of the period. Recent advancements in the understanding of the site's chronology and ceramic sequence identify for the first time three broad sub-phases in its occupational history.⁴ The long-standing research of the site's Umm an-Nar contexts, in combination with this more refined chronological perspective, makes the construction of a diachronic Umm an-Nar settlement history possible. In pursuit of this goal, I here present a detailed summary of the known Umm an-Nar settlement tradition at Bat. Through this discussion, I demonstrate that such settlements were not static artifacts but continuously developing stages for an increasingly complex Umm an-Nar society. It cannot be reasonably assumed that the social and environmental conditions that shaped Bat's settlements are representative of all Umm an-Nar sites. And yet, the time-depth of Bat's uninterrupted history of occupation does allow for the site to serve as a case study in the diachronic development of Umm an-Nar settlements.

5.2 The site of Bat

Located in the western inner piedmont of the Oman Peninsula's Al-Hajar Mountains, the archaeological site of Bat is situated at the intersection of the Wadi al-Sharsah and Wadi al-Hijr (Fig. 1). This hilly region experiences a variable arid to semi-arid environment with unpredictable winter rainfall.⁵ Yet, Bat's location in the lower southern reaches of the wadi system provides the site with a seasonal water supply.⁶ Similar to other Umm an-Nar settlements, Bat is made up of many small subsidiary sites – mortuary, monumental, and domestic – dispersed across the wadi valley and

1 Magee 2014: 101.

2 Ehrich 1992.

3 Potts 1993; Thornton – Ghazal 2016: 215. At Bat, the beginning of the Umm an-Nar period is marked by the transition to stone towers and the appearance of Black-on-Red pottery (Thornton – Ghazal 2016: 193).

4 Thornton – Ghazal 2016: 179–216.

5 The mean annual rainfall in the nearby center of Ibri is 90 mm, falling between the months of December and April, and is thus well below the 200 mm minimum necessary for dry farming (Desrullés *et al.* 2016).

6 Desrullés *et al.* 2016: 43–44.

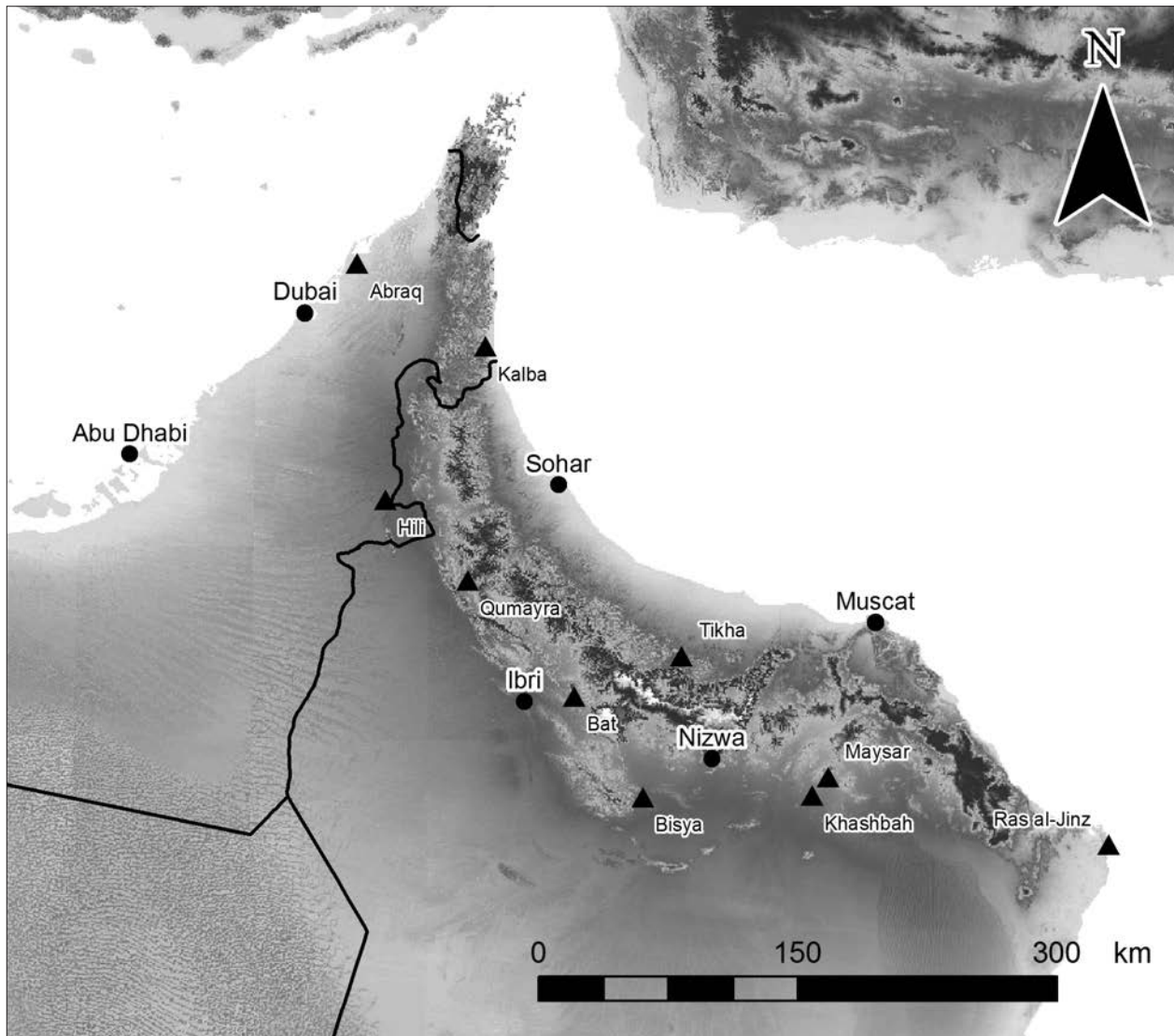


Fig. 1: Map of the Oman Peninsula showing the location of Bat and other important Umm an-Nar sites (after Thornton – Cable – Possehl 2016: 5 fig. 1.5).

its surrounding hills. When inscribed onto UNESCO's list of World Heritage Sites, Bat was celebrated for being "the most complete collection of settlements and necropolises from the 3rd millennium B.C. in the world".⁷ The site's Umm an-Nar archaeological landscape features a total of seven documented monumental towers⁸ and hundreds of tombs concentrated in the hilly northern necropolis.⁹ Evidence of Umm an-Nar domestic activity and architecture are so far known from three areas of the site: the Settlement Slope, Al-Khafaji, and the slightly more distant Al-

Khutm.¹⁰ These settlements are situated either within or immediately next to the wadi valley.

Bat was first identified as a significant archaeological landscape by Anthony Witheridge¹¹ in 1966 and again shortly thereafter by Beatrice de Cardi¹² as part of her extensive regional survey. The Danish Archaeological Mission to Oman, led by Karen Frifelt¹³, visited the site numerous times between 1973 and 1990, during which it carried out a series of exploratory surveys and excavations. Through these efforts, Frifelt identified the first evidence of residential contexts and

7 UNESCO 1988, online.

8 All of Bat's known towers have been documented and four excavated (Thornton – Cable – Possehl 2016).

9 For more on Bat's Umm an-Nar cemetery, Böhme 2012; Böhme – Al-Sabri 2011; Cable 2012; Gentelle – Frifelt 1989; Döpfer – Schmidt 2013.

10 The site of Al-Matariya will also be discussed, as it is significant for establishing the pattern of settlements on the Bat landscape.

11 An Englishman at the time a captain in the Sultan's armed forces.

12 De Cardi – Collier – Doe 1976: 146.

13 Frifelt 1976; Frifelt 1985; Frifelt 2002.

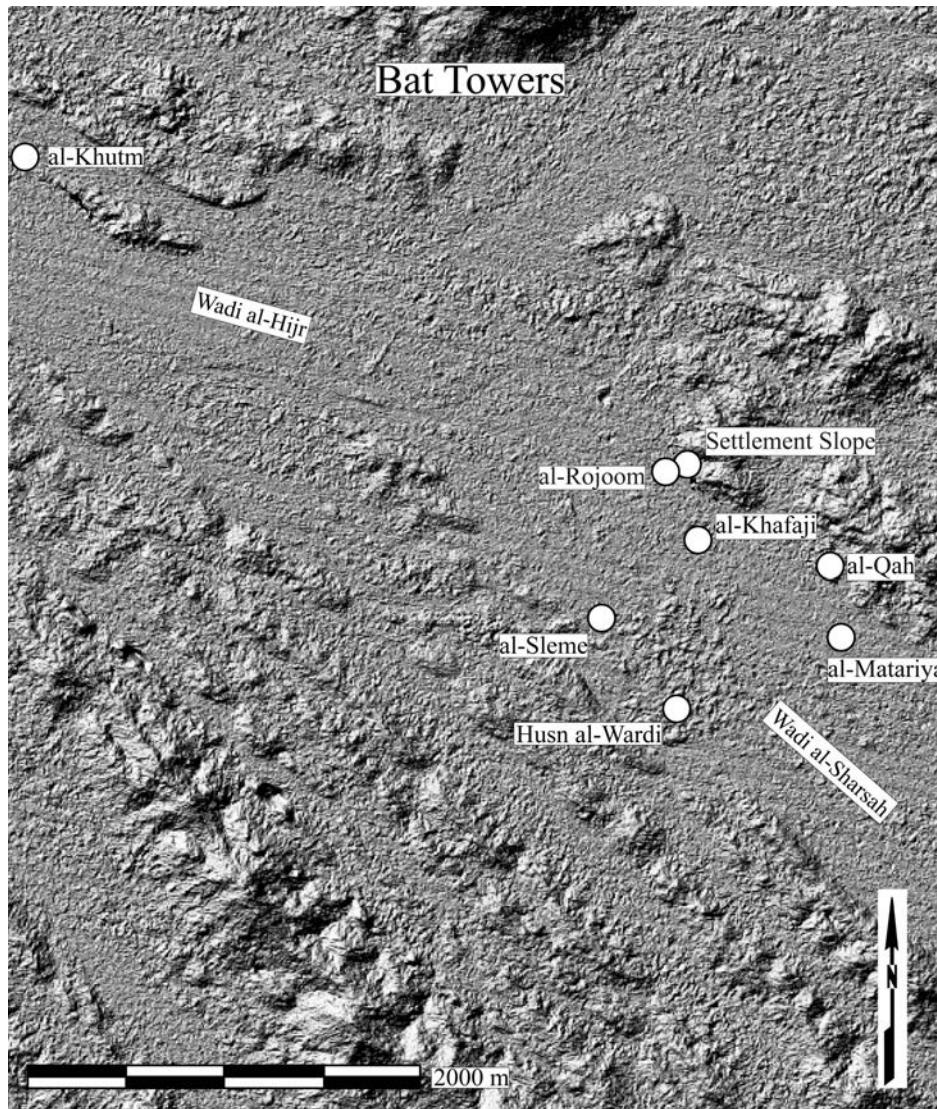


Fig. 2: Locations of Bat's settlements.

domestic materials known from Bat at the Settlement Slope.¹⁴ In recent years, archaeological research at Bat has continued under the German Mission to Oman¹⁵ and the American-led 'Bat Archaeological Project' (BAP)¹⁶. Beginning in 2012 and under the supervision of Chris Thornton and Charlotte Cable, BAP's research objective shifted from exploring the site's monumental contexts to investigating its increasing body of identified Umm an-Nar domestic remains. Excavations targeting Umm an-Nar settlements have now been carried out at Al-Khafaji and the Settlement Slope, while an intensive survey was conducted at Al-Khutm (Fig. 2).

¹⁴ Frifelt 1985: 99.

¹⁵ Böhme – Al-Sabri 2011; Döpfer – Schmidt 2013; Schmidt – Döpfer 2014.

¹⁶ Thornton – Cable – Possehl 2016.

5.3 Chronology and context

The chronology of the Umm an-Nar period is a subject of active study for archaeologists engaged with the Oman Peninsula. With sites often characterized by deflated stratigraphy and sparse ¹⁴C dates, chronological markers in the material culture are integral for reconstructing temporal contexts. As in many areas of the world, ceramics provide the most reliable and accessible source of prehistoric chronological information on the Oman Peninsula. However, due to the scarcity of stratified contexts in the region it has been almost impossible to progress beyond the broad ceramic categories of Umm an-Nar (2800–2000 BC), Wadi Suq (2000–1300 BC), and Iron Age (1300–300 BC). Such lengthy time spans reduce the effectiveness of ceramic sequences and typologies as chronological tools.

Absolute Dates (BCE)	Archaeological Period	Hili Period	Bat Period	Settlement(s) Occupied
1600	Middle Bronze Age	Period IIIb Period IIIa	Early Wadi Sûq	Settlement Slope
1700				
1800				
1900				
2000	Early Bronze Age	Period IIg Period II f	Late Umm an-Nar	Settlement Slope al-Rojoom az-Zebah
2100				
2200		Period IIe Period IID Period IIc ₂	Middle Umm an-Nar	Settlement Slope al-Rojoom al-Khafaji al-Khutm
2300				
2400				
2500		Period IIc ₁ Period IIb Period IIa	Early Umm an-Nar	Settlement Slope al-Khafaji al-Matariya*
2600				
2700				
2800				
2800		Period Ic	Late Hafit Period	al-Khafaji al-Matariya*
2900		Period Ib Period Ia	Hafit Period	Settlement Slope al-Khafaji al-Matariya*
3000				

Fig. 3: Comparative regional chronologies (after Potts 1993: 169; Cleuziou 1989; Thornton – Cable – Possehl 2016: 215 Table 9.3); * indicates tower sites without associated domestic remains.

Exceptions to this rule come from the sites of Hili and Bat, both located in the Oman Peninsula's inner piedmont zone, which provide more intact ceramic sequences. Until very recently, the most comprehensive available ceramic data came from the oasis site of Hili. The ceramic sequence from this site stretches from the beginning of the Umm an-Nar period through the end of the Wadi Suq.¹⁷ However, the usefulness of Hili's sequence for studies focusing on Umm an-Nar settlements is limited, as it is primarily based on ceramics from funerary assemblages. Filling this lacuna in our understanding of Umm an-Nar ceramics is a typology and chronology recently developed by Thornton and Ghazal¹⁸ based on pottery excavated from Bat's settlement contexts. This sub-phased sequence complements and engages with patterns first recognized at Hili. Bat's sequence expands the range of forms, wares, and decorative styles that can now be temporally and contextually linked to the Umm an-Nar period. Furthermore, the value of Thornton and Ghazal's sequence extends beyond clarifying Umm an-Nar relative chronology by firmly anchoring both

the period and its subdivisions in the Oman Peninsula's Early Bronze Age through a collection of secure ¹⁴C dates. As a result, the authors are able to recognize internal sub-phases within Bat's Umm an-Nar contexts, despite the dispersed locations of the remains and the scarcity of stratified settlements.¹⁹

Using Thornton and Ghazal's chronology, it is now possible to trace the development of Bat's settlement tradition across time and space – from the Early through the Late Umm an-Nar and at its numerous occupational sites (Fig. 3). Only through such a diachronic perspective can gradual shifts in settlement occupation, composition, and organization be observed and interpreted to reveal social change. Before proceeding, however, certain idiosyncrasies in Bat's settlement data must be recognized as potential sources of bias. First, the identification of Umm an-Nar settlements at Bat has been contingent upon either their proximity to tower monuments, where excavation of the monument has inadvertently exposed portions of the settlement, or their visibility on the modern ground surface. This leaves the significant potential for further undiscovered settlement con-

17 Cleuziou 1989; Cleuziou – Méry – Vogt 2011; Méry 2000.

18 Thornton – Ghazal 2016: 179–216.

19 Thornton – Cable – Possehl 2016: 2–4, 187–218.

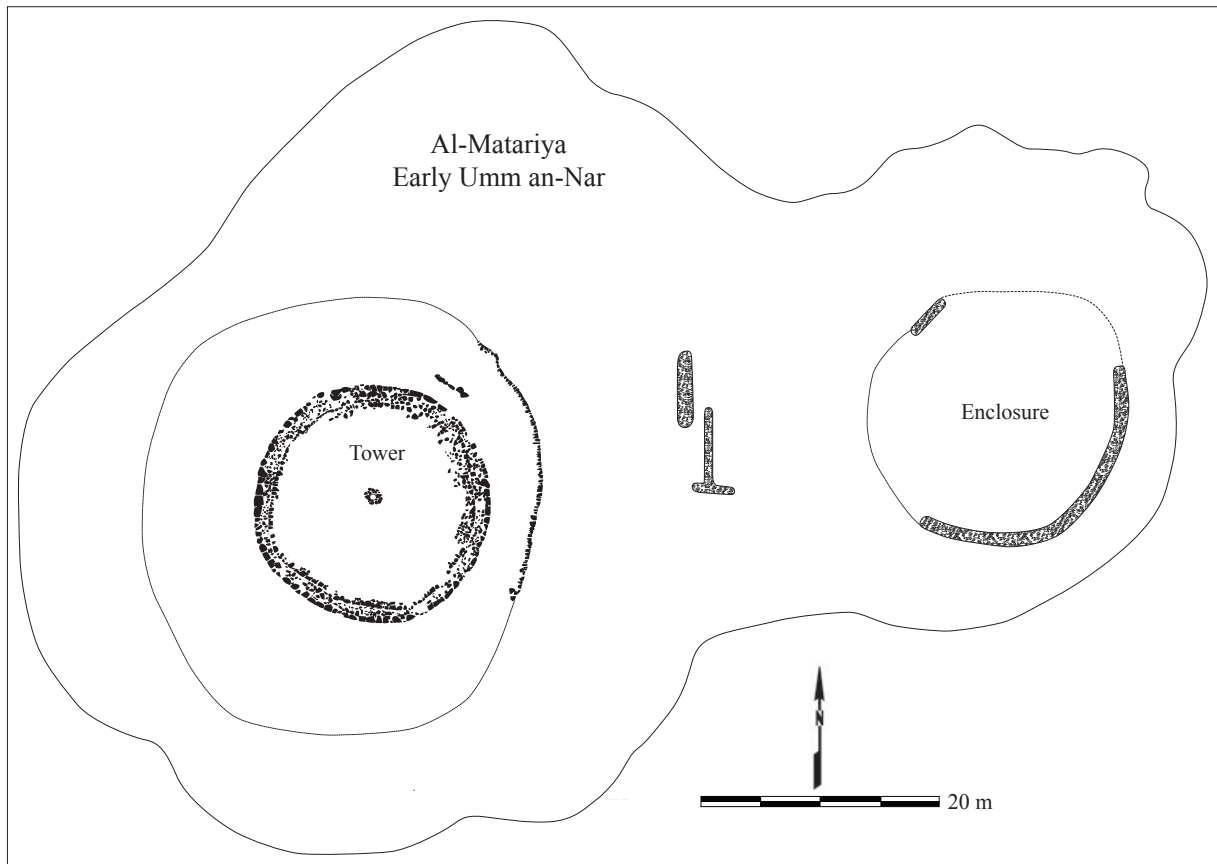


Fig. 4: Al-Matariya plan, after Frifelt 2002: 106 fig. 3.

texts to exist elsewhere on the Bat landscape. Second, the quality of preservation differs significantly between settlements. Those preserved at or just below the modern ground surface, such as Al-Khutm and much of the Settlement Slope, have suffered from the damaging effects of exposure and erosion. In contrast, those embedded in the dense clay of the wadi plain, such as Al-Khafaji and Al-Matariya, are prohibitively difficult to excavate to a desirable breadth of exposure. Therefore, when considering Bat's inter-settlement patterns it is necessary to account for the likelihood that certain information is more readily accessible at some locations than at others (i. e., broad architectural plans are available from sites preserved at surface level, while contextualized material culture is available from sites embedded in the wadi plain).

5.4 Bat's settlement landscape in chronological perspective

In order to demonstrate how Bat's settlement tradition developed over the course of the Umm an-Nar period, I here present a detailed summary of the known settlement remains from each of the site's chronolog-

ical sub-periods. Key to the discussion are the sites of Al-Matariya, Al-Khafaji, the Settlement Slope, and the slightly more distant Al-Khutm.

5.4.1 Early Umm an-Nar

Of the various phases of Bat's settlement history, the Early Umm an-Nar (2800–2500 BC) is the most difficult to reconstruct. As a whole, Bat's archaeological landscape provides only tantalizing hints of Early Umm an-Nar domestic activity. In order to grapple with this early period, it is necessary to consider the larger contexts in which the possible traces of occupation are found. Bat's settlement history therefore begins at the earliest instance of Umm an-Nar occupational activity so far identified at the site – the monumental tower of Matariya at the eastern extent of Bat's archaeological landscape. Although no contemporary rectilinear structures or evidence of domestic activity have so far been found in association with the tower, Matariya merits a brief discussion as here several trends that come to characterize Bat's settlement tradition are first established.

Matariya's tower, notable for its early date and combination of stone and mud-brick building mate-

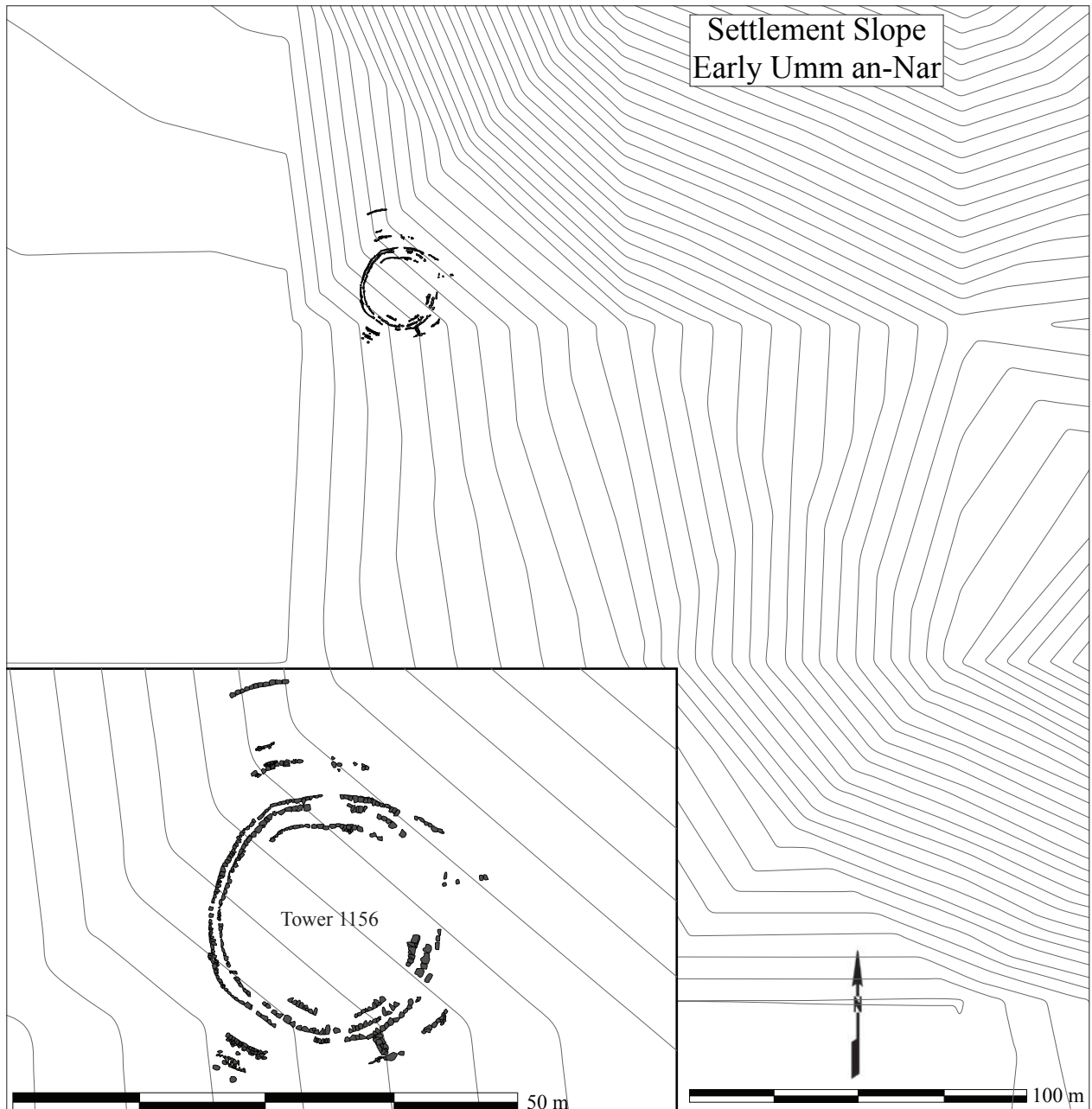


Fig. 5: Early Umm an-Nar Settlement Slope plan.

rials, is embedded in the alluvial plain of the Wadi al-Sharsah. The 20 m wide tower is founded on an artificial mound composed of mud-brick, clay, and two stone retaining walls, all of which served to elevate the monument above the surrounding landscape (Fig. 4). As recently published by Cable²⁰, the Matariya tower experienced several phases of use and construction beginning in the Late Hafit and continuing into the Early Umm an-Nar. Due to logistical constraints, Cable's excavations concentrated on the tower interior and its immediate surroundings. It is, therefore, pos-

sible (if not probable) for associated domestic remains to exist beyond the limits of excavation. Indeed, Frifelt identified evidence for food and craft production along with small-scale, fragmentary architecture dating to unspecified "later periods" just east of the tower.²¹ While these later domestic remains must be

²⁰ Cable 2016a: 49–82.

²¹ Frifelt 2002: 106. Located 37 m south-east of Matariya tower is the 'Enclosure' – a 20 m wide, circular area surrounded by a low stone wall and containing several pits with evidence of communal food production. The area between the tower and the Enclosure features three fragmentary, rectilinear stone buildings and a large oven (Frifelt 2002: 109).

treated with due caution, they may hark back to an Early Umm an-Nar predecessor.

The earliest evidence for Umm an-Nar occupation, scant though they may be, is found at the neighboring sites of the Settlement Slope and Al-Khafaji. Radiocarbon analysis indicates that the Settlement Slope narrowly predates its neighbor.²² However, in all probability, both settlements originated at approximately the same time.

The known Early Umm an-Nar occupation at the Settlement Slope concentrates at the north-western end of a long, steep, limestone ridge²³ that parallels and forms the northern edge of the Wadi al-Sharsah's drainage channel (Fig. 5). Later in the Umm an-Nar period, the entire 500 m length of the hillside comes to be covered in architectural and material culture fragments. However, in the beginning of this period, activity on the Settlement Slope first appeared on its lower north-western end. An Early Umm an-Nar monumental stone tower (Site 1156) is constructed directly onto the limestone bedrock of the hillside's low slope.²⁴ This elevated orientation on the ridge provides the tower with a natural vantage point. The first indication of occupational activity at the Settlement Slope comes from just beyond the tower in the form of metallurgical craft production. Surrounding the tower is a series of ring walls and ditches excavated by Anne Mortimer²⁵. In one such Early Umm an-Nar ditch, Mortimer uncovered a collection of five fire pits containing evidence of copper smelting.²⁶ A sixth fire pit identified at the edge of the excavated area suggests that the metallurgical production continued throughout the ditch feature. Similar small-scale installations and smelting cast-off materials are known in relation to Umm an-Nar towers elsewhere on the Oman Peninsula, such as at Hili 8²⁷, Bidiyah 2²⁸, and

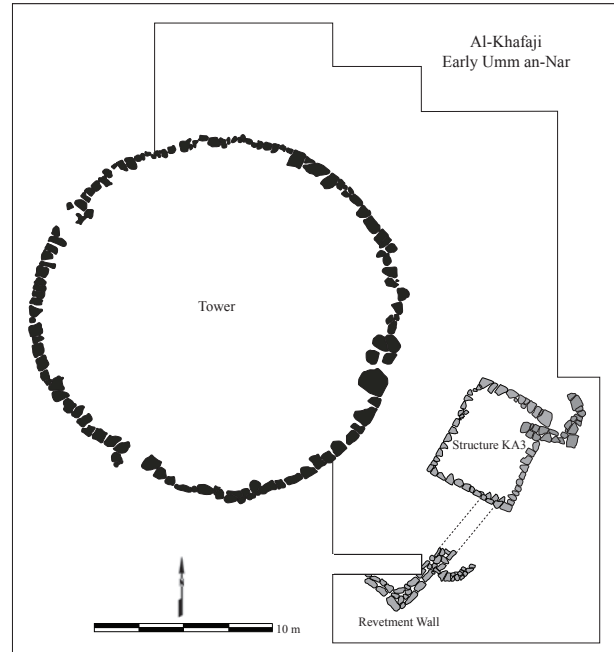


Fig. 6: Early Umm an-Nar Al-Khafaji plan



Fig. 7: Al-Khafaji platform ramp in profile, showing the platform's original height.

22 For all ¹⁴C dates, see Tab. 1 below.

23 The Settlement Slope ridge rises to 40 m above the surrounding floodplain. Archaeological remains concentrate on the hillside's lower southern half. Since the Bronze Age, significant sedimentation accumulation has occurred on the adjacent wadi plain (in places over 3 m). The Settlement Slope hillside would thus have had of far greater visual prominence during the Umm an-Nar period than it does today.

24 The slightly irregular (20 m diameter) Settlement Slope tower was not at first counted among Bat's tower monuments (Frifelt 1976: 60; Frifelt 1985: 101). Recent excavation by BAP decisively places the monument within the Umm an-Nar tower tradition (Mortimer 2016: 123–154).

25 Mortimer 2016: 123–154, 138–139. The tower is ringed by a 2–2.5 m wide inner ditch that is reinforced with internal revetment walls. A possible outer ditch is dug into the bedrock, however the poor preservation of this feature makes it difficult to determine if it was intended as a second ditch or as general leveling of this area of the site (Mortimer 2016).

26 An especially noteworthy find from one pit is a small crucible fragment with copper residue still adhering to its interior surface (Mortimer 2016: 139).

27 Cleuziou 1979: 22.

28 Al-Tikriti 1989: 107–109.

possibly Kalba 4²⁹. In these cases, much like on the Settlement Slope, no houses have yet been identified in association with the towers but the small-scale craft production suggests an occupational presence in the near vicinity. Additionally, the known scale of the metallurgical activity at the Settlement Slope is comparable to or smaller than examples from Maysar and Umm an-Nar Island, where such craft produc-

29 Eddisford – Phillips 2009: 121.

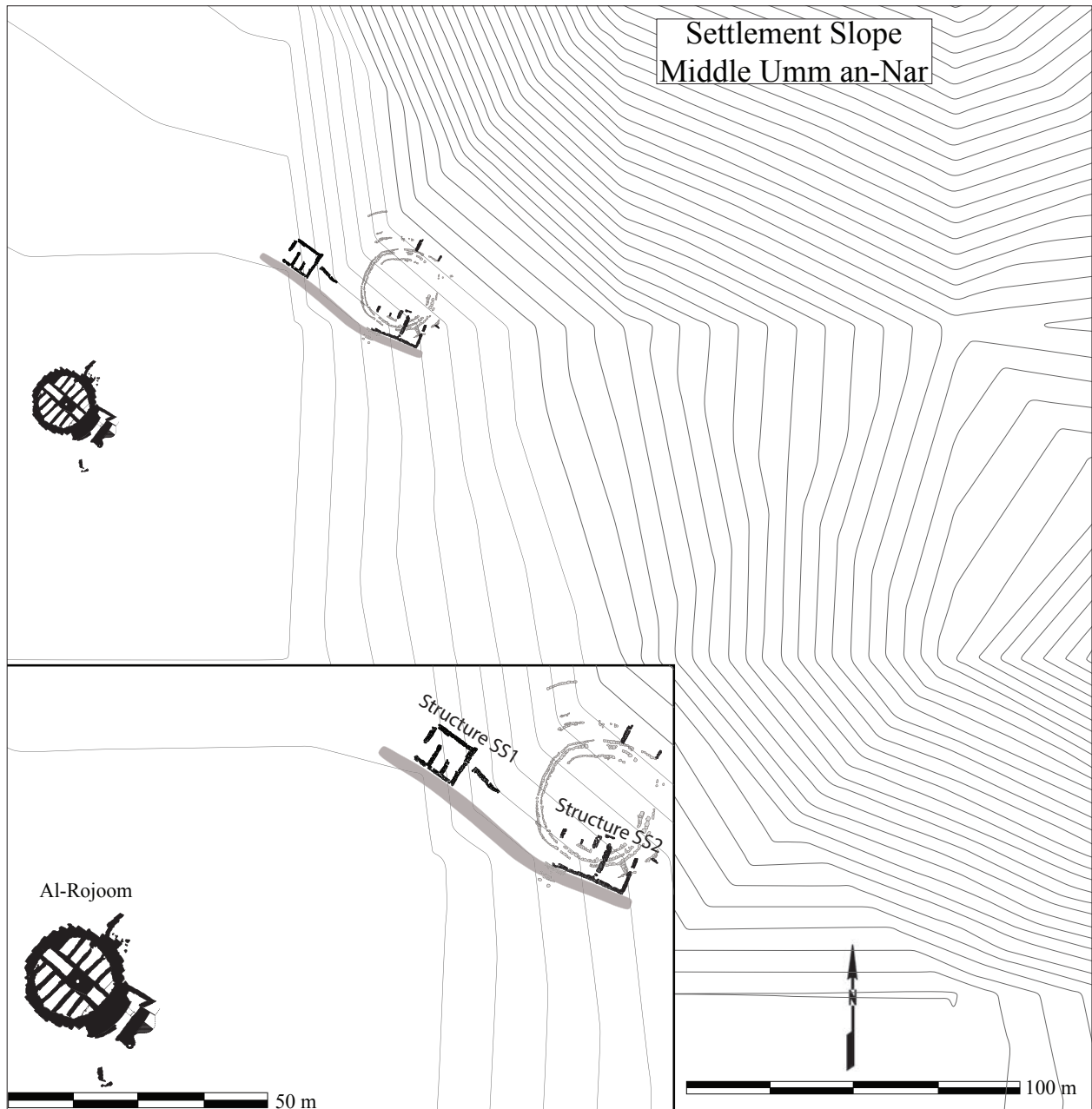


Fig. 8: Middle Umm an-Nar Settlement Slope plan.

tion was taking place within domestic buildings.³⁰ The Early Umm an-Nar metallurgical practices at the Settlement Slope thus seem to represent a small community level of production.

³⁰ Weisgerber 1980: 77–90; Weisgerber 1981: 191–196; Frifelt 1995: 92–99. The structures containing metallurgical installations and materials at both sites date to later in the Umm an-Nar period than those at the Settlement Slope – the structures at Maysar 1 date to the Late Umm an-Nar based on associated ceramic forms (Weisgerber 1980: Abb. 42, 45; Weisgerber 1981: Abb. 17), while the ‘House Complex’ at Umm an-Nar Island dates from the Early through the Middle Umm an-Nar (Frifelt 1995: 237–239).

A short 10 m downhill to the west of the Settlement Slope tower is an area of significantly flatter terrain than elsewhere on the ridge. This level ground surface and its accumulated sediment has helped to protect the underlying archaeological remains from the erosion that has damaged the rest of the slope. The surviving contexts in this north-western end of the Settlement Slope represent the longest known occupational sequence on the Bat landscape – from the Middle Neolithic through the Wadi Suq.³¹ No secure

³¹ Two sondages excavated amid the remains of later (Middle and Late) Umm an-Nar and Wadi Suq structures reached

contexts dating to the Early Umm an-Nar have been discovered in this area, yet Black-on-Red Fine Ware ceramics stylistically associated with the period have been found in areas of mixed stratigraphy. Such Early Umm an-Nar sherds occur in this area in far greater quantities than elsewhere along the slope.³² While it is possible that they have eroded downhill from the Early Umm an-Nar contexts around the tower, the density in which these sherds are found and the established long history of occupation in this area suggest the likelihood of an Early Umm an-Nar occupational presence.

The last of Bat's potential Early Umm an-Nar settlements, Al-Khafaji, is located 250 m south-west of the Settlement Slope tower. While Khafaji was founded at the same time as, or slightly later than, the Early Umm an-Nar contexts on the Settlement Slope, in this early phase the site displays more parallels with Matariya than with its nearer neighbor. Similar to Matariya, Khafaji's remains are situated in the dense clay of the wadi's alluvial plain. Although it now appears to rest on the flat wadi, the monumental Khafaji tower³³ and its surrounding structures are founded on an artificial clay mound that would have added a further 1.5 m to their height and prominence on the landscape (Fig. 6). Located south-east of the tower is a square (6.5 x 6.5 m) mud-brick platform (Structure KA3) resting on stone foundations that climb up the edge of the clay mound. Although the purpose of this monumental feature is not yet clear, it appears to have been accessed via a large, curving stone ramp that runs over its north-eastern corner and ends at the level of the platform's original surface (Fig. 7). Further to the south, a large stone 'Revetment Wall' is laid vertically into the clay material of the foundation mound. Linking this feature to the Early Umm an-Nar period is a small fire pit (¹⁴C dated to 2700–2570 cal. BC) associated with an unusual curving stone feature that abuts the wall's south-eastern face.

Yet, as at the Settlement Slope, there is little architectural or material evidence of Early Umm an-Nar domestic activity contemporary with Khafaji's monu-

ments. The only material remains thus far discovered indicative of residential occupation are a collection of Early Umm an-Nar style ceramics found loose in the soil south and west of the platform and the fire pit that dates the curving stone feature. Nevertheless, traces of Hafit period activity below the tower,³⁴ and later Umm an-Nar domestic contexts immediately surrounding the monument, support the likelihood that Early Umm an-Nar domestic contexts are yet to be discovered in the wadi silts surrounding Khafaji's tower and mound.

Now having detailed the three probable Early Umm an-Nar settlements – Al-Matariya, the Settlement Slope, and Al-Khafaji – it is possible to consider emerging patterns in Bat's early occupational history. Each of these sites features prominent tower monuments, both on the flat wadi plain and at the edge of the surrounding limestone hills. There is also fragmentary evidence of activity and material culture from areas in the general vicinity of all three tower monuments, but as of yet no Early Umm an-Nar domestic architecture has been identified at any of Bat's settlement sites. While the reasons behind this are necessarily conjectural, I tentatively suggest some potential scenarios. One possibility is that the occupational styles of the Early Umm an-Nar population at Bat were such that they would leave only the slightest trace in the archaeological record (i. e., temporary encampments or structures built of ephemeral materials). Or, alternatively, the Early Umm an-Nar settlements were not situated as close to the tower monuments as archaeologists expect them to have been. The highest concentration of non-mortuary Early Umm an-Nar pottery so far found at Bat comes from the north-western end of the Settlement Slope – at a distance of some 10–30 m from the tower. This may suggest that to find the Early Umm an-Nar settlements at each site, whatever its composition, it may be necessary to look further afield than the areas immediately surrounding monumental towers.

5.4.2 Middle Umm an-Nar

During the Middle Umm an-Nar (2500–2200 BC), Bat's occupational pattern becomes more visible on the archaeological landscape in the form of rectilinear architecture and the sparse remains of domestic-style activity. Returning first to the Settlement Slope, there is a short hiatus in activity in the area of the tower during the Early to Middle Umm an-Nar transition. When activity resumes in the Middle Umm an-Nar, the earlier tower no longer functions as the centerpiece of the settlement. Instead, the monument is leveled, its surrounding ditches filled in with rubble, and the now flat area is used as a foundation for a section

unexpectedly early occupational levels. In the first sondage, an ash lens running below a Middle Umm an-Nar structure was found containing copper prills and charcoal dating to the Hafit period, while in the second a living surface with a fire pit dating to the Neolithic was uncovered almost a meter below the level of the Umm an-Nar occupation.

32 Early Umm an-Nar pottery is rare, especially in settlement contexts. Finds are restricted to the fine Black-on-Red wares and sort-necked jars often associated with funerary contexts (Thornton – Ghazal 2016: 193–194).

33 The 20–22 m wide tower is constructed of rough-hewn limestone blocks. Based on his excavation of the monument, Thornton suggests the tower was first constructed in the Early Umm an-Nar and its interior walls were subsequently added in the Middle Umm an-Nar (Thornton 2016: 46).

34 For a detailed discussion of the Hafit period materials below Khafaji tower, see Thornton 2016: 25–48.



Fig. 9: Settlement Slope tower and Kasr al-Rojoom in background to the south-west.

of the new phase of settlement.³⁵ Although the reasons behind the Early Umm an-Nar tower's abandonment are unclear, the rectilinear Middle Umm an-Nar building(s) constructed on top of it reinforce the supposed conceptual link between such monuments and residential settlements (Fig. 8).

Partially resting on the Settlement Slope's former tower are the foundations of one or more rectilinear buildings, Structure SS2 and several disarticulated wall fragments. Although the Middle Umm an-Nar architecture in this area of the site is too fragmentary to ascertain a coherent settlement plan, the relatively intact Structure SS2 provides some insight. This Middle Umm an-Nar building and its neighboring wall fragments are the first instances of the dry-stone architectural style that comes to characterize Bat's settlement architecture for the remainder of the Umm an-Nar period. The stone walls, or wall foundations, are composed of two rows of dove-tailed local limestone and measure between 50 and 80 cm in width. The interlocked dove-tail pattern creates a double-faced wall without any apparent mortar binding the stones together. With one notable exception in Structure SS2,³⁶ Bat's rectilinear architecture consists only of two to three courses of stone that likely served as foundations for a more ephemeral superstructure that has not survived, such as mud-brick, palm fronds, or a combination of the two. A clear rectangular (c. 15 x 8 m) floor plan can be discerned for Structure SS2, especially in its well-preserved south-eastern half

where it sprawls over the underlying tower's southern edge. Within this frame are the fragmentary remains of three north-south walls that divide its interior space into 1.5–3 m wide units. Unfortunately, little material culture or evidence of activity was recovered from the building's interior that could indicate its function. Such materials were likely removed or destroyed by the later Wadi Suq construction of a large rubble platform across the entire area once occupied by the Early Umm an-Nar tower and its surrounding features.³⁷

Roughly 20 m north-west of and downhill from Structure SS2 are the more intact remains of the Middle Umm an-Nar Structure SS1 and a small collection of surrounding fire pits and living surfaces. The architectural layout of Structure SS1 (c. 9 x 7 m) is reminiscent of the larger Structure SS2, with two (rather than three) north-south dividing walls creating a series of narrow (1.5–2.5 m wide) interior rooms. A beaten clay surface located in the building's north-western corner features a small hearth that may represent the first *in situ* evidence of domestic activity so far identified at the site. To the east of Structure SS1, a second clay surface was identified level with the building foundations. Also associated with this level was a thick accumulation of ash containing several domestic sherds and oven fragments, indicating that the surface may represent an exterior activity area for the Structure SS1 occupants. Finally, a scattered collection of fire pits and evidence of small-scale copper smelting in the open area to the north-east of the building are radiocarbon dated to the Middle Umm an-Nar. The presence of small-scale craft production and domestic-type remains within and surrounding Structure SS1, limited though they may be, supports the interpretation of this building as a Middle Umm an-Nar house. These finds also suggest that in the Middle Umm an-Nar period there was a continuation of the metallurgical practices noted in the Settlement Slope's Early Umm an-Nar occupation. The close proximity of the metallurgical and domestic activities in this area of the Settlement Slope both reinforces our previous supposition that the Early Umm an-Nar copper working near the tower was associated with a nearby settlement and links the Settlement Slope's Middle Umm an-Nar occupation to other settlements, such as Maysar and Umm an-Nar Island,³⁸ where metallurgical activities appear to have been carried out within or just outside of domestic houses.

35 For a full discussion of the Settlement Slope tower, see Mortimer 2016: 123–154.

36 The southern wall of Structure SS2 is preserved to five stone courses in height. This unusually high foundation likely reflects the builders' attempt to compensate for the irregular topography of the Settlement Slope – the wall steps up the uneven hillside to create an level foundation for the building's southern end (Mortimer 2016: 142).

37 Mortimer 2016: 142–146.

38 As noted above, the Maysar 1 structures date to the Late Umm an-Nar (Weisgerber 1980: Abb. 42, 45; Weisgerber 1981: Abb. 17) and thus cannot be directly paralleled to the Middle Umm an-Nar community on the Settlement Slope. The Middle Umm an-Nar 'House Complex' at Umm an-Nar Island, in contrast, is temporally comparable to the Settlement Slope but differs significantly in geographic situation (Frifelt 1995).

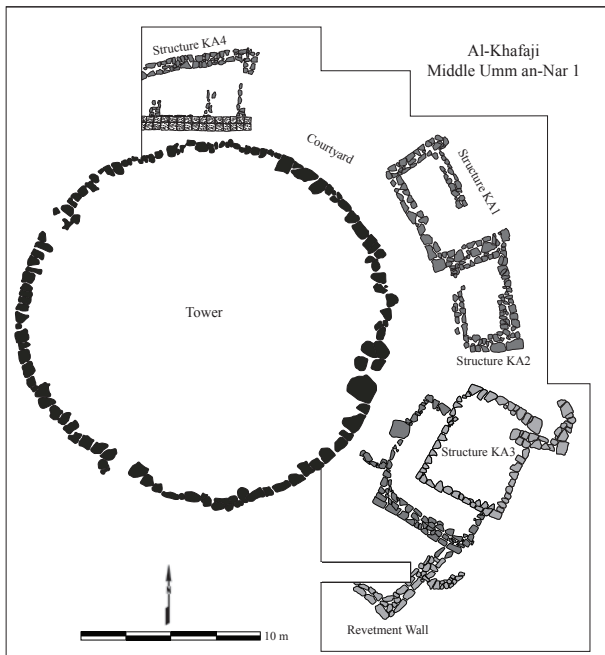


Fig. 10: Middle Umm an-Nar 1 Al-Khafaji Plan.

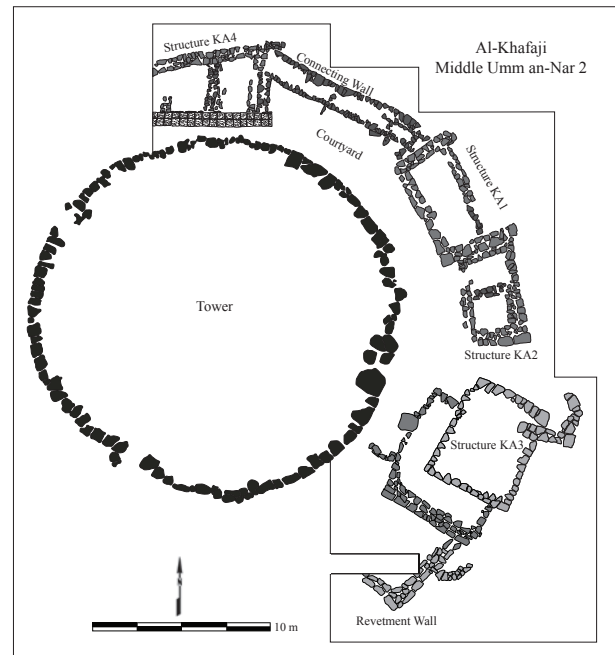


Fig. 11: Middle Umm an-Nar 2 Al-Khafaji plan.

Two additional features must also be discussed in order to fully illustrate the Settlement Slope's Middle Umm an-Nar spatial organization: a gravel street connecting the settlement's two clear buildings and a newly constructed tower monument just across the Wadi al-Sharsah's drainage channel. The street is a 2+ m wide, flattened linear feature, composed of packed stone and gravel, which runs along the southern face of both Structure SS1 in the north-west and Structure SS2 on the Settlement Slope tower platform. This street feature skirts the hillside's southern edge and connects the flat north-western area to the steeper and more difficult to access stretches of the Settlement Slope to the east. The presence of the street in the site's Middle Umm an-Nar phase indicates that occupation on the Settlement Slope during this period was already centrally organized along this feature and likely extended further to the east than has so far been possible to excavate.

Across the wadi channel, the Middle Umm an-Nar also featured the construction of a new monumental tower visually linked to the Settlement Slope (Fig. 9). This monument, Kasr al-Rojoom, is situated on a prominence directly across the wadi channel from the Settlement Slope's original Early Umm an-Nar tower. Rojoom is a far more elaborate structure than any of its predecessors on the Bat landscape.³⁹ It features a

dramatically crenelated exterior wall and stands at a recently restored height of 3+ m.⁴⁰ A small collection of rectilinear wall fragments, hearths, and surfaces were excavated by Frifelt⁴¹ in the area east of the tower, indicating the presence of a small occupation around the monument.⁴² However, Rojoom's scale and location suggest that the new tower was visually, if not physically, connected to the Middle Umm an-Nar occupation on the Settlement Slope hillside.

Returning to Khafaji, the site's Middle Umm an-Nar phase witnesses the appearance of several rectilinear buildings bordering the tower (Fig. 10 and Fig. 11). Three such structures have so far been excavated – one immediately to the north of the tower and two to the monument's north-east. All three are built on the same clay foundation mound as the tower and feature multiple phases of use and structural alteration.⁴³ The northernmost Structure KA4 has a com-

the Middle Umm an-Nar through the Wadi Suq (Cable 2016b; Frifelt 1976; Frifelt 1985).

⁴⁰ Based on the quantity of the tower's surrounding rock fall, Frifelt proposed that the tower originally reached a height of 5–6 m (Frifelt 1985: 98).

⁴¹ Frifelt 1985: 96.

⁴² Rojoom's chronology relies on a combination of radiocarbon and relative dates. ¹⁴C samples from a hearth within the tower, beneath its interior walls, and from two hearths outside the tower date to the Umm an-Nar. However, the date ranges from these samples are too wide to provide much specificity (Frifelt 1989: 104). The Middle Umm an-Nar date proposed here falls easily within the ¹⁴C ranges and corresponds with the stylistically identifiable ceramics found at Rojoom (Frifelt 1989: 97, fig. 5).

⁴³ For a more detailed discussion of Khafaji's settlement architectural and occupational phases, see the forthcoming

³⁹ Rojoom was excavated by Frifelt 1975–1978 and was further studied by BAP. The tower measures 20 m in diameter and is constructed of roughly hewn, limestone blocks averaging 50 x 50 x 50 cm. Finds associated with the tower and its surroundings suggest a prolonged use, stretching from

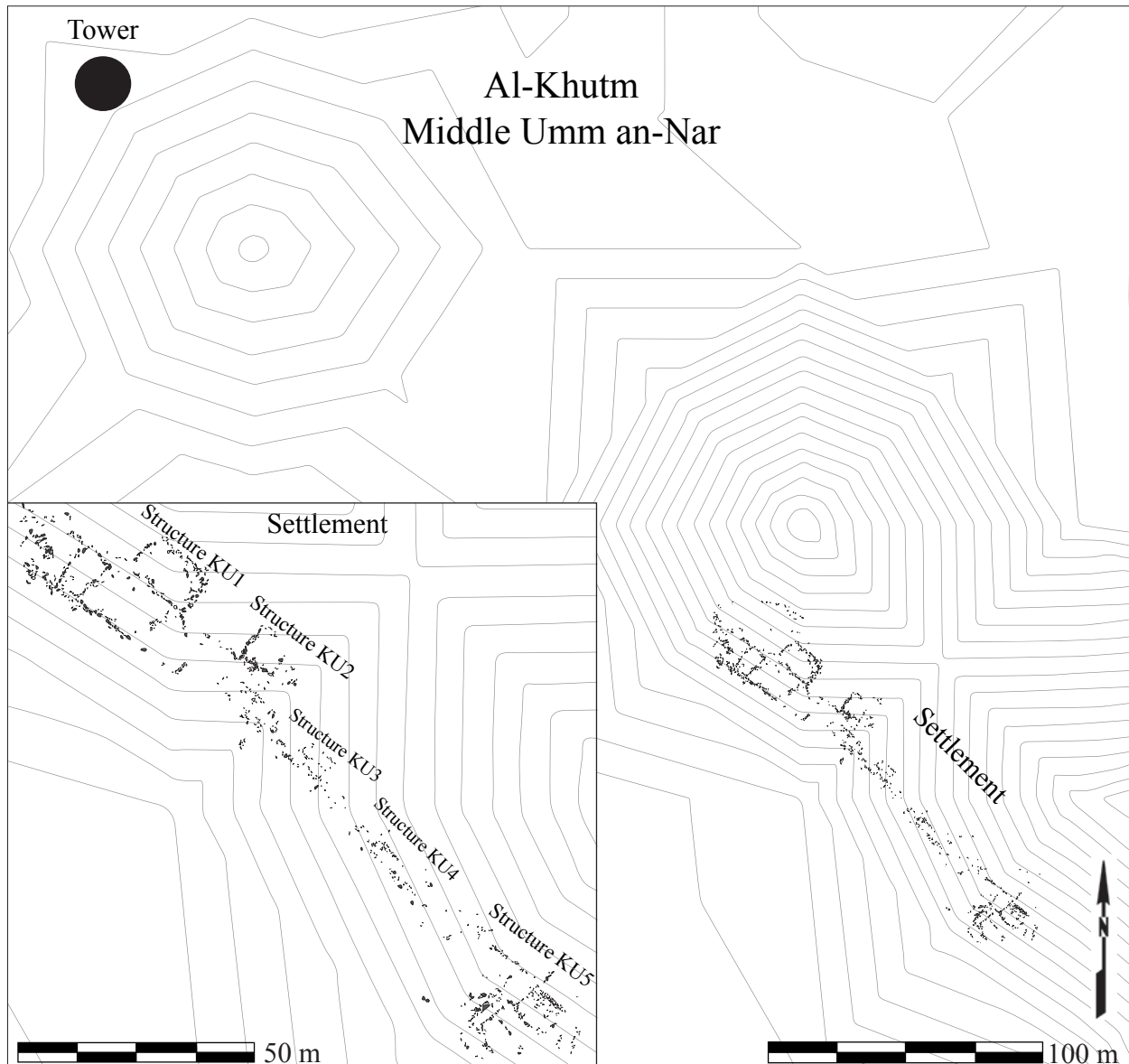


Fig. 12: Al-Khutm site plan.

plicated history, with at least three structural phases, and an irregular floor plan. The composition of Structure KA4's earliest phase, represented by its exterior northern and southern walls, is of particular interest. The thickness of these walls (at 60–70 cm wide), and the dove-tailed limestone blocks that form their double-faced foundations, matches that of the contemporary rectilinear architecture at the Settlement Slope. Resting atop the southern wall foundations is a mud-brick superstructure, two bricks in width and in places five courses high. The poor preservation of these bricks raises the likely possibility that many of Bat's buildings with similar stone foundations also originally featured such mud-brick superstructures. Moving within Structure KA4's small (*c.* 2 m wide)

rooms, we find clay floors, two small hearths (one in each exposed room), and a small collection of Black-on-Red and Domestic Ware Middle Umm an-Nar pottery. While direct evidence for domestic activity in this building is scarce, its many similarities with the structures on the Settlement Slope place them within the same functional category.

A short distance to the south-east of Structure KA4 are Khafaji's abutting Structures KA1 and KA2. The architectural composition of the northern Structure KA1 has more in common with that of Structure KA4 – featuring the same style 70 cm wide, dove-tailed, stone wall foundations – than with the irregular, coarsely assembled walls of Structure KA2. Both Structures KA1 and KA2 demonstrate multiple interrelated phases in their construction histories, but contained no datable features or artifacts. The

dissertation by the author (Swerida forthcoming).

narrow courtyard space between these buildings and the tower, however, contained just the opposite. Two superimposed, clay surfaces were uncovered in this space separated by a 40 cm thick layer of grey-brown, loamy sediment. The earlier of the two surfaces was level with the first phase of Structure KA1 and KA2's foundations and the latter with the reconstruction of Structure KA1's northern half. Each clay surface was associated with a hearth containing ample charcoal, samples from which provide tight Middle Umm an-Nar radiocarbon dates for the northern complex. The trash layer between the surfaces included a rich collection of Middle Umm an-Nar domestic and imported pottery⁴⁴ and grinding stones, suggesting that it likely represents the accumulated rubbish of food production and other domestic activity associated with Khafaji's surrounding structures.

Serving to further define the utilitarian outdoor space between Structures KA1, KA2, KA4, and the Khafaji tower is the unusual 'Connecting Wall.' This 1.8 m wide, linear feature is composed of two outer rows of stone, faced on the exterior to the north-east and south-west, and an inner core of packed clay and stone rubble. No trace of a superstructure was recovered. The Connecting Wall stretches between the northern end of Structure KA1 and the eastern end of Structure KA4, enclosing the Courtyard space where the domestic activity and rubbish accumulation were already taking place. The date when the Connecting Wall was added to Khafaji's northern building complex is thus far uncertain, but may correspond with the Courtyard's second clay surface. The wall's integrated structural relationship with Structure KA4 also suggests that it was added while this northernmost building was still in use. In terms of construction style, the Connecting Wall differs significantly from anything yet encountered in Bat's assorted settlements, regardless of the period. The addition of the large-scale Connecting Wall at some point during Khafaji's Middle Umm an-Nar occupation can be read as indicating a gradual building up of and increasing of privacy for the area around the tower.

South of Khafaji's Structure KA2, the Early Umm an-Nar square platform (Structure KA3) is expanded with an L-shaped extension that adds a further 3 m of surface area to its southern and western ends. At the same time, the northern extent of the Revetment Wall is cut to make room for the enlarged platform and a patch of only two stones is used to bridge the remaining gap between the two features. Moving off of the artificial mound, a clay surface runs up against the

south-western face of the revetment wall at a depth of over a meter below the level of the tower foundations. The surface features a hearth, ¹⁴C dated to 2470–2310 cal. BC, and an activity area with a high concentration of utilitarian pottery. Although no trace of architecture has yet been found in relation to this small patch of apparent domestic activity, it does support the tentative hope that further settlement contexts are yet to be found beyond the limits of excavation and at greater distances from the tower. Taken as a whole, the settlement at Khafaji reflects a concentration of domestic structures and activity wrapping around the north-eastern end of the tower and a more ephemeral activity zone south of and below the monumental contexts.

The third of Bat's three Middle Umm an-Nar settlements, the site of Al-Khutm, is located 3 km to the north-west of Khafaji. Here the Wadi al-Sharsah joins the larger Wadi al-Hijr and opens onto a wide flood plain that is subdivided by a series of jagged limestone ridges. Khutm is situated on the lower slopes of one such ridge and can be broken into two distinct zones of Umm an-Nar activity: a monumental tower located at the north-western end of the bedrock ridge-line and a sprawling array of rectilinear architecture spread across the ridge's southern face (Fig. 12). Here there are several points of comparison with the Umm an-Nar settlement organization at Khafaji and especially the Settlement Slope. While the date of Khutm's tower is uncertain, the monument is comparable to the Settlement Slope's Early Umm an-Nar tower both in terms of its construction style and situation on the landscape.⁴⁵ Each tower is composed of large, local limestone blocks without mortar and both are founded on the raw bedrock of the hill slope, using the location's natural elevation as a vantage point. However, in stark contrast to all other known settlements on the Bat landscape, there is no direct line of sight between Khutm's tower and its settlement on the far side of the ridge.

In Khutm's settlement zone, the site's rectilinear architecture is spread across a 175 m stretch of hillside, approximately 300 m south-east of the tower, which looks out over a flat expanse of wadi plain to the south.⁴⁶ It has not yet been possible to excavate the settlement contexts at Khutm, but the results of an intensive survey and surface collection provide an architectural plan and a tentative date of the site to the Middle Umm an-Nar.⁴⁷ Khutm's settlement is

44 Imported ceramics include several sherds of Black-Slipped Jars and Red-on-Buff vessels from the Mature Harappan culture of the Indus Valley and a single example of a Black-on-Grey canister sherd from south-eastern Iran (Thornton 2016: 37).

45 The Khutm tower was excavated in 2009–2010 by a team from the Omani Ministry of Heritage and Culture, and then again by an Italian team in 2015–2016. The monument measures 20 m in diameter and is encircled by a stone ring wall (Cable 2016b: 170).

46 Al-Khutm's settlement was discovered by Cable during her 2011 survey of the greater Bat region (Cable 2012: 325).

47 The Khutm hill rises 20 m above the surrounding terrain and has a gradient of 30 degrees at its summit that tapers

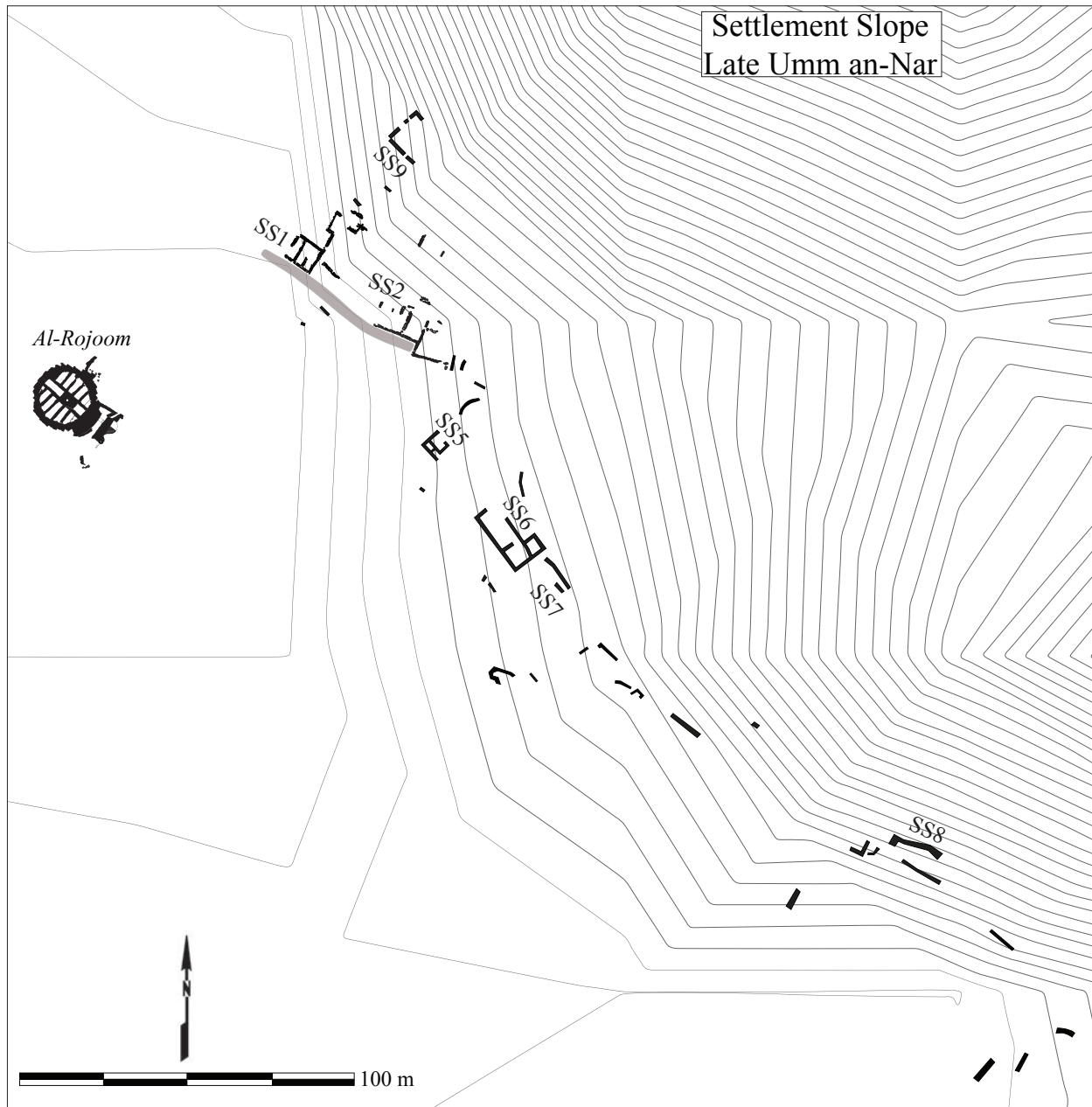


Fig. 13: Late Umm an-Nar Settlement Slope plan.

characterized by a sprawling, linear chain of buildings just visible at surface level on the lower reaches of the slope that run parallel to the hillside. Most notable are two large building complexes that are apparent at the north-western and south-eastern ends of the settlement. The north-western Structure KU1 is defined by four large, abutting, rectangular spaces that may represent walled courtyards or independent but agglomerative buildings whose internal subdivisions are

not visible. This trend towards agglomeration is even more evident in Structure KU5 at the south-eastern end of the settlement. The Structure KU5 complex consists of two well-defined rectangular spaces, each with its own internal subdivisions that continue the pattern of 1.5–3 m wide rooms first seen at the Settlement Slope. Three further rooms with slightly differing alignments about the building's north-western and south-western ends and are likely later additions to the complex. Between these two large structures are at least three smaller and less structurally defined buildings (Structures KU2, KU3, and KU4), just visible from the surface.

to a gentler 5–10 degrees where it meets the plain. The systematic survey was carried out between 2014 and 2015. The architectural plan documents 100 % of the gridded area, while the surface collection sampled 50 %.

Although Al-Khutm is somewhat removed from the heart of Bat, the site features many of the same traits found in the Middle Umm an-Nar occupations at the Settlement Slope and Al-Khafaji. Taken as a whole, Khutm's settlement is especially reminiscent of the Settlement Slope's contemporary occupation through its orientation and organization on the hillside, its exposed state of preservation, and the distant location of its tower monument. The finer details of Khutm's material culture, including the construction of its buildings and the assemblage of ceramics collected from its ground surface, are also stylistically comparable to those found at both Khafaji and the Settlement Slope.⁴⁸ The settlement at Khutm can thus reasonably be considered a part of Bat's wider Middle Umm an-Nar community.

In summary, Bat's Middle Umm an-Nar occupation demonstrates both the diversity of settlement and monument form and that the two site types do not necessarily occur in as close proximity as is commonly assumed. Al-Khafaji clearly features a monumental tower quintessentially located in the center of a cluster of rectilinear architecture and evidence of domestic activity. However, this picture is complicated when the issue of how 'domestic' the rectilinear structures likely were is considered. The scale of the buildings and their elevated position on the clay mound, immediately next to the tower, raise unanswered questions of how representative these structures might be of the average Umm an-Nar house and what other social functions they may have served. Khafaji can be contrasted with the configurations of the Settlement Slope and Khutm. At the Settlement Slope, the Middle Umm an-Nar community appears to be linked to the dramatic Kasr al-Rojoom monument across the wadi channel. Rather than simply surrounding the Rojoom tower, the Settlement Slope's domestic architecture sprawls in a linear fashion along the hillside. This orientation results in only the north-westernmost buildings having a clear visual connection with the Rojoom monument. The Settlement Slope features rectilinear buildings of various size, but there is little evidence to decisively identify them as domestic in function. Rather, the most distinctive finds once again relate to small scale copper processing, continuing the trend established at the site in the Early Umm an-Nar period. As the Middle Umm an-Nar occupation spread eastward along the Settlement Slope's hillside, the Rojoom tower became visually and physically more distant, while Khafaji's tower across the wadi grew closer and more visually prominent – blurring the conceptual lines between the two settlements.

Finally, the agglomerative Khutm settlement has no visual connection to its associated tower monument. The distant location of Khutm's tower raises questions of the social and spatial relationships between these structural types. Taken together, the three sites (Al-Khafaji, the Settlement Slope, and Al-Khutm) challenge the social and spatial relationships between Umm an-Nar settlements and tower monuments as well as demonstrate the diversity that can be found in the period's settlement tradition even within a small region such as the Bat landscape.

5.4.3 Late Umm an-Nar

As the Middle Umm an-Nar period comes to an end, Bat's settlement pattern shifts once more. The towers and rectilinear structures at Al-Khafaji and Al-Khutm gradually fall out of use, although the presence of a small number of Late Umm an-Nar sherds in the Khutm surface collection suggests that its community did, to some degree, continue into the later 3rd millennium. The clearest evidence for Late Umm an-Nar (2200–2000 BC) occupation at Bat comes from the Settlement Slope (Fig. 13). During this phase, fragments of rectilinear architecture associated with Late Umm an-Nar style pottery are found across the length of the hillside. While the social function played by Umm an-Nar towers remains uncertain, it can reasonably be assumed that the neighboring Kasr al-Rojoom continued to perform this role for the expanded community at the Settlement Slope. The monumentality and aesthetic elaborations of Rojoom taken in concurrence with the apparent scale of occupation on the Settlement Slope (the largest so far seen at Bat) imply that in the Late Umm an-Nar this area developed into the center of social activity on the Bat landscape.

Returning to the north-western end of the Settlement Slope, the Late Umm an-Nar witnesses the earlier Structures SS1 and SS2 expand and the space between them begin to fill in. A later Wadi Suq re-use of Structure SS1 and leveling of the area around Structure SS2 has obscured much of the evidence of their Late Umm an-Nar occupation. Nevertheless, some Late Umm an-Nar style ceramics found within and near to both buildings suggest their continued use in this period. A collection of copper prills and completed tools from Structure SS1, although of uncertain date, also indicate the continued importance of metallurgical craft production in this area of the settlement. To the north-east of Structure SS1, a series of wall fragments from a possible contemporary structure follow similar orientations and construction patterns. However, while a mixture of Middle and Late Umm an-Nar sherds was found in and among these wall fragments, it has not yet been possible to reconstruct a coherent building plan for this area of the settlement.

⁴⁸ A subset of the Khutm ceramic collection suggests that the site was also home to a later Iron Age occupation. However, these sherds may have eroded from a collection of Iron Age tombs on the hillside.

The remaining 200 m Settlement Slope hillside to the east of Structure SS2 has not yet been excavated⁴⁹ and is therefore only tentatively dated. Similar to Al-Khutm's settlement, the rocky ground surface on this slope is littered with traces of rectilinear stone architecture and Middle to Late Umm an-Nar pottery eroding down the hillside.⁵⁰ In two instances (Structures SS5 and SS6), wall fragments visible on the modern ground surface provide rough structural floor plans broadly comparable to those of Structures SS1 and SS2 to the west. When first studied by Frifelt, she interpreted Structures SS5 and SS6 as houses built on platform foundations that step up the hillside in order to create more usable living space.⁵¹ While there is little material culture from secure contexts to support or refute her interpretation, the Umm an-Nar ceramics and grinding stones that litter the surface of the slope do suggest that substantial domestic activity took place on the Settlement Slope hillside.

As the Late Umm an-Nar period comes to a close, the majority of occupation on the Settlement Slope – especially that on the steep south-eastern hillside – fades out. A small Wadi Suq community takes up residence at the north-western end of the slope, but this minor occupation is only a shadow of its Umm an-Nar predecessors.⁵²

The Late Umm an-Nar settlement pattern at Bat is thus characterized by a reduction in the number of settlements linked to tower monuments and the growth of a single, large community on the Settlement Slope. This centralization of settlement structures is made more conspicuous by its association with Kasr al-Rojoom, the most elaborate of Bat's numerous towers. However, this is not to suggest that all of Bat's Late Umm an-Nar population resided on the Settlement Slope. As Nasser Al-Jahwari and Derek Kennet found in the Wadi Andam, and as demonstrated by Bat's near neighbor Al-Zebah,⁵³ it is quite possible that other Umm an-Nar settlements exist on the Bat landscape without tower monuments to mark their locations. If such a pattern does exist, it may indicate an increasing differentiation in Bat's Late Umm an-Nar settlement landscape. Instead of supporting multiple settlements significant enough to feature their own tower monu-

ments (as seen in the Middle Umm an-Nar), during the Late Umm an-Nar only the largest center (the Settlement Slope) merited a tower monument. Smaller, 'un-towered' settlements may exist but are less visible and thus less likely to be identified by archaeologists.

5.5 Discussion and conclusions

This more refined picture of Bat's Umm an-Nar occupation, made possible by Thornton and Ghazal's⁵⁴ chronology, brings to light subtle changes in development of the site's settlement tradition over the course of the period.⁵⁵ Through such a diachronic perspective, it is apparent that Bat's settlement history is one of gradual growth and shifting nodes of activity, rather than of a single large settlement. The Early Umm an-Nar period witnesses the establishment of monumental towers both in the low hills (at the Settlement Slope) and on the wadi plain (at Al-Matariya and Al-Khafaji). While nothing that can reasonably be interpreted as an Early Umm an-Nar house has yet been uncovered, trace evidence of domestic activity in the general vicinity of these early towers supports the idea that a settlement or residential area must be located nearby. The Middle Umm an-Nar at Bat featured a diversification of settlement organization and movement away from a direct tower/settlement correlation. The closest relationship between domestic and monumental contexts is found at Al-Khafaji, where a dense concentration of rectilinear architecture and domestic activity is located immediately outside the tower. At the Settlement Slope and Al-Khutm, in contrast, the Middle Umm an-Nar residential activity takes place at some distance from and, in the case of Khutm, out of sight of the tower monuments. Yet, the Middle Umm an-Nar architectural styles and material culture remain consistent across Bat's landscape, suggesting little variation in lifestyle or identity despite the differences in settlement organization. Finally, in the Late Umm an-Nar there is a concentration of Bat's identified settlement contexts into one large community on the Settlement Slope, while the settlements at Khafaji and Khutm fall out of use. The elaborate Kasr al-Rojoom monument, located just across the wadi channel from the Settlement Slope, emphasizes the significance of this community to Bat's Umm an-Nar landscape.

These observations have the potential to inform both how Umm an-Nar settlements are identified elsewhere on the Oman Peninsula and how such settlements are used to understand the development of Umm an-Nar society. Rather than static entities,

49 Excepting a test trench that Frifelt excavated through the largest visible structure on the hill (site 1155; SS6). Frifelt concluded that the building's interior contexts were heavily damaged by erosion and did not explore the area further (Frifelt 1985: 99).

50 For examples of Middle and Late Umm an-Nar ceramics found on the Settlement Slope hillside, see Thornton – Ghazal 2016: fig. 9.6, especially sherds A, C, & K.

51 Frifelt 1985: 99.

52 A chronological sequence of the Umm an-Nar and Wadi Suq architecture in the north-western Settlement Slope has recently been compiled by Alexander Kerr in his unpublished master's thesis from Durham University (Kerr 2016).

53 Al-Jahwari – Kennet 2010; Schmidt – Döpfer 2014.

54 Thornton – Ghazal 2016.

55 It should be noted that even within Bat's Umm an-Nar sub-periods there is ample room for chronological improvement.

Umm an-Nar settlements and the forms they take reflect the society who built them. As the scale and organization of Bat's Umm an-Nar settlements matured over time, so too did the scale and complexity of its society. It may be that the diachronic settlement pattern at Bat is indicating the gradual development of an Umm an-Nar settlement and social hierarchy. As the Early Umm an-Nar period opens, the tower monuments represent fixed points of occupation or social activity, but not necessarily the locations of fully formed settlements. By the Middle Umm an-Nar, this pattern solidifies with both monuments and permanent settlements established on the landscape. The locations of the settlements are often linked to tower monuments but are not entirely dependent upon them – as seen at Khutm and the Middle Umm an-Nar occupation at the Settlement Slope. Finally, in the Late Umm an-Nar the most dramatic of Bat's towers, Kasr al-Rojoom, is connected with the largest and longest-lived settlement on the ancient land-

scape at the Settlement Slope. While it is possible, if not probable, that in all of these periods settlement was also taking place on areas of the Bat landscape without tower monuments to mark their location, the site's history of scholarship has so far limited available knowledge to those directly linked to towers.

Finally, it must be noted that this diachronic description and interpretation is based on only the sample of Bat's archaeological materials that BAP has discovered. In all likelihood, further settlements are yet to be uncovered at Bat, especially in the largely unexplored southern half of the landscape. For example, the contexts around the massive Kasr al-Sleme and the Umm an-Nar tower located beneath the 16th century AD Husn al-Wardi in Bat's modern date palm grove and mud-brick village have yet to be examined. Discovery of additional settlements in this promising area or elsewhere could easily re-write the scholarly understanding of Bat's settlement landscape once again.

Sample Number	Bat Context	Site	Period	Conventional Radiocarbon Age	Calibrated Date (BETA) (2-sigma cal. BC)	Calib. Rev. 6.0.1 (2-sigma)
D-AMS 6425	Hearth in Sondage	Settlement Slope	Neolithic	5919 +/- 27 BP	Unavailable	4850–4720 (100%)
D-AMS 6423	Fire pit beneath Middle Umm an-Nar wall	Settlement Slope	Hafit	4424 +/- 25 BP	Unavailable	3285–3235 (6%) 3115–2935 (94%)
D-AMS 6427	Fire pit level with curving stone feature, abutting Revetment Wall	Khafaji	Early Umm an-Nar	4093 +/- 24 BP	Unavailable	2850–2805 (14%) 2745–2705 (4%) 2700–2570 (82%)
Beta 316675	Fire pit in inner tower ditch	Settlement Slope	Early Umm an-Nar	4080 +/- BP	2850 to 2500	2850–2810 (10%) 2750–1550 (84%) 2540–2500 (6%)
Beta 316680	Fire pit in inner tower ditch	Settlement Slope	Early Umm an-Nar	4130 +/- 30 BP	2900 to 2670	2900–2835 (37%) 2835–2670 (63%)
D-AMS 6424	Fire pit east of Structure SS1	Settlement Slope	Middle Umm an-Nar	3916 +/- 29 BP	Unavailable	2480–2270 (100%)
Beta 316663	Fire pit in Courtyard	Khafaji	Middle Umm an-Nar	3900 +/- 40 BP	2480 to 2240	2480–2270 (99%)
Beta 316664	Fire pit in Courtyard	Khafaji	Middle Umm an-Nar	3904 +/- 40 BP	2460 to 2200	2460–2200 (100%)
D-AMS 6426	Fire pit associated with surface running against Revetment Wall	Khafaji	Middle Umm an-Nar	3904 +/- 26 BP	Unavailable	2470–2310 (100%)
K-2797	Hearth beneath tower	Rojoom	(Middle?) Umm an-Nar	3980 +/- 80 BP	2570 BC (reported Median)	2700–2220 (96%)
K-3207	Hearth outside of tower	Rojoom	(Middle?) Umm an-Nar	3860 +/- 115 BP	2400 BC (reported Median)	2625–1970 (100%)
K-3208	Hearth outside of tower	Rojoom	(Middle?) Umm an-Nar	2900 +/- 85 BP	2455 BC (reported Median)	2600–2130 (100%)
D-AMS 6421	Ash from burned layer on floor of Structure SS3	Settlement Slope	Wadi Suq	3421 +/- 31 BP	Unavailable	1865–1825 (5%) 1795–1635 (95%)

Tab. 1: ¹⁴C Appendix.

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Chapter 6: The Umm an-Nar Settlement of Al-Zebah

Conrad Schmidt

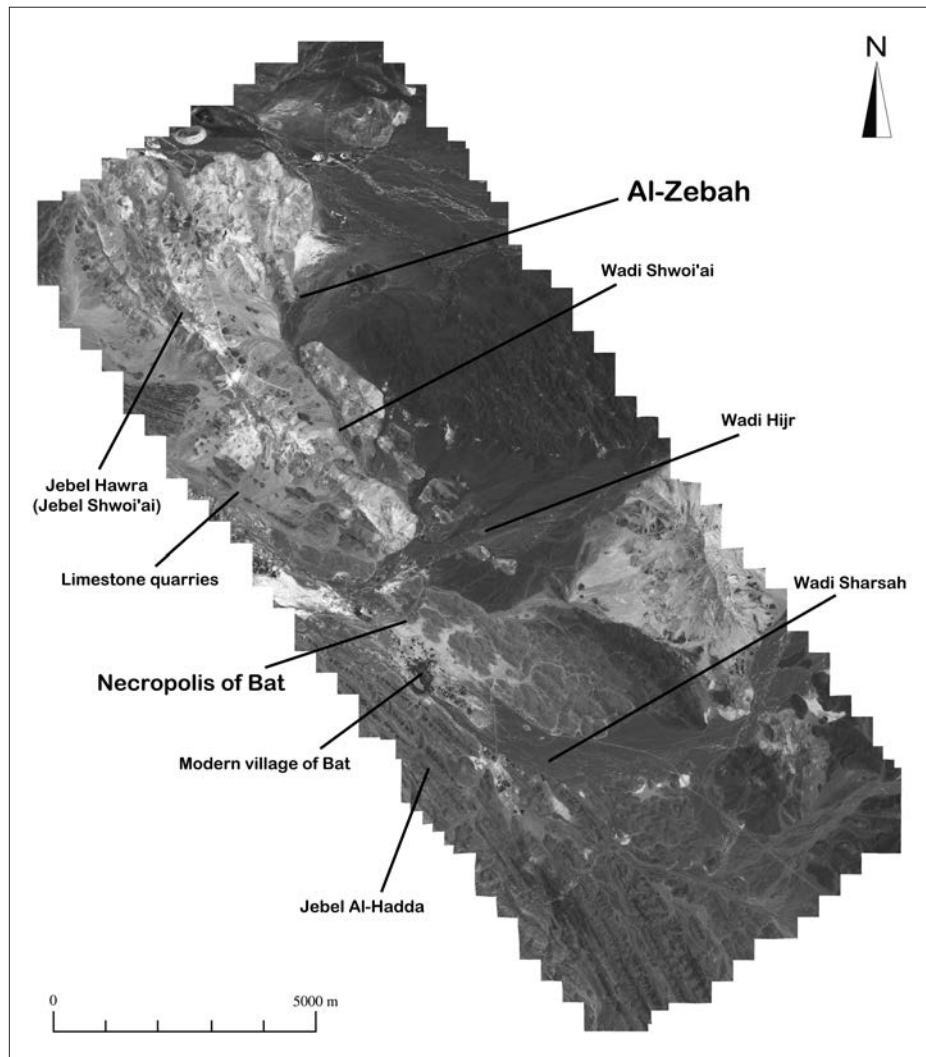


Fig. 1: Georeferenced high-resolution satellite image of the Bat area.

6.1 Introduction

The site of Al-Zebah is located 7 km to the north-west of Bat in the governorate of Al-Dhahirah. Both sites are connected by the Wadi Shwoi'ai, which joins the Wadi al-Hijr and the Wadi al-Sharsah not far to the west of Bat (Fig. 1). The landscape around Al-Zebah is characterised by sporadic acacia vegetation, limestone hills of the Jebel Hawra, and the Wadi Shwoi'ai, which

floods the northern edges of the site after heavy rains. There is clear evidence for the remains of stone-walls inside the wadi, which once belonged to the settlement (Fig. 2). On the opposite side of the wadi there are remains of a large building, called Husn Qarri by the locals, which has a preserved series of retaining walls enclosing a natural limestone cone (Fig. 3,

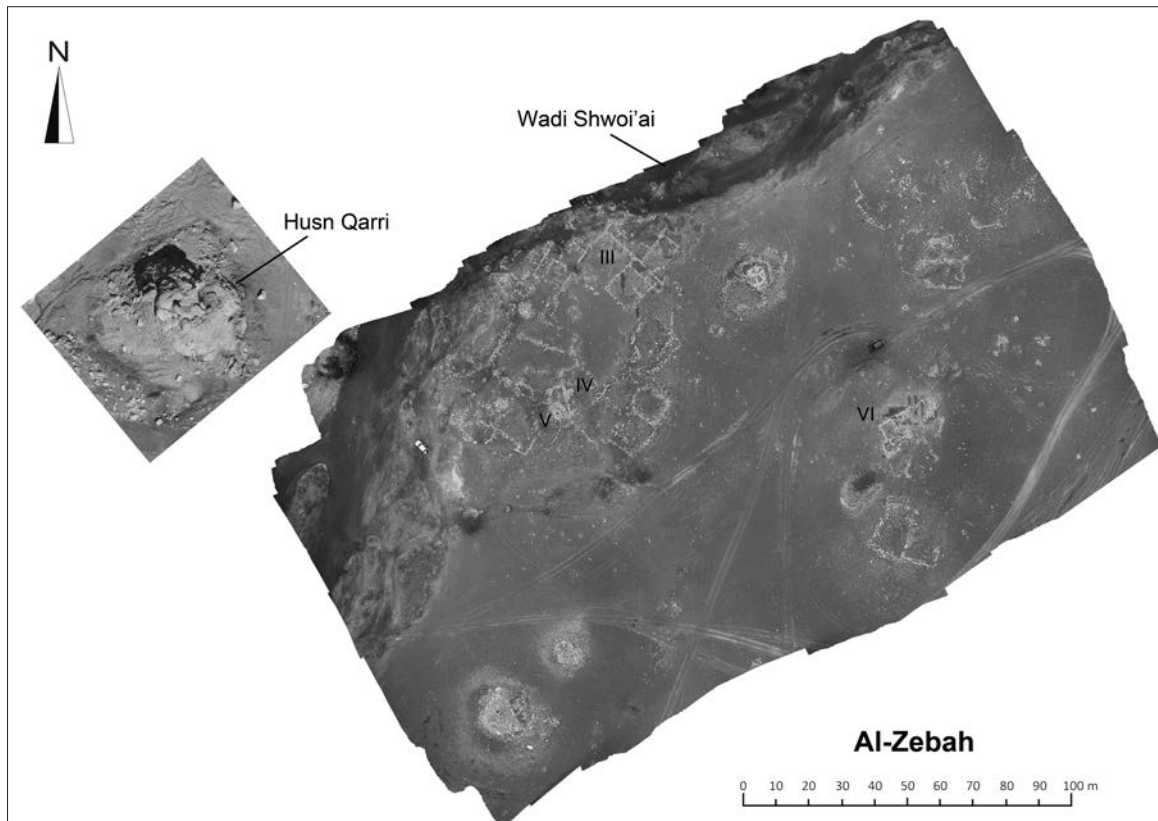


Fig. 2: Ortho-photo of the settlement of Al-Zebah and Husn Qarri in the west.



Fig. 3: The settlement of Al-Zebah with the Wadi Shwoi'ai in the fore- and the surrounding plain in the background (left), and the probable Umm an-Nar tower Husn Qarri (right).

right).¹ It could be an Umm an-Nar period tower, but this is difficult to judge due to its poor preservation.²

Al-Zebah became first known to the excavator during a visit in 2007 together with Gerd Weisgerber, who at that time directed the research and restoration of the tombs in Bat.³ One year before, in 2006, Gerd Weisgerber and Sultan Al-Bakri from the Ministry of

Heritage and Culture came to visit Al-Zebah. They reported in particular on its Umm an-Nar pottery lying all over the surface, and consequentially dated the site to the 3rd millennium BC. This clearly contradicts the statements expressed by Pierre Gentelle and Karen Frifelt in their article of 1989, in which they identified the structures here as modern and the result of an rearrangement of stones, which come from former Umm an-Nar tombs at the same spot.⁴

1 ArchaeOman 2017a, online.

2 Döpfer this volume.

3 Weisgerber – Böhme – Heckes 2007.

4 Gentelle – Frifelt 1989: 124.

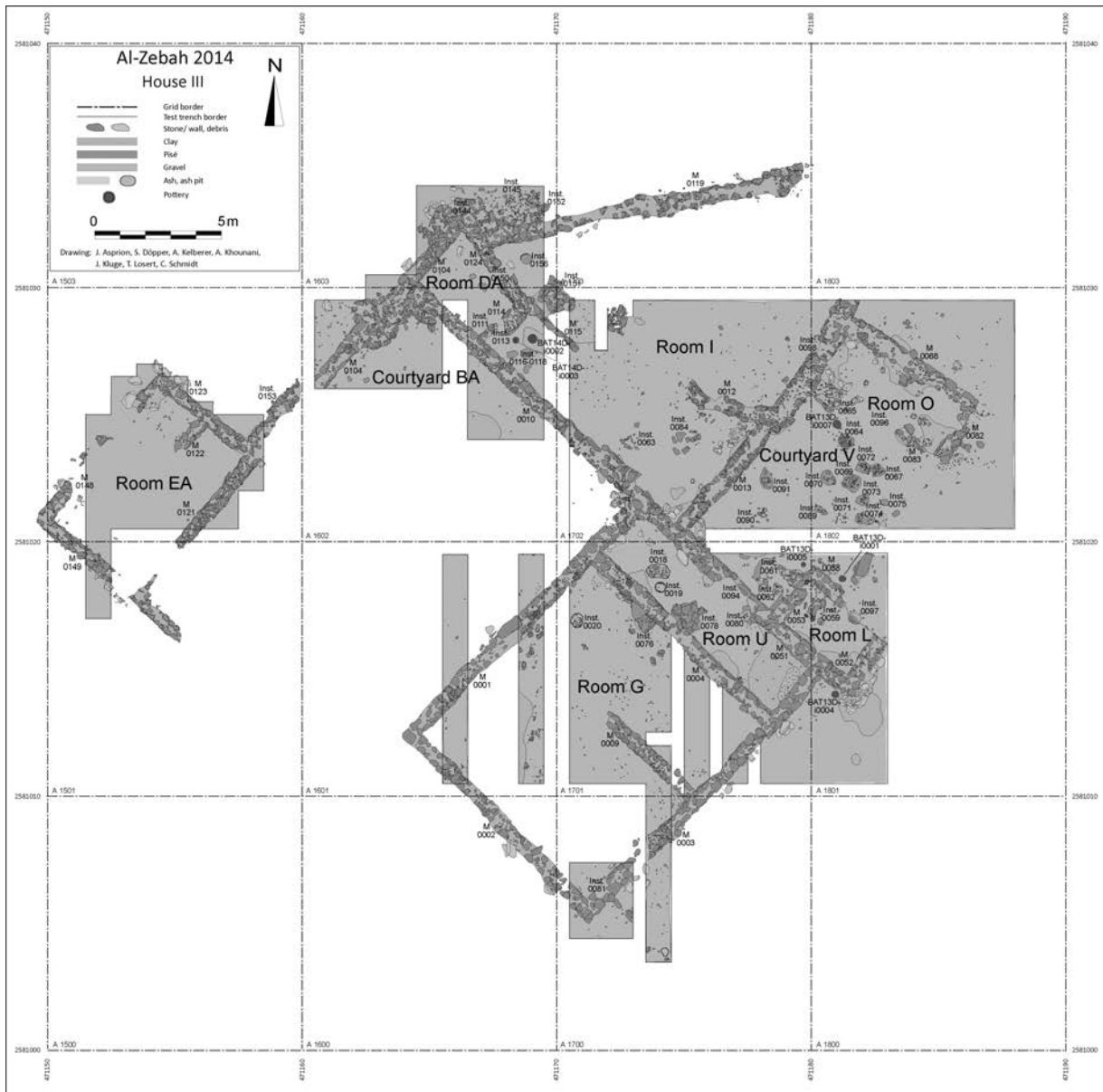


Fig. 4: Plan of House III.

6.2 Architecture and finds

The site of Al-Zebah is dominated by two main building types, rectangular enclosures and circular structures (Fig. 2 and Fig. 3, left). They are scattered around an area of approximately 150 x 200 m in a rather loose arrangement. Al-Zebah features not a single Umm an-Nar tomb and has only one Hafit tomb north of the site; this starkly contrasts the necropolis of Bat with its dozens of Umm an-Nar and hundreds of Hafit tombs. The presence of a probable Umm an-Nar period tower has been noted above.

Al-Zebah was investigated in the course of the German Expedition to Bat and Al-Ayn directed by the author, which took place between the years of



Fig. 5: House III with rooms G, U, L, and courtyard V visible from left to right; rooms I and DA in the background.



Fig. 6: House III with courtyard V and Room O seen from north-east.



Fig. 7: House III, with a hearth and large entrance of Room L looking north-east.

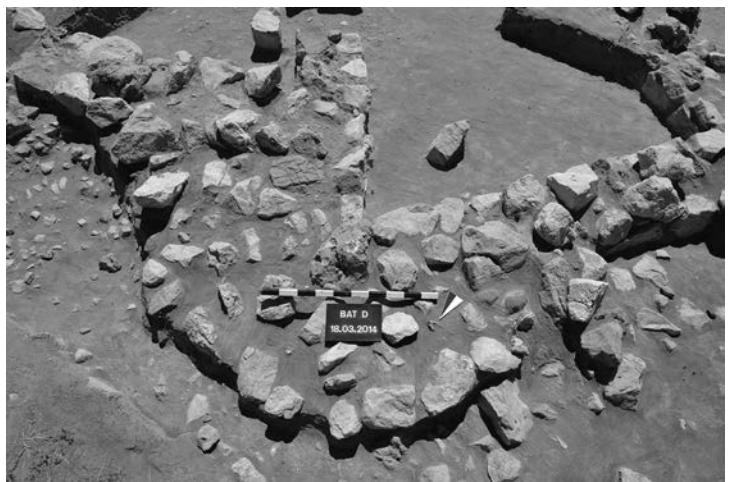


Fig. 8: Room I in House III with stone glacis (left) and semi-circular retaining wall (right).

2010 and 2015.⁵ Three seasons of excavation have been carried out here: four weeks in 2012, eight weeks in 2013, and six weeks in 2014. Additionally, aerial photographs were taken in 2014 and 2016 with a drone and used to create an ortho-photo (Fig. 2). Further, in 2015 a magnetometer survey was conducted (Fig. 24). The aim of the project was to investigate some of the rectangular enclosures and one particular circular structure in order to identify their function, their chronology, how they were used, and by whom. Three house-complexes were chosen for excavation, House III in the north, House IV and Building V in the west, and House VI in the east of the settlement (Fig. 2).

In the northern house-complex, **House III**, the focus in the first year of excavation lay on Room G, a

large, square room in the south of the building (Fig. 4 and Fig. 5). It measures 8.9x9.30 m and has a partly blocked entrance close to the southern corner. The excavated part of the room contained one fireplace made of palm-sized stones and pottery lying on the floor directly beside the fireplace. The most characteristic architectural feature of Room G is an interior wall, which runs from the middle of the eastern wall to the centre of the room. The structure of the walls is characteristic for all excavated rectangular buildings in Al-Zebah. The walls are double-faced and made of undressed, white limestone. They are on average 60 cm wide, often consist of two layers of stone, and are preserved to about 45 to 50 cm in height. In most cases, their upper edges reach only a few centimetres above the modern ground level. They rest on the natural gravel, which functions as the rooms' floor. In antiquity, the walls were freestanding, and after Al-Zebah was abandoned the space between them was filled by windblown earth. There are no signs

⁵ Döpper – Schmidt 2013: 38–48; Döpper – Schmidt 2014: 69–78; Schmidt 2016; Schmidt 2018; Schmidt – Döpper 2014; ArchaeOman 2017b, online.

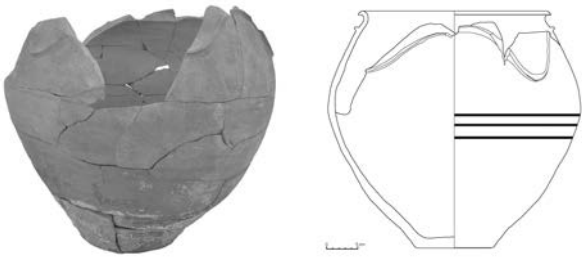


Fig. 9: Restored pottery jar from Room DA in House III.

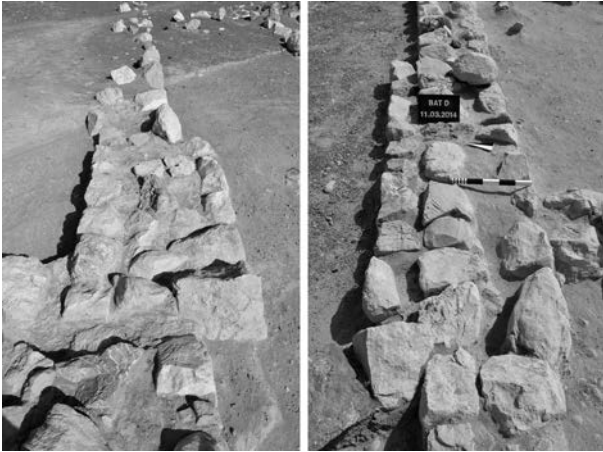


Fig. 10: Two similar exterior wall extensions: north-eastern wall of House III (left) and northern wall of House VI (right).

of collapsed stones, mud-brick or mud-brick debris in the fillings of the rooms whatsoever. This demonstrates that these walls are completely preserved and were never built any higher.

Adjacent to Room G is the narrow Room U (Fig. 4 and Fig. 5). This room has the same width as Room G, but its length is only 2.20 m. Both rooms G and U are not connected by a door. Instead, two ramps run along their common wall. Two fireplaces have been found inside Room U. Both feature a circle of red burned clay and are filled with ashes and palm-sized stones. This type of fireplace also exists in House VI (see below). There is a large opening in the north-eastern wall, which is blocked by one row of stones. It originally connected Room L with the Courtyard V. The latter measures 6.00 x 8.50 m and is mainly characterised by 13 simple fireplaces (Fig. 6). None of these fireplaces contained an outer ring of red burned clay. Instead, they are filled with ashes and palm-sized stones like their counterparts in Room U. Courtyard V opens only to a south-eastern direction, and features two small, almost identical rooms, which face each other and were added at a time when the courtyard was already existing (Fig. 6 and Fig. 7). Their close spatial relationship might also be expressed by



Fig. 11: Room DA in House III.

the activities that took place in the courtyard and inside both rooms. The layout of both of these small rooms differs enormously from that of Room G and Room U for instance. Room L is only 1.80 x 3.20 m, and Room O is only slightly bigger. Further, their openings are much wider than the entrance of Room G, so their function as proper doorways can be excluded. In addition, Room L features a hearth made of neatly placed stones, which form a shallow pit (Fig. 7). In contrast to the many fireplaces located in the adjacent courtyard, this hearth contained no ashes. Among the stones of the hearth are two grinding stone fragments. Another feature that makes Room L special, is the presence of three half-complete pottery jars found *in situ*. All three jars are placed outside the room and are sunken into the ground. West of the Courtyard V and Room O lies another large room, Room I, which is accessible by a doorway in the western wall of Room O. The triangular Room I was presumably originally square in shape, before its layout was changed by the installation of a new wall, which runs diagonally between the eastern and the western corner of the room (Fig. 4). The reason for this drastic modification of the layout of the room can be seen in the destruction of the northern part of the room as a result of heavy flooding of the wadi while the settlement was still in use. The new northern wall of Room I was further strengthened with a stone glacis, which follows the edge of the wadi, and with a semi-circular retaining wall close to the north-western corner (Fig. 8). At the same time Room DA was built, which only measures 3.4 by minimum 1.80 and maximum 2.30 m (Fig. 4; Fig. 11). It is similar in many ways with Room L. Room DA is accessible through two entrances, one in the north-eastern and one in the south-eastern wall. A fireplace was found close to the north-eastern entrance, which is marked

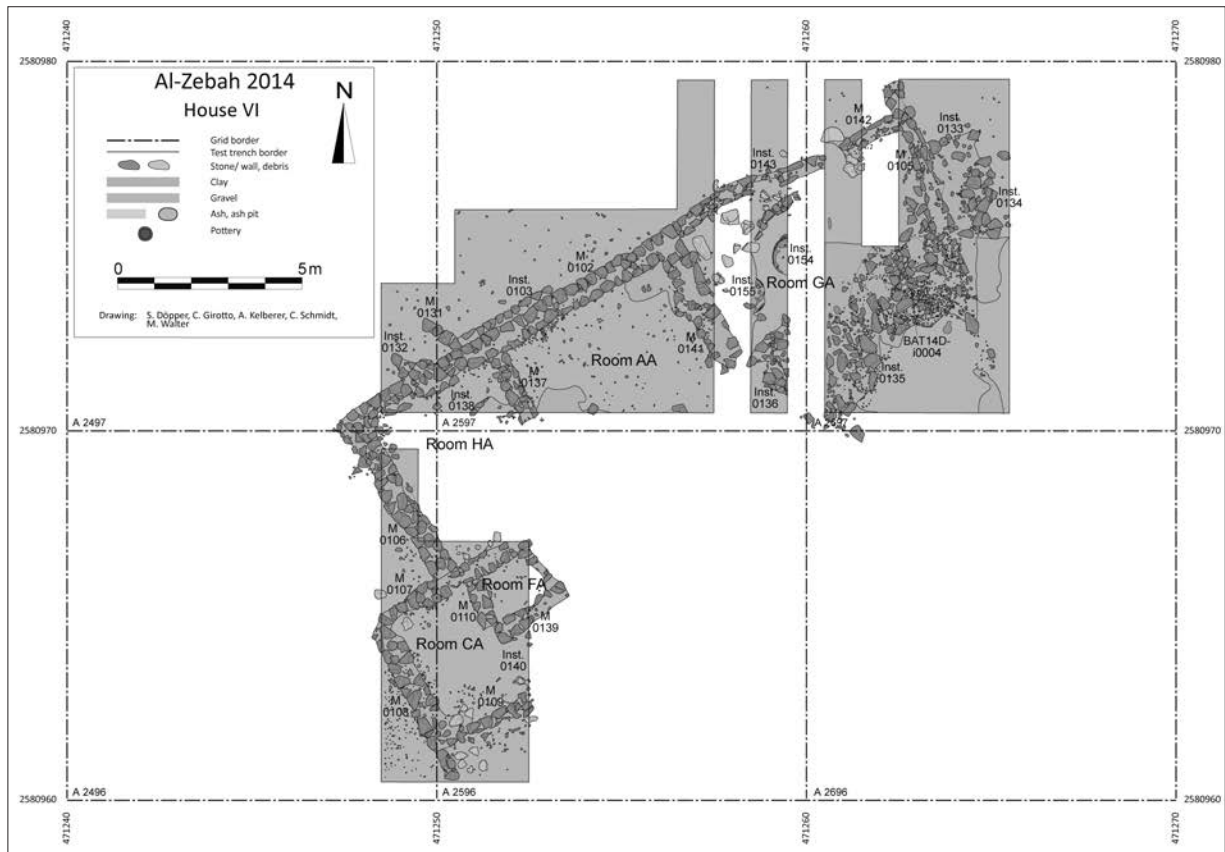


Fig. 12: Plan of House VI.



Fig. 13: House VI seen from west, with Room AA in the foreground.

by a red circle of burned clay, similar to the two examples in Room U. Furthermore, the lower parts of two jars, partly sunken into the ground, were found here. One of them has an interesting decoration made of an

applied wavy line on the shoulder together with black geometrical painting (Fig. 9).

Two more rooms of House III were investigated: the large, only partially excavated Courtyard BA, and Room EA (Fig. 4). The latter is interesting, given that it has an internal wall similar to the one present in Room G, although it is not even half the size of that. Courtyard BA features one heavily blocked doorway in the north and an additional row of stones added on the exterior side of two walls (Fig. 10, left). The row of stones added to the north-eastern wall of the courtyard sits exactly in the middle considering that Room G and Room U are built inside of Courtyard BA. A similar exterior extension of the wall can be found at House VI (see below). In total, nine rooms of House III were excavated. It may extend even further to the west and the south, and should rather be seen as a kind of complex of several units modified over time than as a single building.

The second excavated house-complex in Al-Zebah is **House VI** (Fig. 12 and Fig. 13). It lies in the eastern part of the settlement, and is a bit isolated from the other building structures (Fig. 2). Only the northern part of House VI was excavated. The house had two phases that both date to the Umm an-Nar period. To the early phase of House VI belong a large, square



Fig. 14: Eastern wall of Room GA in House VI built with upright stones.



Fig. 15: Fireplace in Room GA of House VI.



Fig. 16: Stone installation of Room GA of House VI.



Fig. 17: Hearth on the floor of Room GA in House VI.

room, Room AA, and Room CA. In the later phase, Room AA was subdivided into several smaller rooms, which were connected to a circular structure set in the centre of Room AA.

In the early phase of House VI, there are very accurate double-faced walls, just as in House III. At the northern outer wall of Room AA, another example of an extra row of stones set against the exterior of the wall is present (Fig. 10, right, and Fig. 13). Room AA also features an internal wall, similar to those of Room G and Room EA of House III.



Fig. 18: Rooms HA, FA, CA, and rests of circular structure in the middle of House VI.



Fig. 19: Plan of House IV and Building V.

Also the layout of House VI was modified, in this case by an annex in the north-east, Room GA (Fig. 12). This room is accessible through an entrance in the north. Maybe the most characteristic feature of Room GA is the building technique of its walls. They differ from the other walls in that they were constructed with less care, curve slightly, and in most cases used upright stones (Fig. 14). All of which is not present elsewhere at Al-Zebah. Furthermore, two fireplaces were found in Room GA, which are comparable to their counterparts in Room U and Room I of House III. Both have a circle of red burned clay and are filled with ashes and stones (Fig. 15). In the south of Room GA is a stone installation, which is mainly interpreted as collapse (Fig. 16). Numerous pottery sherds and a grinding stone were found in between the collapsed stones. The installation superimposes a hearth lined with stones (Fig. 17), which is very similar to that found in Room L of House III (Fig. 7).

Room HA, Room FA, and Room CA belong to the later phase (Fig. 12). These three rooms are connected to a circular structure in the centre (Fig. 18). In House VI, the circular structure was not excavated, but a similar circular structure was investigated in Building V (see below). Many examples of such circular structures are present at Al-Zebah (Fig. 2), even better visible on the overall plan⁶.

House IV lies in the western part of Al-Zebah (Fig. 2). Six small, rectangular rooms have been excavated: Room P, Room Q, Room R, Room S, Room T, and Room W (Fig. 19 and Fig. 20). Their walls are accurately built in double-faced technique. All of the rooms contain fireplaces (Fig. 21), and Umm an-Nar pottery sherds were found on the floors of most rooms. It is not known if House IV featured a large, square room, which would provide even more parallels to House III and House VI (see above). In the layer above the walls and room-fillings of House IV, a great deal of stone debris was present, which represent the remains of later, more poorly built stone walls. The latter made use of the older walls and might have stood originally much higher than their earlier counterparts. No floors, pottery, or other finds are associated with these younger stone walls. They are linked to a circular structure, **Building V**, which was founded on the same level above House IV. Building V is a circular mound of heaped up stones with a diameter of 4.90 m and a height of 1.20 m. Excavations of its interior revealed a small space of only 0.50 m in diameter lacking any finds (Fig. 22). As a result, the function of this and other circular structures at Al-Zebah remains unclear. They are seemingly too small for silos.

In summary, it is evident that buildings III, IV, V, and VI share the same elements. For the early phase, typical features are: at least one large room with a



Fig. 20: Top view of rooms of House IV.



Fig. 21: Room S with two fireplaces in House IV.



Fig. 22: Top view of the circular structure Building V.

⁶ Schmidt 2018: Fig. 2.

mid-length internal wall, walls with exterior projections in the middle, at least one courtyard with one or two small rooms in its corners and pottery jars around the corners of the small rooms, an elaborated stone-laid hearth, and a multitude of fireplaces filled with ashes and stones. The layout is agglutinating, meaning, it extends over time by adding new rooms or clusters of rooms. There is no stratigraphic evidence that the circular structures belong to the early phase. Instead, these can be seen as part of a new concept of house plans representing a slightly later Umm an-Nar phase of the settlement of Al-Zebah. This new layout of houses features a circular structure, surrounded by rather small rooms, which make use of existing walls and larger rooms by subdividing them into several small rooms. The position of the circular structures in the centre of the new houses and the relatively small distance of the small and medium size rooms to the circular structures might be connected with a construction type not fully understood at present. The change of house layout in the later phase might be connected with a new function when compared to the houses of the early phase. From the overall plan it seems that both the early and late phase are present

at nearly all parts of the site.⁷ The only exception to this is House III in the north, which features only the early phase. It remains to be discovered whether the late phase superimposes the early phase across all areas of the site, as already indicated by the excavations at House IV and House VI.

6.3 Pottery

The pottery of Al-Zebah represents one of the largest known corpora of Umm an-Nar domestic pottery in Eastern Arabia. Compared to pottery from burial contexts in Bat and other sites, its wares and shapes differ considerably.⁸ The fine and carefully decorated small Umm an-Nar jars are absent in this context. Large jars clearly dominate the assemblage, followed by small jars as well as shallow and deep bowls (Fig. 23). Typical for the latter is a yellowish beige to pale brown background with a black decoration executed in horizontal and wavy lines. These present direct parallels with Umm an-Nar Island, Hili 8, Tell Abraq, and Maysar.⁹

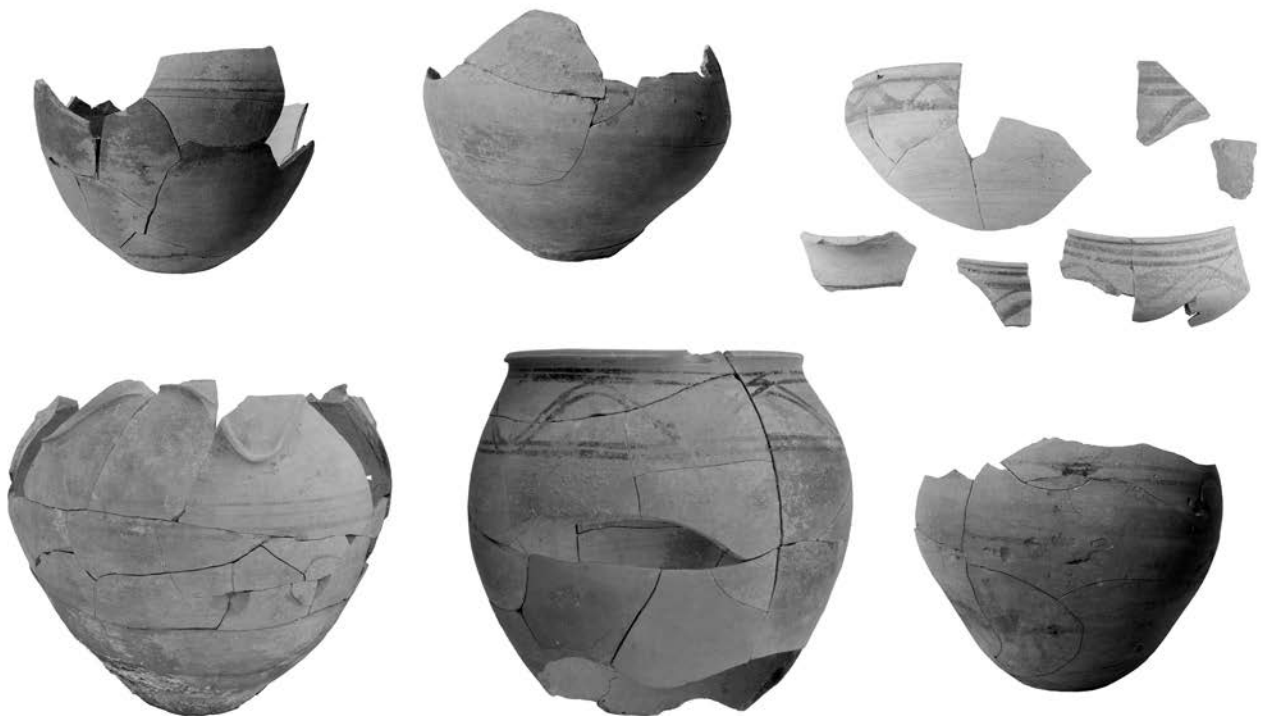


Fig. 23: Pottery from Al-Zebah.

7 Schmidt 2018: Fig. 2.

8 Schmidt – Döpfer 2016.

9 Döpfer – Schmidt 2013: 77.

6.4 Dating

There are altogether eight charcoal-samples recovered from fireplaces and floors within Room U and Room G of House III as well as Room GA of House VI, which have been measured for their ^{14}C value (Tab. 1). One sample from Room G, MAMS 24433, with a very early date around 2800 BC is much older than the other samples. It is followed by the other two samples from Room G, MAMS 24432 and MAMS 24434, which date between 2457 and 2206 cal. BC. The other six samples from House III and House VI give consistent dates between 2200 and 2064 cal. BC.

In conclusion, Al-Zebah represents a Late Umm an-Nar settlement, which might go back as far as the 24th or even the 25th century BC. There is clear evidence that during the time of use, several walls and rooms were modified and added. After a relatively short period of time at the end of the 3rd millennium BC, the function of the settlement changed considerably. Circular structures were set on top of the filled houses, the old walls were raised up, and new walls were laid out in order to create small rooms related to the central circular structures. For this later phase no ^{14}C dates are available.

lab no. MAMS	sample	find spot	^{14}C age	\pm	C13	Cal 1 sigma	Cal 2 sigma
19315	BAT12D-q0031	House III, Room U	3739	18	-21,9	cal BC 2197–2064	cal BC 2202–2044
19316	BAT12D-q0032	House III, Room U	3758	18	-23,0	cal BC 2200–2142	cal BC 2275–2060
19317	BAT12D-q0047	House III, Room U	3753	19	-28,2	cal BC 2199–2141	cal BC 2273–2050
24432	BAT12D-q0036	House III, Room G	3889	26	-25,4	cal BC 2457–2345	cal BC 2465–2295
24433	BAT12D-q0026	House III, Room G	4186	29	-27,2	cal BC 2879–2702	cal BC 2888–2671
24434	BAT12D-q0004	House III, Room G	3822	26	-26,5	cal BC 2295–2206	cal BC 2432–2148
22617	BAT14D-q0114	House VI, Room GA	3789	25	-18,0	cal BC 2281–2148	cal BC 2290–2141
22618	BAT14D-q0115	House VI, Room GA	3750	25	-22,3	cal BC 2202–2065	cal BC 2277–2041

Tab. 1: Calibrated ^{14}C dates for eight charcoal samples from Al-Zebah; B. Kromer, Curt-Engelhorn-Zentrum Archäometrie, Mannheim, Germany; INTCAL13 (Reimer *et al.* 2013) and SwissCal 1.0 (L. Wacker, ETH-Zürich).

6.5 Magnetometry

In 2015 a small magnetometer survey was undertaken at Al-Zebah by Jason Herrmann from the University of Tübingen. The aim was to investigate a seemingly empty area in the middle of the settlement, west of House VI. The results are illustrated in Fig. 24. In addition to the large black and white anomalies representing metal marks, a lightning strike in the centre, and the modern track running north-east to south-west, there are probably ancient structures especially in the south, but they are difficult to identify. Nevertheless, the magnetometer survey shows that the area outside the house-complexes contains more structures, perhaps fields, which most likely also belong to the 3rd millennium settlement of Al-Zebah.

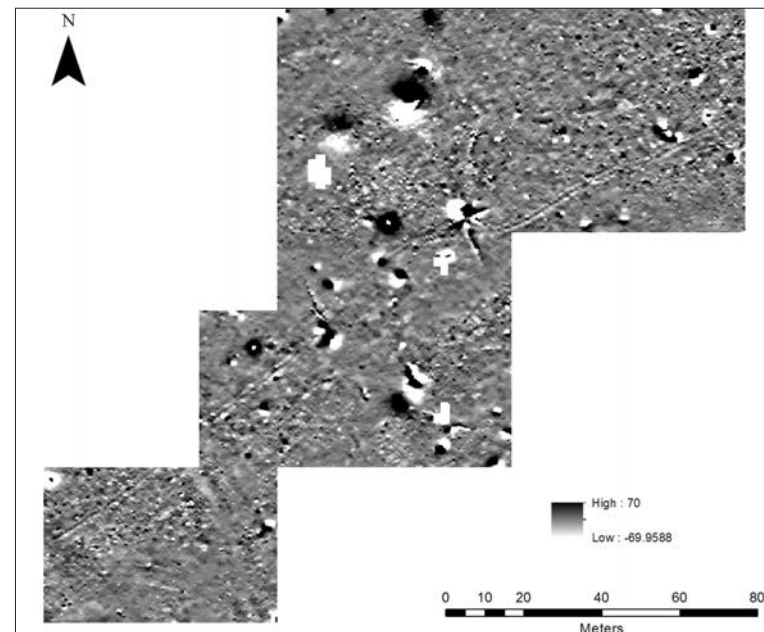


Fig. 24: Results of magnetometer survey at Al-Zebah (J. Herrmann).

6.6 Comparisons with other Umm an-Nar period sites

Al-Zebah features many architectural elements that can also be found at other Umm an-Nar period domestic buildings in Eastern Arabia. This include the loose arrangement of the buildings, in general; the agglutinating layout of the buildings; large courtyards; partially large, mostly square rooms; double-faced walls; the use of upright stones; walls with an additional row of stones; and subdividing interior walls.

Double-faced walls are the most common building technique of Umm an-Nar domestic architecture. Also, at Al-Zebah all walls are built that way (Fig. 26n). Normally, the stones are laid flat. Only in a few cases, including House VI at Al-Zebah (Fig. 14) and Structure SS 1 at Bat¹⁰ (Fig. 26l), upright standing flat stones are used. At Al-Ayn (Fig. 25g) the upright stones are added to the interior face of the wall and are interpreted by Blin as orthostats.¹¹ Walls made of a single row of stones, as in Suwayh¹² (Fig. 25e) and Amlah, Site 4¹³ (Fig. 26m), as well as walls built of mud-brick, as known from Ras al-Jinz 2¹⁴ (Fig. 25c), are absent at Al-Zebah. An extension with an additional row of stones on the exterior side of the walls, as present at Houses III and VI at Al-Zebah (Fig. 10), can also be found at Maysar, M-1, Haus 31 (Fig. 25h). In Bat, specifically Structure SS 1 (Fig. 26l), such an additional row of stones is on the inner face and is interpreted as a reinforcement of an unstable wall.¹⁵ Another special feature at Al-Zebah is a stone installation which consists of two parallel rows of stones diagonally to the outer wall of House VI (Fig. 12). Similar installations exist at Asimah AS-99 (Fig. 25f) and at Maysar, M-1, Haus 6 (Fig. 25i). Walls, which divide a room into two halves and are mostly running up to the centre of the room, are not only a typical building feature in Al-Zebah (Fig. 26n), but also in Bat, Structure SS 1 (Fig. 26l), and Maysar, M-1, Haus 6 (Fig. 25i).

Regarding the layout of the Umm an-Nar domestic architecture, Al-Zebah belongs to a group of buildings characterised by an agglutinating construction; the existence of large courtyards surrounded by a number of smaller rooms; and, in general, a loose arrangement of the buildings at each site. Besides Al-

Zebah this group comprises Al-Ghoryeen (Fig. 26o); Zahra, Site 1 (Fig. 27q); Amlah, Site 4 (Fig. 26m); and WAJAP, Site 63 (Fig. 27p). Sizes of the rooms or courtyards at these building of 10x10 m are not rare. The height of their walls never exceeds 60 cm. In contrast, at Umm an-Nar Island (Fig. 25b), Dahwa (Fig. 25d), and Ras al-Jinz 2 (Fig. 25c) the buildings always have a regular planned layout and a number of similar sized elongated rooms. Furthermore, the whole of Al-Zebah¹⁶ does not feature small, nearly square houses with only one or two rooms like at Suwayh (Fig. 25e), Asimah AS-99 (Fig. 25f), Al-Ayn (Fig. 25g), and Dahwa (Fig. 25d).

6.7 Conclusions

Al-Zebah has many attributes suggesting it to be a cluster of loosely arranged campsites forming a collective campground.¹⁷ It features a great deal of evidence for cooking, storage, and food processing. These domestic activities provide important insights surrounding the everyday life of the people in the Umm an-Nar period. The exceptionally preserved stone walls served as substructures for tents or *barastis*, in which both people and domestic animals could find shelter. The lack of clay in the fillings of the buildings, which might be attributed to mud-brick debris, excludes their interpretation as solid mud-brick buildings. Furthermore, tents are the only possible way for roofing the large rooms at Al-Zebah since there are no adequate wood supplies available to do so. Possible post-holes could not be identified due to the gravel floors. The architecture can be compared with similar stone structures in the Jebel Qurma region of north-eastern Jordan dating back to the late 7th and early 6th millennium BC, which have been interpreted as shelters of pastoral nomads.¹⁸ Therefore, Al-Zebah was also most likely a seasonally used campground for pastoral nomads rather than a permanently occupied settlement. Compared to other Umm an-Nar period sites in Eastern Arabia, Al-Zebah is a typical inland site in the piedmont region of Central Oman and differs in many ways from the coastal sites of Suwayh, Asimah, Umm an-Nar Island, Dahwa, and Ras al-Jinz.

¹⁰ Kerr 2016: 93–98.

¹¹ Blin 2012: 487.

¹² Méry – Marquis 1998: 219.

¹³ De Cardi – Collier – Doe 1976: 112, 114.

¹⁴ Azzarà this volume.

¹⁵ Kerr 2016: 88–89.

¹⁶ Schmidt 2018: Fig. 2.

¹⁷ Schmidt 2018.

¹⁸ Akkermans – Huigens – Brüning 2014.

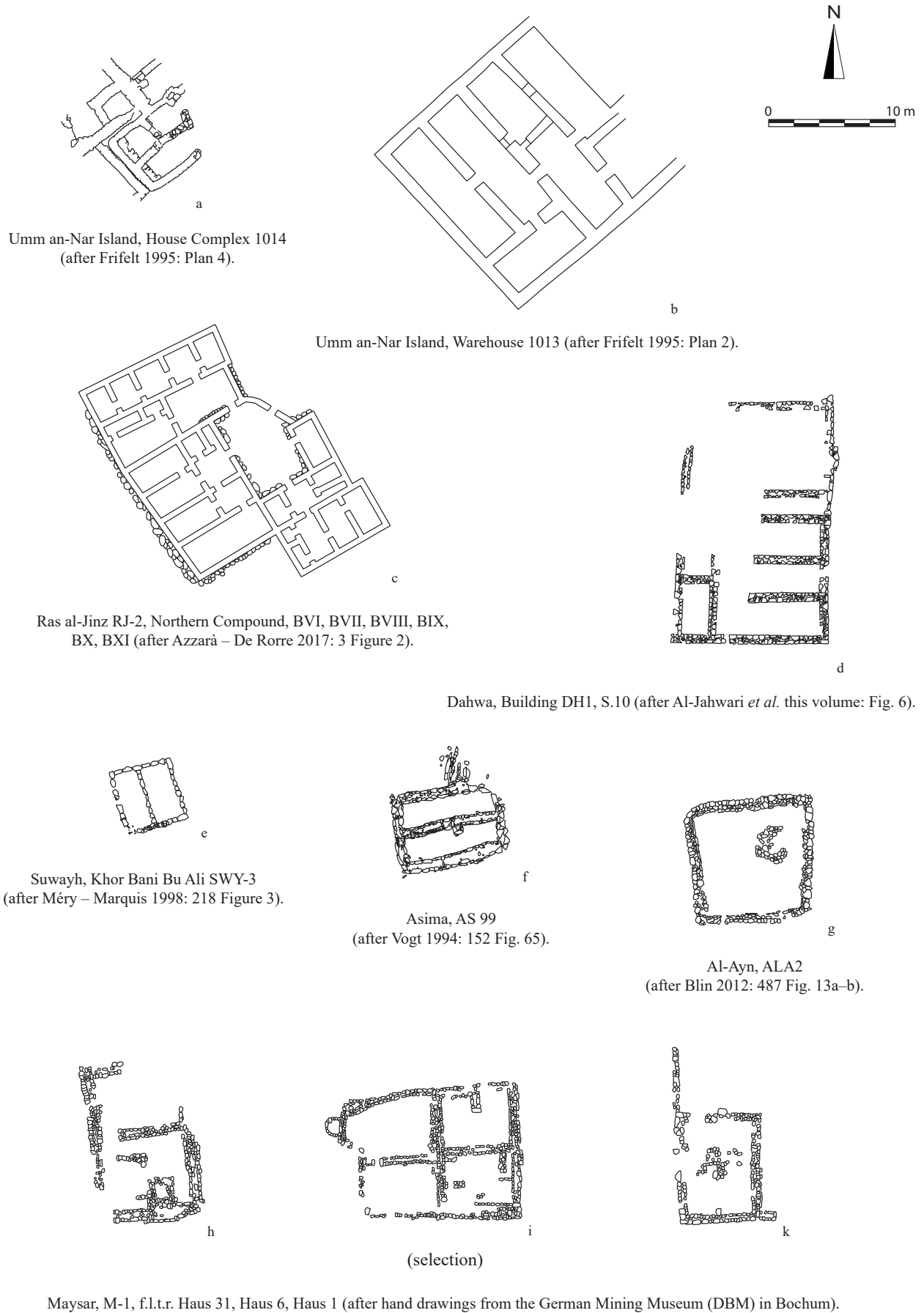


Fig. 25: Umm an-Nar period domestic buildings.

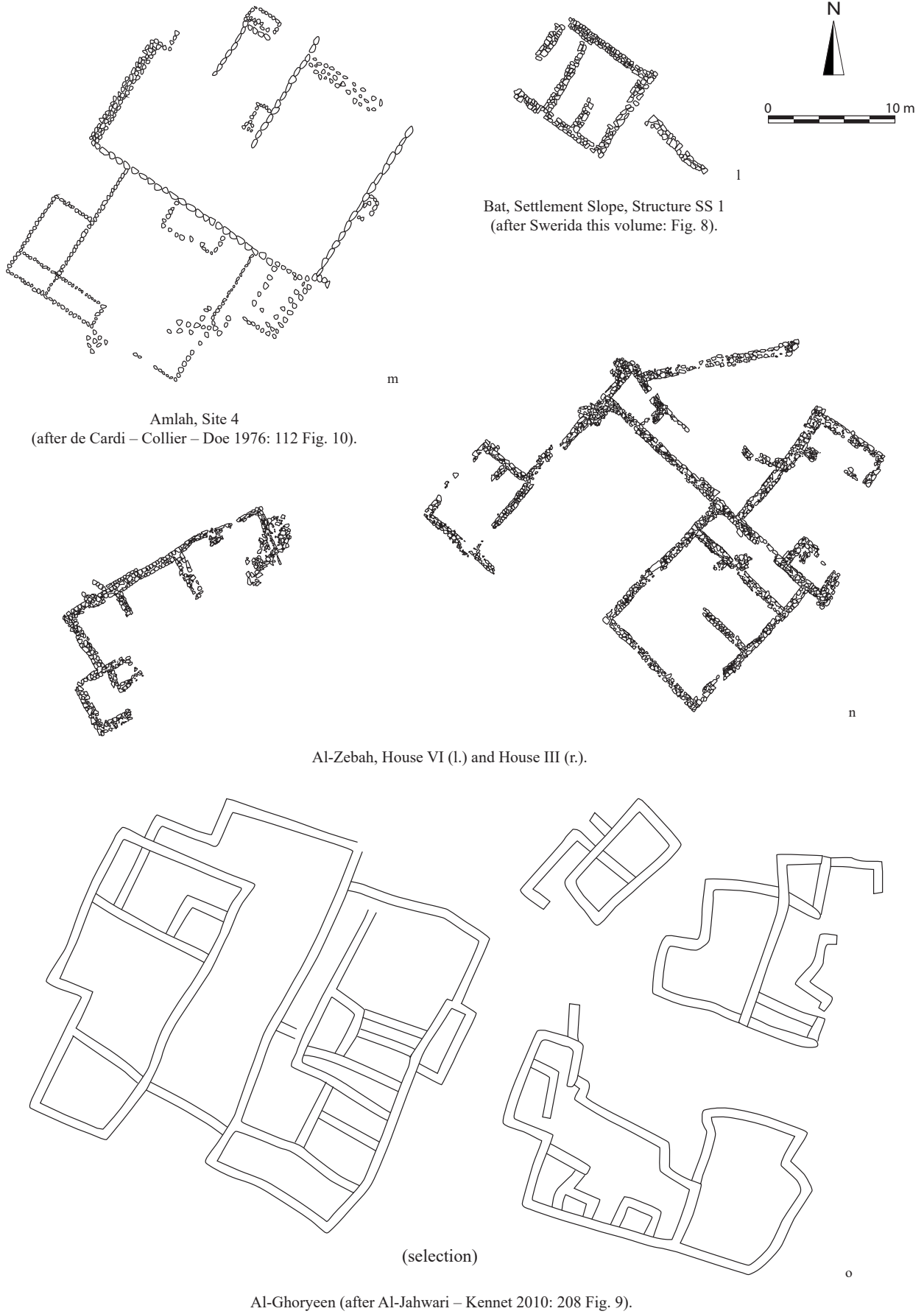
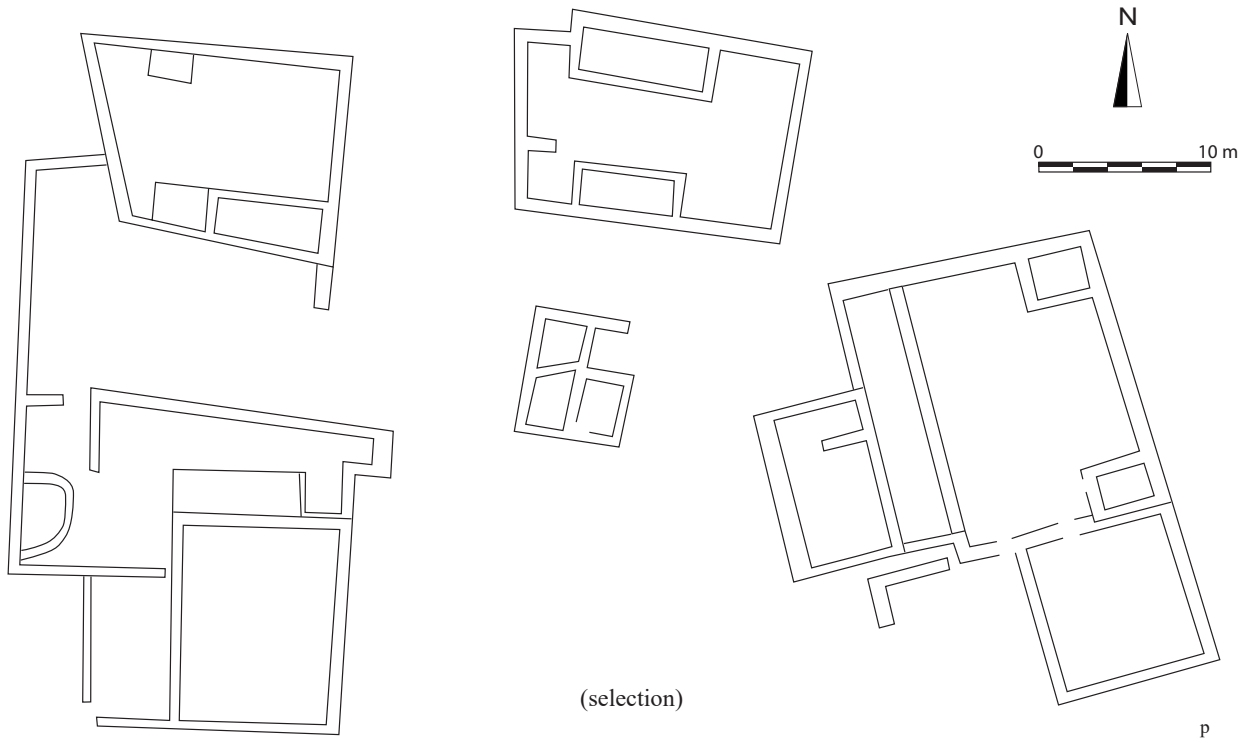
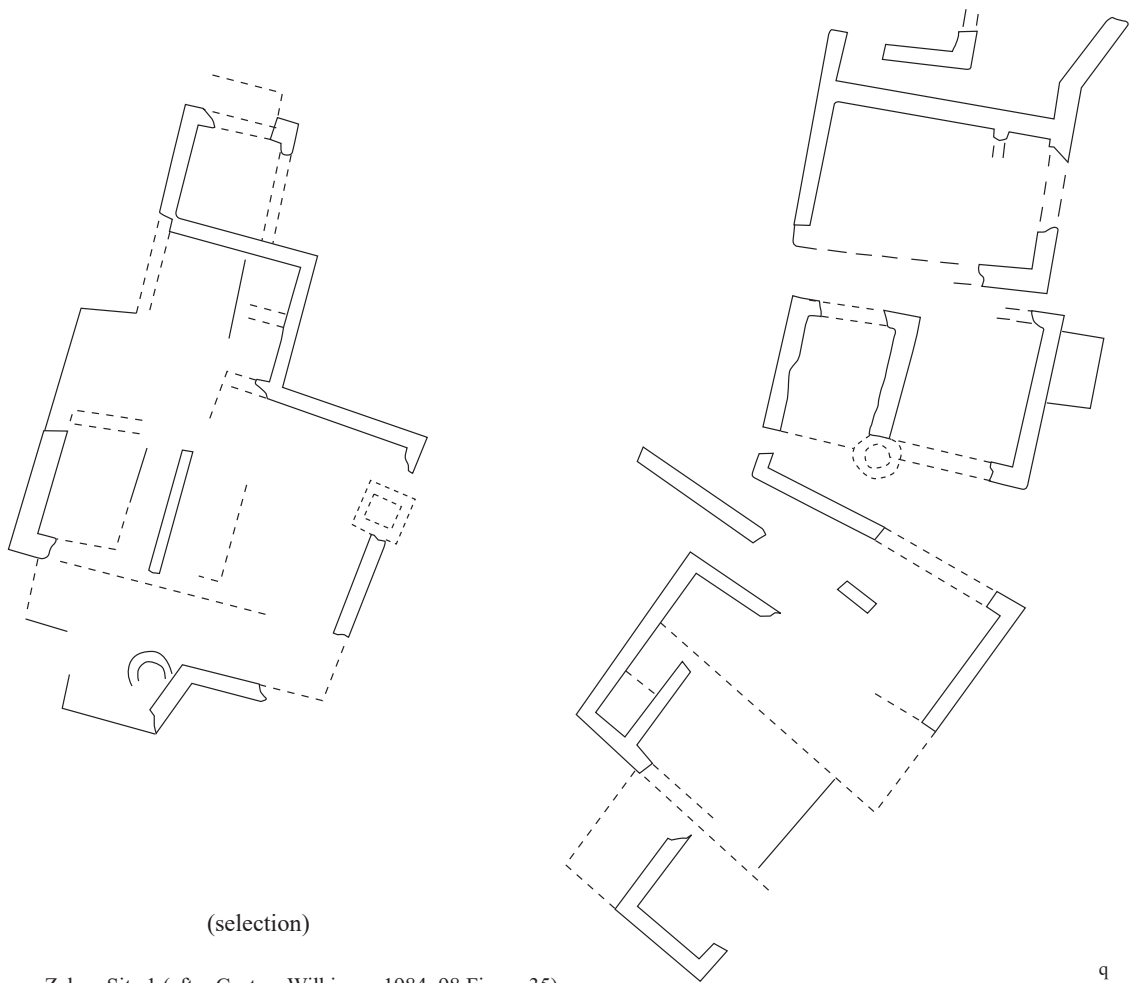


Fig. 26: Umm an-Nar period domestic buildings.



WAJAP Site 63 (after Düring – Botan this volume: Fig. 3).



Zahra, Site 1 (after Costa – Wilkinson 1984: 98 Figure 35).

Fig. 27: Umm an-Nar period domestic buildings.

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Chapter 7: Al-Zebah and its Position in the Regional Settlement Pattern of Central Inner-Oman

Stephanie Döpfer

7.1 Introduction

Al-Zebah, one of the few excavated domestic settlements of the Umm an-Nar period in Oman, is situated at the southern fringes of the Al-Hajar Mountains in the governorate of Al-Dhahirah. It consists of large house complexes that are loosely arranged over an area of approximately 150x200 m.¹ Al-Zebah lies within an archaeologically very rich and well-studied

region, which includes the UNESCO World Heritage Sites of Bat and Al-Khutm.² This raises questions regarding the relationship between Al-Zebah and the other sites in this region, and subsequently, what position Al-Zebah had in the region's settlement pattern. To answer these questions, it is first necessary to identify the characteristics of the settlement at Al-Zebah.

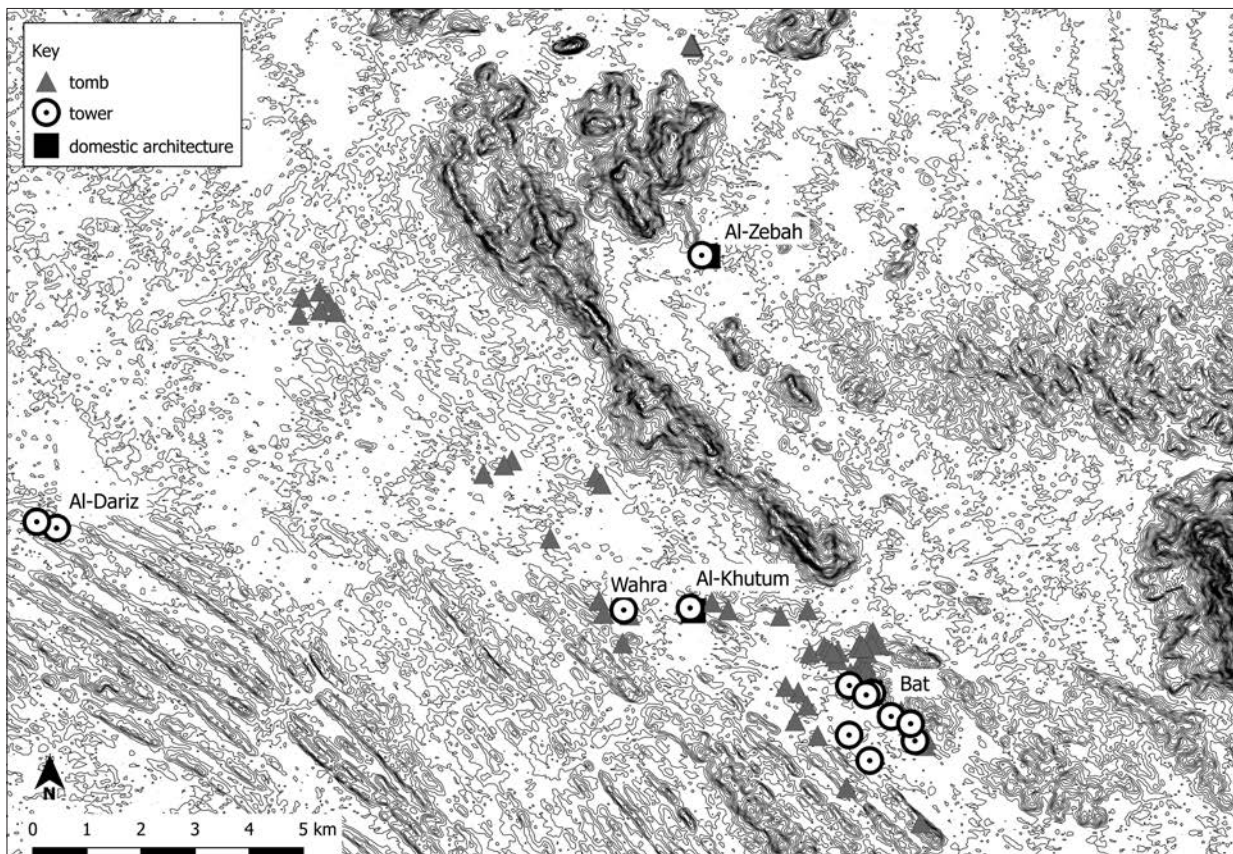


Fig. 1: Map of Al-Zebah and its wider surrounding. The location of Umm an-Nar tombs is mainly based on Cable 2012: 106 fig. 33, 108 fig. 34, and 194 fig. 89.

1 Schmidt this volume.

2 Swerida this volume.

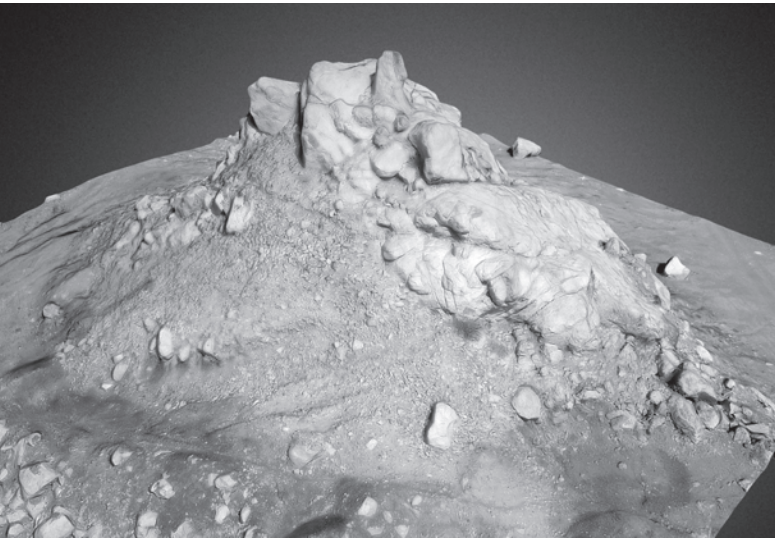


Fig. 2: Screenshot of 3D model of Husn Qarri, with the remains of three terracing walls visible in the south. The model is available at <https://www.archaeoman.de/al-zebah-3d-modelle-gebäude/Hosn-quarri/>.

closest Umm an-Nar period tombs lie approximately 4 km to the north of Al-Zebah. In addition, Weisgerber and Böhme⁴ were able to locate an ancient quarry on the western flank of the mountains to the south-west of the settlement. Due to modern quarrying activities, it is unfortunately not possible to recognise any ancient quarries on the eastern flank of the mountains, which directly faces the settlement of Al-Zebah. However, it is highly likely that ancient quarries were also present on this side. Indeed, the availability of white limestone might have been one of the primary reasons for establishing the settlement here originally.

Modern inhabitants of the area call the small hill to the north-west of Al-Zebah Husn Qarri (Fig. 2). Gerd Weisgerber suggested the presence of an Umm an-Nar period tower upon this hill. The hill has been severely affected by test detonations of mining companies working in the mountains around the ancient site that were conducted in the late 1990s or early 2000s. Despite this, Weisgerber identified the remains of

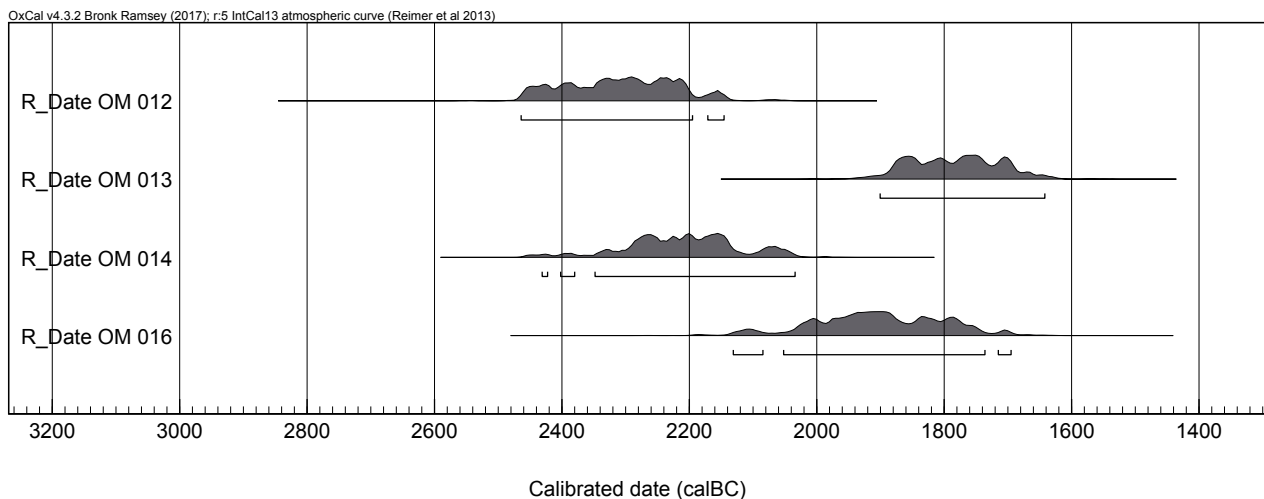


Fig. 3: Radiocarbon dates from Maysar-1 originally published by Weisgerber (1981: 251, Tab. 2) were recalibrated by the author with a new calibration curve, using OxCal 4.3.

7.2 Al-Zebah

Other than the rectangular house complexes of Al-Zebah, few other archaeological remains are present in its immediate vicinity (Fig. 1). These are mainly Hafit period tombs perched on the ridges of the surrounding mountains and one very well preserved tomb located 300 m to the north of the settlement on the edge of a small tributary of the main wadi flowing around the site. Gerd Weisgerber and Manfred Böhme³ further identified Iron Age structures including one tomb about 250 m to the east of the Umm an-Nar settlement. The

three walls still visible on the south side of the hill, and one pottery sherd dating to the Umm an-Nar period. This sherd is the only ceramic evidence that was encountered upon the whole hill. The three walls were interpreted as terracing walls, and were constructed of unworked stones without mortar from the hill itself. They run parallel to each other with an interval distance of approximately 1.5 m. It seems that the walls were only present in the south, and not on the other sides of the hill, which might be due to the fact that the hill is less steep on its southern flank.

³ Weisgerber – Böhme – Heckes 2007: 17.

⁴ Weisgerber no date.



Fig. 5: Map of identified domestic structures to the south-west of the tower at Amlah (after de Cardi – Collier – Doe 1976: 112 fig. 10 with modifications by the author and Google Earth image in the background).

7.3 Umm an-Nar period types of settlements

Beginning from the premise that Husn Qarri was an Umm an-Nar period tower, offers an interesting starting point for discussing the layout of Umm an-Nar period domestic settlements in general. Domestic settlements of the Umm an-Nar period made of rectangular houses with one tower in their vicinity can for example also be found at Maysar, Al-Ghoryeen, Amlah, and Al-Khutm (Fig. 6).

The site of Maysar is located in the Al-Sharqiya region of Oman, close to considerable copper deposits.⁵ During excavations carried out between 1977 and 1981, two Umm an-Nar period domestic settlements were identified, Maysar-1⁶ and Maysar-6⁷. Maysar-1 extends over an area of approximately 90 x 300 m and is separated from the northern part of the settlement by a small wadi branch. Considerable quantities of



Fig. 4: Rectangular structures to the west of the Umm an-Nar period tower at Amlah.

5 Weisgerber 1980: 64 Abb. 2.

6 Weisgerber 1980: 191–197; Weisgerber 1981: 77–89. In the Harvard Archeological Survey, the settlement is labelled Samad 5.

7 Weisgerber 1981: 205.

slag, furnace fragments and pottery were found on the surface and during the excavations. The individual houses of Maysar-1 are built of double sided walls made of large pebbles, the typical method for the Umm an-Nar period. The excavators assumed that a superstructure of mud-bricks would originally have been built upon these walls. Radiocarbon samples from different loci within the settlement fall between 2465 and 1643 cal. BC (Fig. 3). Thus, the settlement seems to have been in use from the later part of the Umm an-Nar period until the Wadi Suq period.

On a small oval hill about 1 km to the south-west of Maysar-1 lies the settlement of Maysar-6.⁸ The hill has a diameter of 20 m and a height of 0.5 m, and small-scale excavations revealed small, rectangular rooms whose walls were made of mud-bricks or stones. Minimal finds were made and no radiocarbon samples were taken. A tower identified as Maysar-25 is situated about 900 m to the south-west of the settlement of Maysar-1 and 1 km to the south-west of the settlement of Maysar-6. Maysar-25 is a typical round stone tower with a diameter of 21.6 m and its external wall is preserved to a height of 3.0 m.⁹ Some walls and a central well were also found inside the tower.

The second domestic settlement that also has a single tower is Al-Ghoryeen, which is located only 17 km to the north-west of Maysar at the confluence of the Wadi Andam and the Wadi Mahram.¹⁰ More than fifty domestic house structures were found in the south-western part of the site within an area of approximately 200 x 150 m. Numerous pottery sherds found on the surface clearly date the site to the Umm an-Nar period, but no subsequent excavations were carried out here. The tower of Al-Ghoryeen is situated very close to the domestic structures, lying only 50 m north of them. Just as with the houses, the tower was not excavated, but a mound with a diameter between 25 and 30 m is present here, in which walls of flat limestone blocks are visible.

Another possible settlement with a tower is Amalah, located in the interior of Oman. In the winter of 1974/1975 the British Archaeological Expedition discovered what they called a circular enclosure made of massive boulders, having a diameter of 27 to 30 m.¹¹ To the west, remains of rectangular structures, possibly houses, were also found by this expedition (Fig. 4 and Fig. 5). De Cardi speculated that these walls could have been the footing for mud-brick walls. However, no pottery was found at those rectangular structures. Therefore, their dating into the Umm an-Nar period remains speculative.

The settlement of Al-Khutm provides a clear example of an Umm an-Nar period site with tower and domestic architecture.¹² Here a stone built Umm an-Nar tower is located approximately 300 m north-west of the domestic settlement. While the settlement has not been excavated yet, surface finds and the general architectural layout of the domestic structures suggest a provisional dating within the Middle Umm an-Nar period.

Several Umm an-Nar period sites have more than one tower. The so-called 'Settlement Slope' in Bat features domestic architecture at a site with not one but several tower buildings.¹³ Comparably, the site of Al-Tikha, which is located just north of the modern town of Rustaq, also provides Umm an-Nar period domestic architecture in close vicinity with three towers.¹⁴ Another site with many Umm an-Nar period towers and domestic architecture is Al-Khashbah. Here, the remains of at least two domestic houses were found at a distance of 1.3 km from the closest of at least ten towers, i. e. Building II. From Nasser Al-Jahwari's Wadi Andam survey, the sites CS.2.68 and CS.2.69 could also be added to the list of domestic sites with towers. At both sites, beside a field of tombs, the presence of a group of low mounds with stone walls and a high density of Umm an-Nar pottery sherds were interpreted by Al-Jahwari¹⁵ as the probable remains of domestic structures. He also interpreted the largest mound, which has a diameter of 15 to 20 m, to be the remains of a tower. However, as no excavations were conducted here, these interpretations remain speculative. In addition, most of the excavated towers possess annexes of some kind. Whether these annexes are to be considered as parts of the towers or as attached domestic structures cannot yet be answered with certainty. Thus, towers with annexes or other associated structures should probably also be considered as tower-sites with domestic architecture as well, but for this paper, they were not taken into account.

Out of all identified domestic settlements with permanent domestic architecture, about half do not seem to have towers. These towerless domestic settlement sites include: Umm an-Nar Island¹⁶ and Asimah As99¹⁷, both in the United Arab Emirates; Zahra-1, WAJAP Site 2, Site 50, Site 63/Wadi Fizh,¹⁸ and Dahwa¹⁹, all on the Batinah coast of Oman; Al-Ayn

8 Weisgerber 1981: 205.

9 Weisgerber 1981: 200–203.

10 Al-Jahwari – Kennet 2010: 167, 168 fig. 8–9.

11 De Cardi – Collier – Doe 1976: 111–114.

12 Swerida this volume.

13 Frifelt 1976; Frifelt 1985; Brunswig 1989; Swerida this volume.

14 Kennet – Deadman – Al-Jahwari 2016: 159.

15 Al-Jahwari 2008: 167.

16 Kluge this volume.

17 Vogt 1994: 152–155.

18 Costa – Wilkinson 1987: 97, 99, 105; Düring – Botan this volume.

19 Al-Jahwari *et al.* this volume.

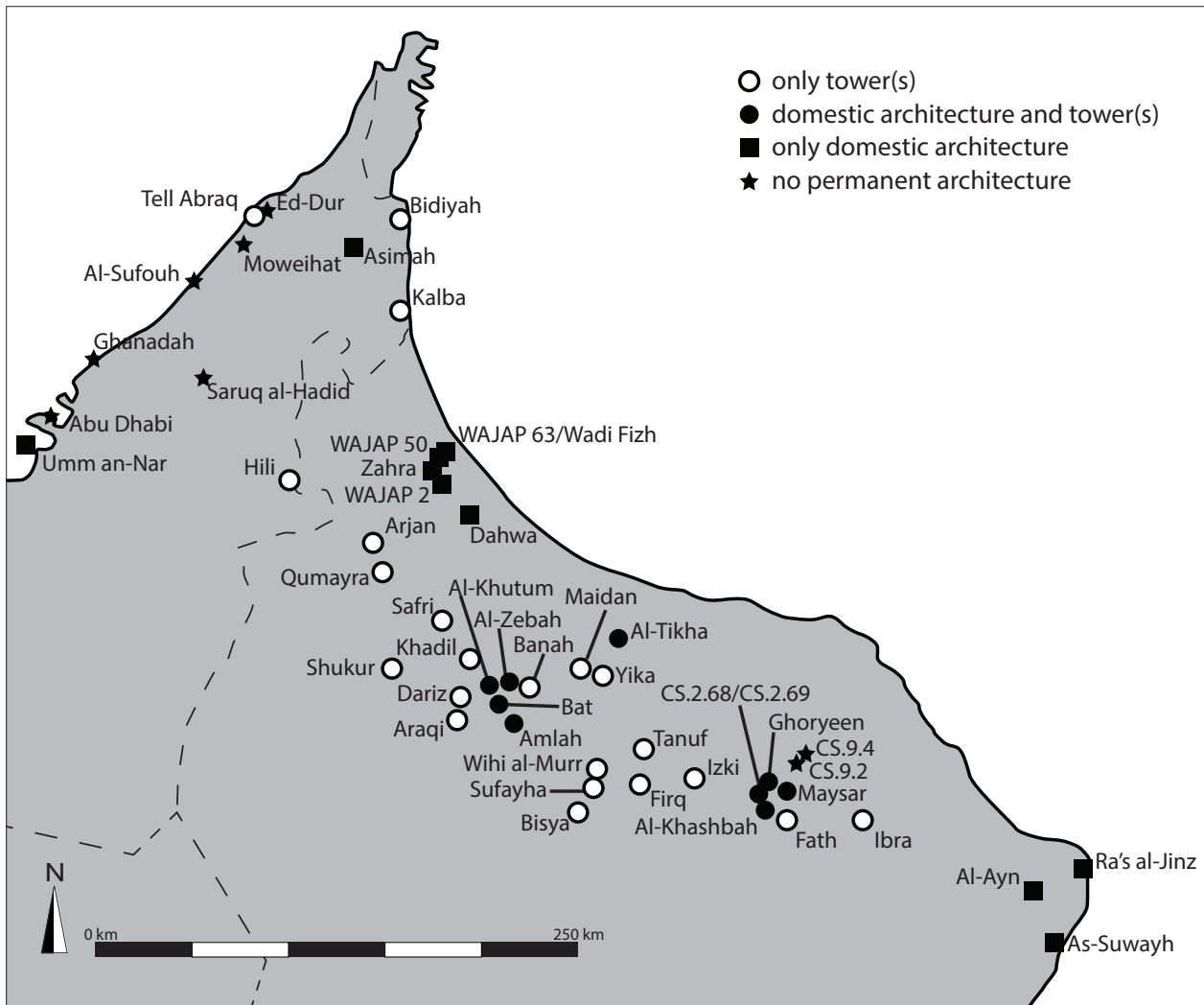


Fig. 6: Distribution of Umm an-Nar period sites in terms of domestic architecture and towers.

ALA-2²⁰, Ra's al-Jinz²¹, and Khor Bani Bu Ali SWY-3²², in the Ja'alán. What is more, some identified sites do not feature permanent architecture at all, but are characterised mainly by sherd scatters and hearths, such as Asimah North²³, Ed-Dur²⁴, Moweihat²⁵, Al-Sufouh²⁶, and Ghanadha²⁷. At the latter, the excavator interpreted the site as seasonal in character and that the community living at Ghanadha was mainly engaged in fishing.²⁸ Further sherd scatters were also discovered at the airport of Abu Dhabi,²⁹ and Umm

an-Nar period fire places and post-holes were identified at the lowest levels of Saruq al-Hadid.³⁰ The latter is interpreted as a campsite for nomadic pastoralists.³¹ In the interior of Oman, two sites found in Nasser Al-Jahwari's Wadi Andam survey, CS.9.2 and CS.9.4, also could qualify as domestic sites without permanent architecture. However, this interpretation is based only on survey results.³² Both sites are located close to the village of Al-Rawdha and yielded large numbers of Umm an-Nar period sherds, which in the case of CS.9.4, were associated with possible evidence of fire cracked stones and mud-brick.

20 Blin 2007; Blin 2012: 487–489.

21 Azzarà this volume.

22 Méry – Marquis 1998.

23 Vogt 1994: 156–159.

24 Boucharlat *et al.* 1988: 2–3.

25 Al-Tikriti 1989: 90; Haerinck 1991: 2.

26 Iacono – Weeks – Davis 1996.

27 Al-Tikriti 1985.

28 Al-Tikriti 1985: 18.

29 De Cardi 1997.

30 Herrmann – Casana – Qandil 2012: 63–64.

31 Herrmann – Casana – Qandil 2012: 66.

32 Al-Jahwari 2008: 167–168.

7.4 Umm an-Nar period settlement hierarchies

A clear pattern emerges when considering the distribution of the different types of sites: sites with only tower(s) (including those with annexes to towers); sites with free-standing domestic architecture and tower(s); sites with domestic architecture without towers; and sites with no permanent architecture (Fig. 6). Sites with only towers as well as sites with towers and domestic architecture are found mainly in the so-called ‘oasis belt’ along the western fringe of the Al-Hajar Mountain chain. However, domestic sites without towers or without permanent architecture are predominantly found along the coasts of the United Arab Emirates, the Batinah and the Ja’alan. This distribution is not written in stone, as the presence of the tower-site Tell Abraç on the coast of the United Arab Emirates demonstrates, but the overall picture is clearly discernible.

Type of site	Quantity
Tower(s) (with annexes to towers)	22
Domestic architecture and tower(s)	9
Domestic architecture without tower(s)	10
No permanent architecture	8
Total	49

Tab. 1: Amount of different types of Umm an-Nar period sites known to the author.

Previous studies of Umm an-Nar period settlement systems suggested a three-tiered settlement hierarchy, which was mostly based on the number of towers present at one site. Among the first to classify the different types of Umm an-Nar period settlement were Hastings, Humphries, and Meadow³³. They distinguished three different types of settlement but without positioning them within a hierarchy. The first one is characterised by a central elevated structure (i. e. a tower), surrounded by lesser domestic buildings and tombs. One example for such a site is Maysar, which is labelled Wadi Samad 4 in their article. Their second type of settlement consists of domestic architecture and tombs but no towers; their third group mainly features domestic structures, although a number of tombs might be present as well. The authors point out that there is no firm relationship between tombs and settlements.

Nasser Al-Jahwari and Derek Kennet³⁴ suggested a system in which multi-towered sites like Bat, Hili, or Bisya would be at the top of the settlement hierarchy, followed on a second level by smaller sites with only one or two towers. The third level in this system

would then be occupied by small agricultural villages without towers. The latter group seem to include either settlements without any permanent architecture or those with permanent, rectangular architecture but without towers. Al-Jahwari interprets settlements without any permanent architecture as campsites of seasonal Umm an-Nar pastoralist, stating that they are too small to represent long-term occupation.³⁵ More or less the same structure was proposed by Alexander Kerr³⁶. He sees temporary sites characterised by the absence of architecture but with sherd scatters and hearths to be on the lowest level. His second level consists of by sites that demonstrate evidence of architecture. The top level is reserved for sites with one or more towers, which he identifies as local or regional power centres.

Another theory regarding the Umm an-Nar period settlement system in Eastern Arabia was presented by Carl Phillips³⁷. He also favoured a three-tiered settlement system, but has different criteria than Kennet and Al-Jahwari for attributing sites to a particular level. According to Phillips, on the top level are sites with tombs and substantial architectural remains. This includes towers, but can also refer to rectangular domestic structures, given that he includes Umm an-Nar Island in his list of top-level sites. His second level sites are characterised by the presence of tombs and the indication of settlement activities in the form of sherd scatters or hearths, but without substantial architecture. On the third and lowest level are sites, at which only sherd scatters and hearths have been found, but lacking tombs, towers or other permanent architecture. Phillips³⁸ sees his settlement hierarchy not necessarily as a reflection of social hierarchy, but rather signalling different degrees of mobility. Sites on the first two levels of the hierarchy would indicate more sedentary people than sites of the lowest level.

In general, the low number of identified domestic sites without towers and especially of sites without permanent architecture is most likely an artefact of discovery. Such sites are difficult to identify since they are much less visible than towers and tombs of the same period. In all regions where intensive field walking survey methods were applied, such as the hinterland of Sohar³⁹, Bat⁴⁰, the Wadi Andam⁴¹, or the Ja’alan⁴², concentrations of domestic sites of the Umm an-Nar period were discovered (Fig. 6). There-

³³ Hastings – Humphries – Meadow 1976: 12.

³⁴ Al-Jahwari – Kennet 2010: 168–171.

³⁵ Al-Jahwari 2008: 169.

³⁶ Kerr 2016: 189.

³⁷ Phillips 2007: 5–6.

³⁸ Phillips 2007: 6.

³⁹ Düring – Olijdam 2015; Düring – Botan this volume.

⁴⁰ Cable 2012.

⁴¹ Al-Jahwari 2008.

⁴² Giraud 2007.

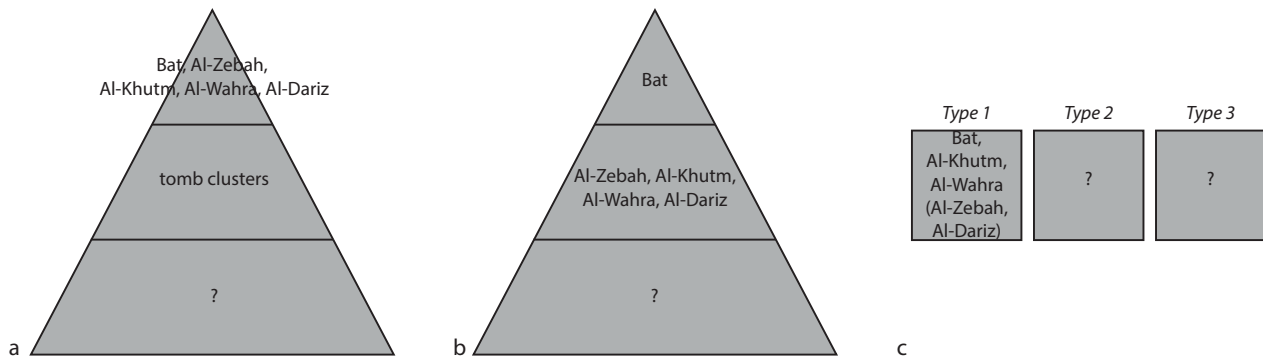


Fig. 7: Al-Zebah's position in different proposed settlement hierarchies for the Umm an-Nar period.

fore, Al-Jahwari's⁴³ idea that at least the banks of the large wadis in the interior of Oman were rather densely occupied with small domestic sites is very plausible. Domestic architecture can easily be overlooked even at sites with towers. Al-Khashbah has been known at least since the early 1980s for its many prominent towers. Yet, it was only in 2017 that two rectangular domestic structures of the Umm an-Nar period were identified at the site. Thus, more work is clearly required to find the small sites at the lowest level of the settlement hierarchies.

Another issue with the previously proposed settlement hierarchies is the differentiation between sites with one or two towers, and sites with several towers. As has been demonstrated for Bat⁴⁴ and Al-Khashbah, towers at one site were not contemporaneous, but have been used consecutively. At Al-Khashbah, the three excavated towers, Building I, Building II, and Building V, provide a diachronic sequence from the end of the fourth to the middle of the 3rd millennium BC.⁴⁵ Building V gave the oldest radiocarbon dates at the end of the 4th millennium BC, followed by Building I around 2800 BC, and Building II around 2600 BC. Thus these settlements had only one or two contemporary towers in use, and therefore did not differ in size or complexity from the settlements with only one or two towers present. Following Al-Jahwari's and Kennet's characteristics for attributing a site to a specific level, this leaves us with a hierarchy of only two levels. In this scenario, this settlement hierarchy would only be applicable to the interior, as the coasts are mainly lacking towers. This could either be another artefact of discovery suggesting that further towers are waiting to be found at the coasts, or could be evidence of different cultural zones. Alexander Kerr's⁴⁶ idea is that three distinct zones do exist on the Oman Peninsula, which have different developments

in terms of architecture and economic background. The three zones are the northern coastal zone, the interior oasis zone, and the eastern Ja'alan. According to him, settlement hierarchies are different in each of these zones.⁴⁷ Another possibility that I would like to suggest is to connect differences in architectural evidence with a seasonal migration of the same group between the coast and inland. In this hypothesis, people would move between the tower-sites in the inland and the tower-less sites on the coast on seasonal basis. There is no solid archaeological evidence for this theory but historical parallels confirm that this was done in Oman in other time periods. Scholz⁴⁸ reports the historical movement pattern of Bedouins, in which they spent the summer months in the oasis zone while moving to other camp grounds or the coast in winter. As there are no monsoon winds in the winter, fishing with simple boats would be easier and less risky than in the summer months, and the summer climate is more bearable in the interior than at the coast. This idea does not exclude the scenarios that a smaller resident population stayed year-round at a site, while the majority of the people migrated, or that some sites like Tell Abraq were inhabited the whole year by a more or less stable population. This hypothesis would explain why not all facilities like towers were constructed in all regions.

43 Al-Jahwari 2008: 170.

44 Thornton – Cable – Possehl 2016; Swerida this volume.

45 Schmidt – Döpfer 2017.

46 Kerr 2016: 27–31.

47 Kerr 2016: 190–191.

48 Scholz 1977: 124–126.

7.5 Al-Zebah and its position in the regional settlement pattern

Al-Zebah has been identified as a site with considerable domestic architecture and probably one tower. Other sites with towers in its surrounding are Bat at a distance of approximately 7 km to the south-east, Al-Khutm and Al-Wahra, both about 6.5 km to the south, and Al-Dariz, located 12 km to the south-west of Al-Zebah (Fig. 1). While Bat can be reached from Al-Zebah more or less directly via the Wadi Shwoi'ai, a mountain ridge blocks the direct line between Al-Zebah and the other sites. This makes the travel distance between Al-Zebah and Al-Khutm as well as Al-Wahra *c.* 11 km and 12.5 km respectively, and between Al-Zebah and Al-Dariz *c.* 19 km. This leaves us with an area of about 50 km² in which four Umm an-Nar period sites with towers exist. Assuming that all of these sites did not have more than one or two towers at a time, it makes them more or less equal in size and in the types of buildings present. All of these sites, with the exception of Al-Dariz, also feature considerable domestic architecture. However, it is instead more likely that the sites were not all in use simultaneously. While Al-Zebah has been inhabited only during the latter part of the 3rd millennium BC,⁴⁹ Bat and Al-Khutm seem to have been in use throughout the whole 3rd millennium BC.⁵⁰ Since no excavations have taken place at Al-Wahra or Al-Dariz, no information about their settlement chronology exists. Another difference between the sites is the number of Umm an-Nar period tombs present at the site. While none are known from Al-Dariz or Al-Zebah, only a few are recorded for Al-Khutm and Al-Wahra (Fig. 1). Bat, on the contrary, features a very large necropolis with many Umm an-Nar period tombs. In addition, at least four smaller tomb clusters without associated towers or any other known architecture are present in this same area.

In the settlement hierarchy of Hastings, Humphries, and Meadows, Bat can be clearly identified

with the first group characterised by a tower, lesser domestic buildings and tombs (Fig. 7c).⁵¹ The same is true for Al-Khutm and Al-Wahra. Al-Zebah and Al-Dariz do not fulfil the characteristic of any of their types as they do not have any tombs, and they indicate that the presence of tombs is crucial. Leaving aside the tombs, Al-Zebah and Al-Dariz would be settlements of the first type as well. According to Phillip's⁵² settlement hierarchy, the upper two levels would be present: sites with tombs and permanent architecture, and sites with tombs but no permanent architecture. This would make the sites Bat, Al-Dariz, Al-Khutm, Al-Wahra, and Al-Zebah 'nuclear' sites, and the smaller tomb clusters 'satellite' sites in Phillips's terminology (Fig. 7a). Applying the settlement hierarchy proposed by Al-Jahwari and Kennet⁵³, Bat would be on the top level, only following the assumption that several of its towers were in use simultaneously (Fig. 7b). On the second level would be Al-Zebah, together with Al-Khutm, Al-Dariz, and Al-Wahra. No sites of the third level (i.e. small agricultural villages without towers), are known from the region despite intensive survey activity.⁵⁴

The case study of Al-Zebah demonstrates that the different suggested settlement hierarchies are not easily applicable even in well researched regions, such as the wider area of Bat. Not all types of sites of each level are present, and the lower levels often have fewer sites than the upper ones: the opposite of what is expected for a settlement hierarchy. Therefore, more research clearly is needed on this topic, especially studies of sites that are suggested to exist at the lowest level of the hierarchies. However, these sites are the least visible ones in the archaeological record. While this makes their identification challenging and time consuming, they are nevertheless very worthwhile for widening our understanding of Umm an-Nar period settlement systems.

49 Schmidt this volume.

50 Cocca – Vinci – Armigliato 2016; Swerida this volume.

51 Hastings – Humphries – Meadow 1976: 12.

52 Phillips 2007: 5–6.

53 Al-Jahwari – Kennet 2010: 168–171.

54 Cable 2012.

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Chapter 8: Exploring Cultural, Social and Economic Complexification: Settlement Life through the Umm an-Nar Period at Ras al-Jinz RJ-2

Valentina M. Azzarà

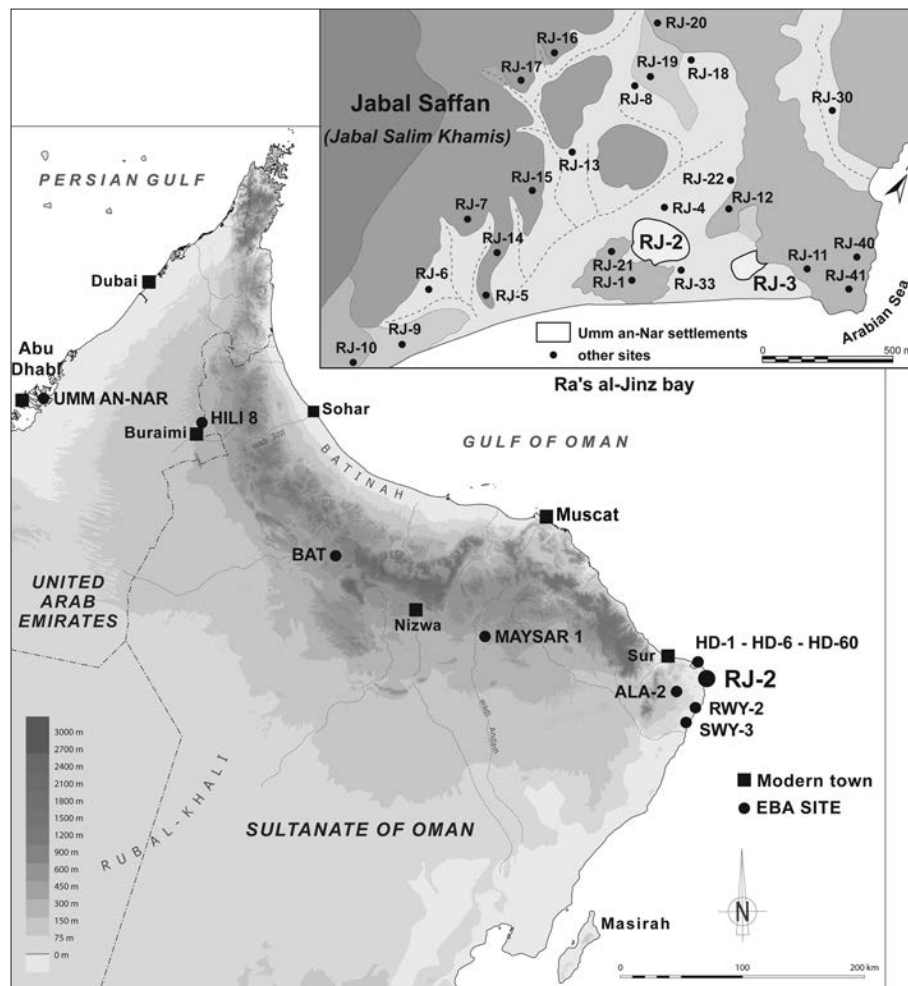


Fig. 1: Map of the Oman Peninsula with the localisation of Early Bronze Age sites mentioned in the text (Map: V. Azzarà, on a base map of H. David); map of the Ras al-Jinz bay, showing the Umm an-Nar settlements of RJ-2 and RJ-3 and the position of other sites in the area (Map: V. Azzarà, redrawn after Cleuziou – Tosi 2000: fig. 4).

8.1 Introduction

In their monographic article on the site of RJ-2 and the pre-protolithic occupations of the Ras al-Jinz bay, Serge Cleuziou and Maurizio Tosi¹ give critical

insights on the significance of socio-cultural changes that affect the region during the Early Bronze Age, starting from evidence of settlement life. Almost two decades have passed, and more recent research works have added shades to that picture,

¹ Cleuziou – Tosi 2000.



Fig. 2: The bay of Ras al-Jinz; the settlement of RJ-2 is visible at the foot of the terrace in the foreground (Photo: Y. Guichard).



Fig. 3: Early Bronze Age structural remains uncovered at RJ-2 (Photo: JHP).

sharpening our perception of cultural, social and economic specificities of Eastern-Arabian populations in the frame of the Early Bronze Age cultural spheres. Yet, while a number of monumental graves and towers of the Umm an-Nar period have been explored and constitute a fertile research ground, few ‘regular’ settlements have been investigated so far, and even fewer have undergone extensive research. Ras al-Jinz RJ-2 has been the object of field explorations for almost thirty years, in the context of the Joint Hadd Project (JHP) directed by Serge Cleuziou and Maurizio Tosi. As such, the site remains one of the foremost Bronze Age settlements in the region, providing a well-documented sequence of over 500 years, which covers three discrete phases of occupation throughout the Umm an-Nar period (c. 2500–2000 BC). Evidence uncovered at RJ-2 offer a large amount of data that can be reassessed in the light of new research frameworks.

This paper presents the vestiges explored on site, addressing the stratigraphic-structural sequence, the architectures and the material culture. The review of past and new data aims at highlighting technical aspects of the structural evidence and social significance of the built environment, systems of activities and evolution of craftsmanship, as well as possible interactions at regional and interregional scale. It also seeks to demonstrate, in a diachronic perspective, how these data can help us grasping the transformations that lead to cultural, social and economic complexification of local communities throughout the Umm an-Nar period.

8.2 The site of Ras al-Jinz RJ-2

Located at the easternmost tip of the Arabian Peninsula, and bordered by the most oriental fringe of the Hajar Mountains – the Jebel Khamis –, the bay of Ras al-Jinz is part of the *niyabat* of Ras al-Hadd, which separates the Gulf of Oman and the Indian Ocean (Fig. 1 and Fig. 2). The region is characterised by a broad spectrum of natural resources, both terrestrial and marine, which have led to an intense exploitation of the territory from the Neolithic onwards.² The site of Ras al-Jinz RJ-2, set on top of an alluvial plain, is related to the occupation of the bay during the Umm an-Nar period. The site itself stretches on an area of about 1.1 ha, but the settlement complex was most likely wider. The site of RJ-3, located to the north-east of RJ-2, on the other side of the bay, and displaying alike evidence of the Umm an-Nar period, was probably part of the same settlement, which might have extended on 3 or 4 ha (cf. Fig. 1). Excavations at RJ-2 were carried out from 1985 to 1998, and

² Cleuziou – Tosi 2000: 19.

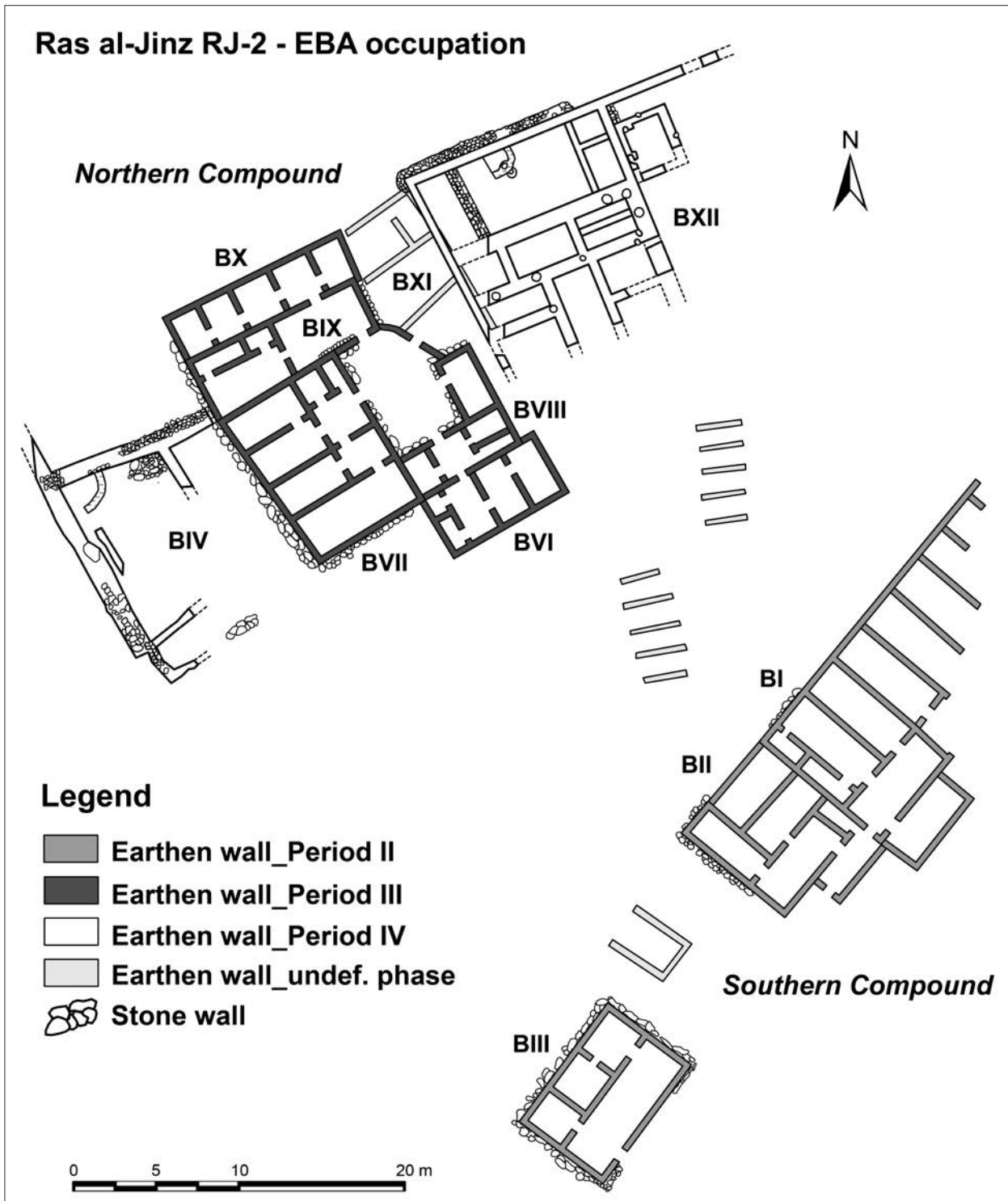


Fig. 4: Plan of Ras al-Jinz RJ-2, showing the three main occupations of the Umm an-Nar period (Plan: V. Azzarà).

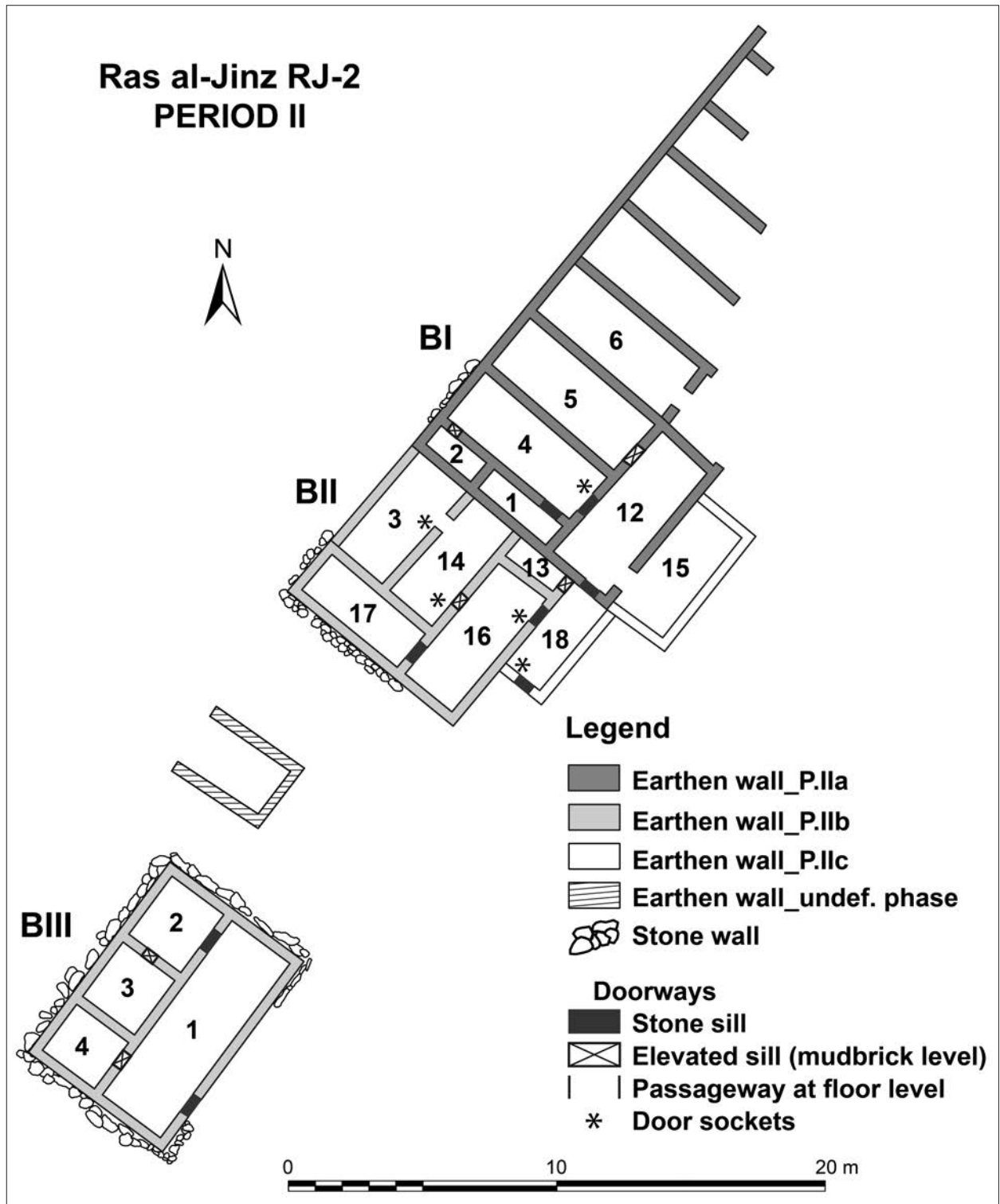


Fig. 5: Plan of the Southern Compound (RJ-2 Period II) (Plan: V. Azzarà).

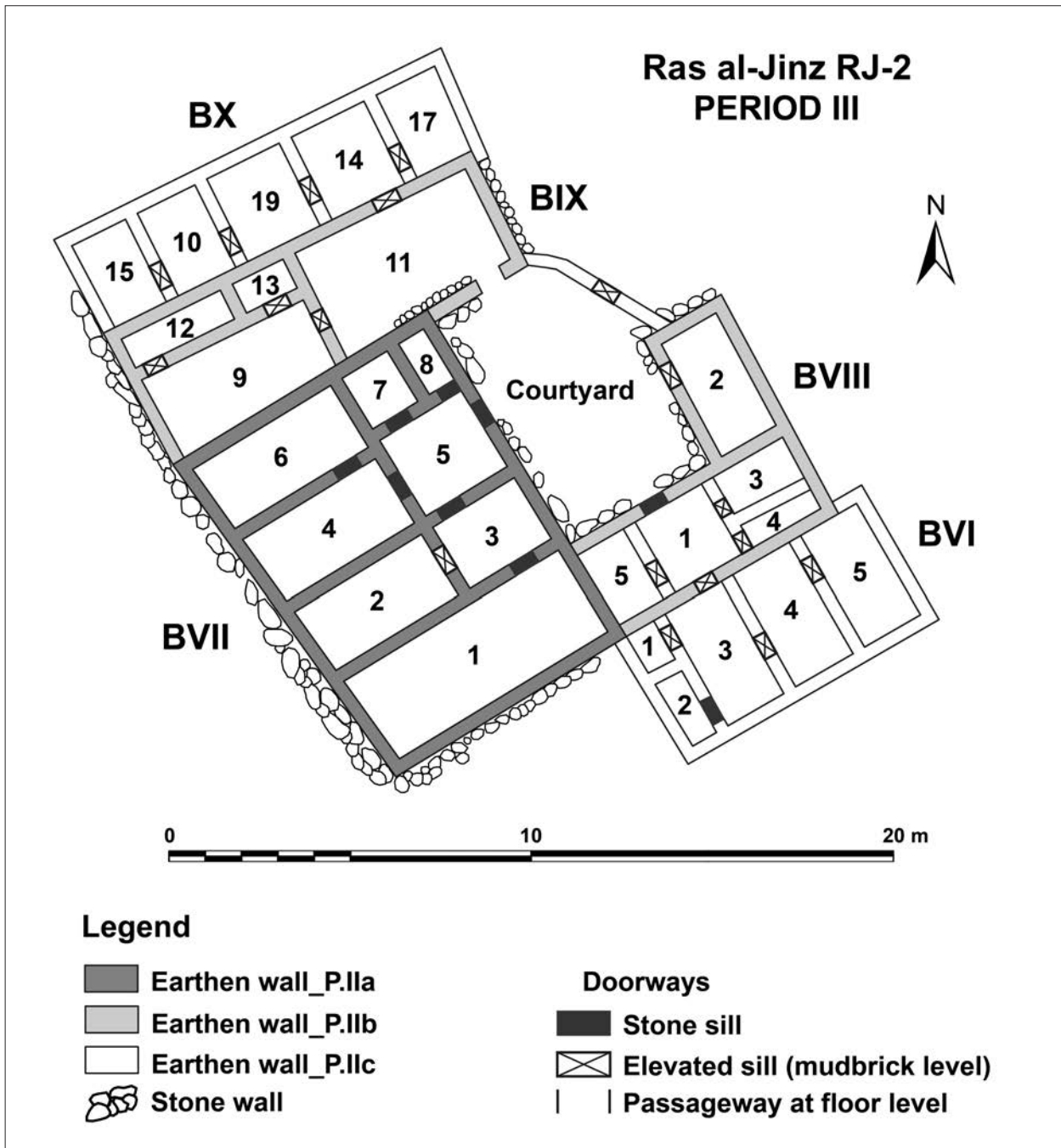


Fig. 6: Plan of the Northern Compound (RJ-2 Period III) (Plan: V. Azzarà).

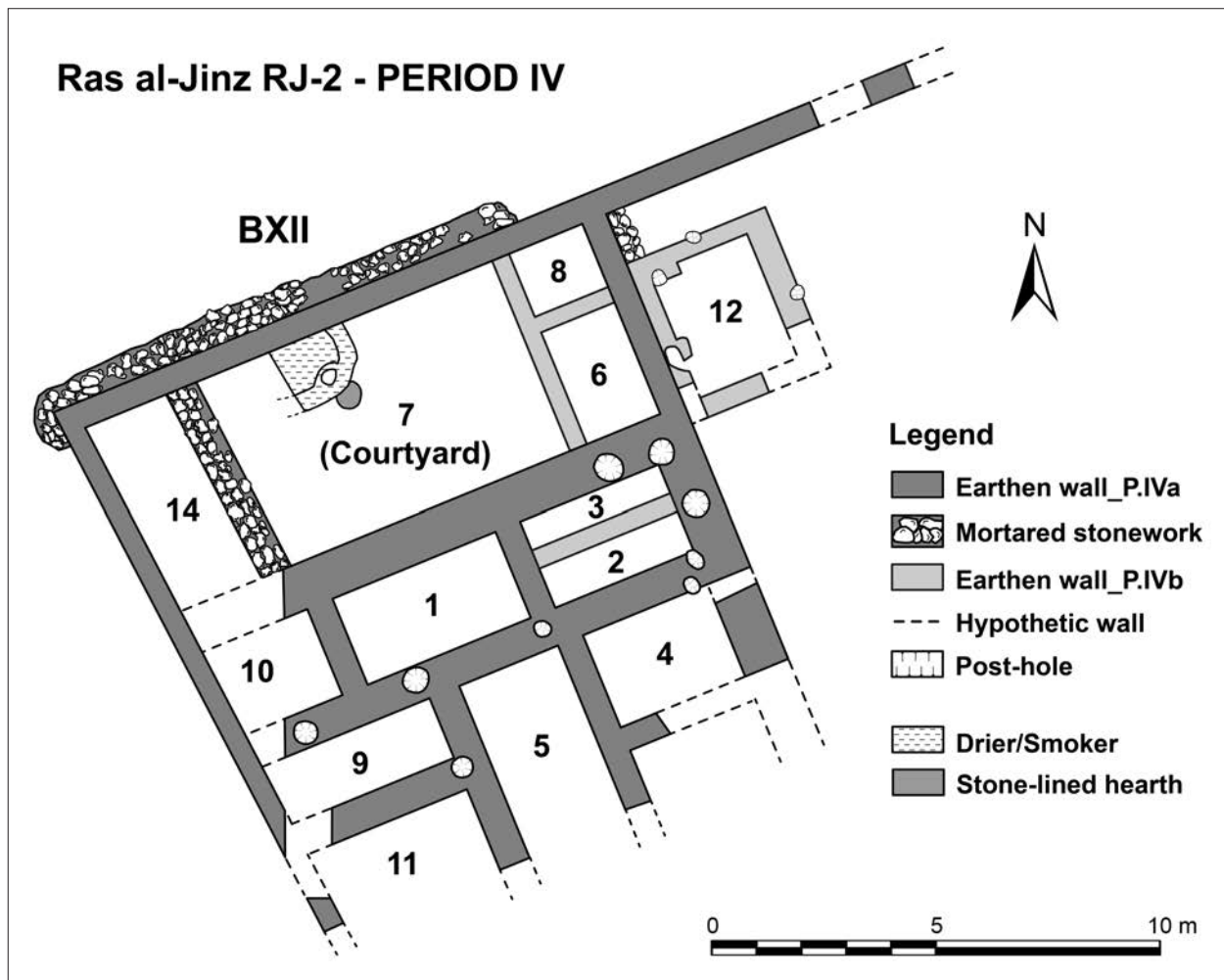


Fig. 7: Plan of Building XII (RJ-2 Period IV) (Plan: V. Azzarà).

then resumed from 2007 to 2011; in addition, a field campaign was aimed in 2017 at partial reopening of investigated buildings and sample collection for a re-assessment of architectural evidence.

8.3 Cultural Sequence

The long-term field works have allowed detecting four main phases of occupations, defined by structural-stratigraphic vestiges. The earliest evidence, labelled as Period I, is represented by the remains of a few ephemeral structures directly cut into the bedrock, dated to the 4th millennium BC.³ Following the Neolithic occupation, RJ-2 is abandoned; during the Hafit period, settlement structures are located on top

of the terrace bordering the site, as suggested by evidence of the early 3rd millennium uncovered at RJ-1.⁴ Vestiges related to the Umm an-Nar period attest the reoccupation of the site during the second half of the 3rd millennium, and define three main phases, conventionally dated to 2500–2300 BC (Period II), 2300–2100 BC (Period III) and 2100–2000 BC (Period IV), based on the material culture and on a series of ¹⁴C dates (Fig. 3 and Fig. 4).⁵ At the end of Period IV, the lowland is abandoned again, while the nearby terrace is occupied during the Wadi Suq period.⁶ Although belonging to the same chrono-cultural horizon, Periods II, III and IV of RJ-2 mark a sequence characterised by the evolution of both architectural features and material culture.

⁴ Monchablon *et al.* 2003: 34, 41–42.

⁵ Cleuziou – Tosi 2000: 28.

⁶ Biagi – Jones – Nisbet 1989.

³ Cleuziou – Tosi 2000: 28.

8.3.1 Period II (c. 2500–2300 BC)

The first Umm an-Nar occupation, Period II, is mainly attested in the southern area of the settlement, which displays an architectural cluster known as ‘Southern Compound’. Consisting of two separate dwelling complexes, the compound shows three stratigraphic-structural phases (Fig. 5).⁷ To the east, the dwelling presents two aligned buildings, identified as Building I and Building II. Building I represents the first evidence of solid architecture on site, and probably comprised at least two blocks, only one of which was fairly preserved (Rooms 1 to 5, Rooms 12, 15). The second phase is represented by Building II, abutting Building I to the west, and presenting similar layout, although orientation of the rooms is different. Several rooms of this complex are marked by significant evidence, revealing overseas connections, and highlighting a series of activities carried out on site (*cf. infra*). Room 2 of Building I, for instance, presents a remarkable assemblage, including a cluster of bitumen slabs, a series of large conch-shells (*Fasciolaria trapezium*), an ivory comb of Indus origin, and a copper seal. Along with different types of Indus pottery, other spaces have yielded shell-valves used as containers for cosmetic powders, numerous artefacts and unfinished objects of copper or copper alloy, as well as traces of shell rings manufacture.⁸ About 10 m far from Building II and ascribed to the same structural phase, Building III is a stand-alone structure; although its dimensions do not differ much from those of Building I and II, the internal layout is dissimilar, as it presents a large rectangular space bordered by three smaller squarish rooms.

8.3.2 Period III (c. 2300–2100 BC)

Period III is marked by the construction of a dwelling complex in the northern sector of the site. Known as ‘Northern Compound’, this complex consists of five different buildings progressively built around a common courtyard, on a time span of at least three stratigraphic-structural phases (Fig. 6).⁹ The first nucleus of the complex is represented by Building VII, which has yielded a series of valuable objects, such as a copper necklace, a large bronze cutting tool, and a seal.¹⁰ The second structural phase is related to the construction of Buildings VIII and IX, abutting Building VII respectively to the south-east and to the north. They both have different conformation with respect of Building VII, and of each other. The evidence related to Building IX is noteworthy: Room 11, acceded from the outside, was most likely

a non-roofed courtyard, marked by numerous fireplaces, one of which yielded several bitumen slabs. The adjacent Room 9 displayed clear traces of manufacture, related to the production of shell rings, as well as cold hammering, annealing, and melting of metal objects.¹¹ The last phase is marked by the construction of Building VI and Building X. The former, abutting the southern wall of Building VIII, formed with this structure an integrated complex. Bordering Building IX to the north, Building X was acceded from it; the five squarish rooms composing the structure displayed each a large fireplace.¹² As a whole, the evidence related to Buildings IX and X hints at specific function of the complex, probably intended for craft activities.¹³ The last occupation of the Northern Compound is also characterised by the transformation of the outer space into a bounded courtyard, a collective space fully integrated to the buildings, and creating with them a close complex.¹⁴

8.3.3 Period IV (c. 2100–2000 BC)

The last occupation, Period IV, has been identified in the northern sector of the site. Two structures made of rammed earth, Building IV and Building XII, abut namely the vestiges dated to Period III. To the west, Building IV consists of a large structure made of rammed earth and stones, whose arrangement could not be precisely defined, due to poor preservation (*cf. Fig. 4*).¹⁵ A clay structure set as a quarter circle was located in the north-western corner of the complex, and surrounded by a series of fireplaces and tossed faunal remains. Along with elements having parallels in the other Umm an-Nar occupations of the site, the deposits associated to Building IV have delivered characteristic potsherds of sandy ware, marked by a zoning of colours in the sherd thickness (*cf. infra*).¹⁶

The contemporary Building XII, located east to the Northern Compound, was mostly investigated during the last campaigns of excavation.¹⁷ The scarce preservation of the structure on the southern and eastern sides did not allow identification of the entire perimeter; nevertheless, the exposed vestiges cover a substantial surface, and show close similarities with Building IV (Fig. 7). Like the latter, Building XII is a large structure made of rammed earth and stones, presenting a wide internal courtyard in the northern part (Room 7) and at least thirteen rooms. Despite the lack of flagrant variations of the material culture, comparable to the assemblage of Building IV,

7 Cleuziou – Tosi 2000: 29–34, fig. 5.

8 Cleuziou – Tosi 2000: 30–31.

9 Cleuziou – Tosi 2000: 28–29.

10 Cleuziou – Tosi 2000: 34–35, 57.

11 Cleuziou – Tosi 2000: 35–36.

12 Cleuziou – Tosi 2000: 36.

13 Azzarà 2009: 11–12.

14 Azzarà 2009: 12.

15 Cleuziou – Tosi 2000: 39–40.

16 Cleuziou – Tosi 2000: 40.

17 Azzarà – De Rorre 2018.

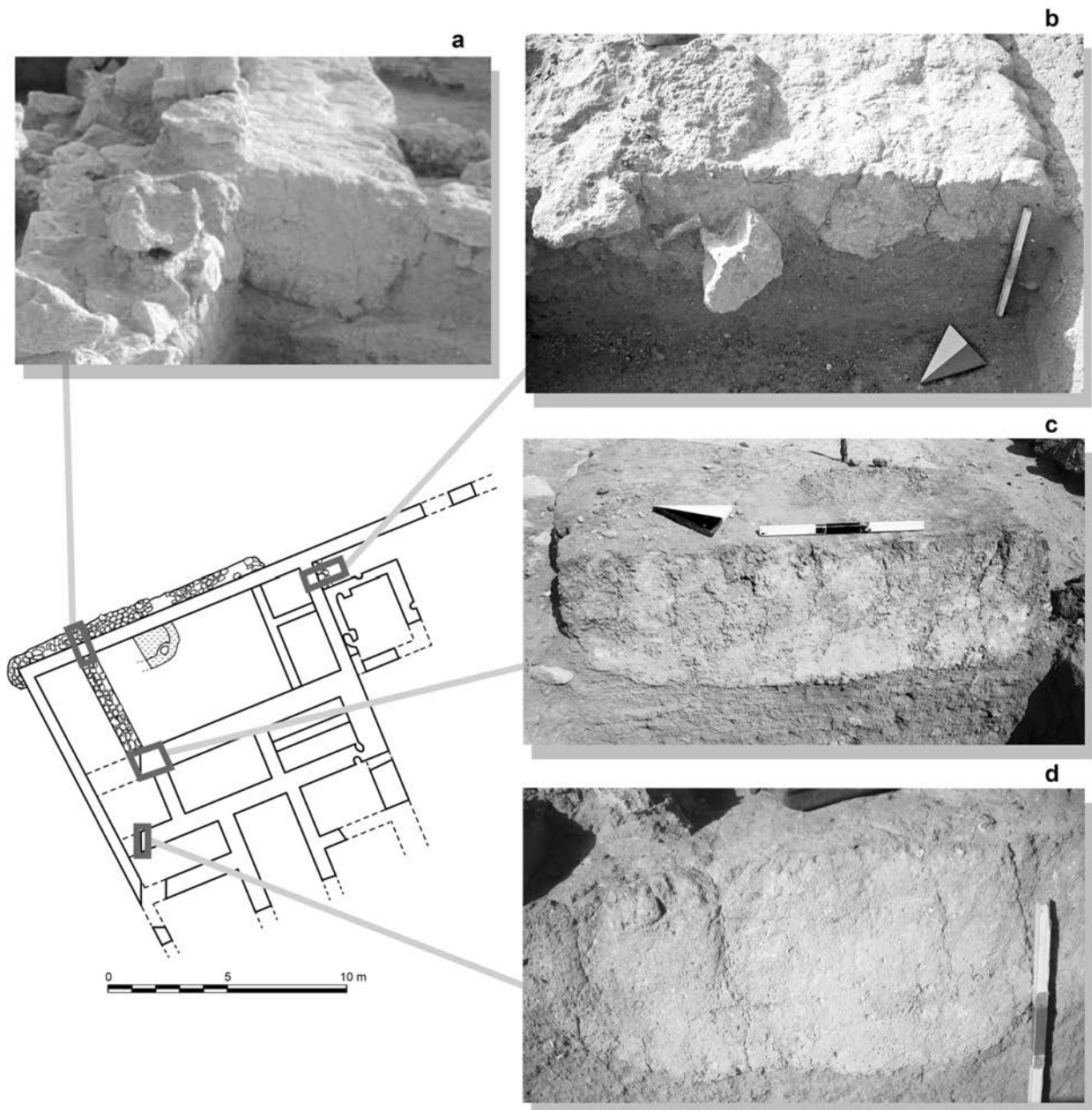


Fig. 8: Some of the sections made on masonries of Building XII (RJ-2 Period IV): stonework associated with earthen walls (a–b); earthen walls (c–d); (Photos: A. De Rorre; Plan: V. Azzarà).

stratigraphic-structural sequence reveals at least two phases. The two occupations could be well defined within the courtyard, displaying a series of accessory structures suggesting functional specificity of this space, most likely related to food-processing activities. The northern part of courtyard, in particular, was occupied by a large structure made of earth and stones, probably aimed at food-processing (*cf. infra*).¹⁸

8.4 Architectural evidence: the built environment and its evolution throughout the Umm an-Nar period

Periods II, III and IV of RJ-2 mark a variation of architectural features, which show an evolution of siting techniques and spatial layout; besides, we can observe the transformation of building techniques and materials. Although observations on building materials were made during early excavations, it was essential to develop more accurate insights on the structures and their technical characters; this goal could only be

¹⁸ Azzarà – De Rorre 2018: 17–19, fig. 8.

achieved through dismantling some portions of walls to observe the modules and the way they were assembled, on the one hand, and through analysis of materials composition, on the other hand. Data collected from 2011 through the new procedures challenge some of the previously drawn conclusions.

8.4.1 Building materials and building techniques

According to the excavators, Period II and III present a series of mud-brick structures, characterised by large, flat modules, about 6–8 cm thick, laid as stretchers, and alternated with layers of butted sandy clay, about 20 cm thick.¹⁹ Nevertheless, based on the new evidence, it is possible to suggest that: i) the layer of butted clay might consist of bricks of different module, prepared with a sandier blend, and perhaps un moulded; ii) not all the walls might have necessarily displayed identical building techniques during these periods, and we cannot rule out the hypothesis that different procedures were applied to distinct structures. Several samples of building materials have been collected for micro-morphological study; the analyses will help clarifying this issue, and any further interpretation shall take into account their results. At any rate, the mud-bricks that we could observe during recent campaign have close parallels in the region, at the nearby Ras al-Hadd HD-6²⁰, but also at Bat²¹ and Hili 8²².

Buildings are generally bordered by low narrow walls, made of limestone blocks (*cf.* Fig. 5 and Fig. 6). While during Period III these structures were an original feature in the construction, during Period II they were rather related to the refurbishment of partially ruined dwellings.²³ These stone walls were most likely intended to protect the masonries by insulating their base from runoff water and rising dump, which could lead to deterioration and spalling; similar evidence has been uncovered at Ras al-Hadd HD-6.²⁴ We have little information on the elevation of the walls and the presence of an additional floor. A collapsed wall shows a minimum height of 1.80 m;²⁵ comparison with several collapsed masonries uncovered at HD-6, however, suggests that standing walls might have measured at least 2.50 m in height.²⁶ As for upper floors, one of the spaces has been interpreted as a stairwell,²⁷ but this would not imply that buildings

had a second occupied floor, and it is possible that the stair rather guaranteed access to a terrace.

While the presence of different types of building techniques still needs to be ascertained for the first two occupations, there is little doubt about the methods employed from the beginning of Period IV. Clayey blends remain the main material used for the construction; the walls, made of rammed earth, are associated with mortared stonework (Fig. 8). Masonries were preserved on an average of 30 to 50 cm on the northern side, while their depth decreased progressively towards the south. The vestiges attest two types of walls made of rammed earth: i) load bearing walls, consisting of large structural elements, 80 cm to 1 m wide, and marked by the traces of supporting posts; ii) less massive shear walls, about 40 to 60 cm in width. Both types of masonries were made with a compacted, highly clayey paste; the semi-circular basis of the structures suggest that the first layer of damp earth was cast into a foundation trench. Along with walls made of rammed earth, the building presents a series of mortared stonework, consisting namely of one to three courses of stones embedded in a thick layer of clayey mortar (*c.* 10–15 cm), sometimes overlapped by the same type of material. These masonries, some 60–70 cm large, mostly border the external side of earthen walls; since they were built simultaneously, as suggested by stratigraphic relations, it is very likely that the stonework was intended as a protection for the rammed earth against runoff water and rising dump.²⁸

Similarly to previous phases, we have little information on the possible height of the masonries. Some evidence hint at the presence of stairs, at least during Period IVb, when Room 2 had been partitioned into two smaller spaces, labelled as Room 2 and Room 3. The topmost level of Room 3 presented an approximately rectangular structure made of regularly fitted stones, occupying the entire width of the room (about 70 cm); both the small extension of Room 3 and the stone structure suggests that this space might have constituted a stairwell. Although the stairs may have led to a terrace, the massive load bearing walls, up to 1 m large, the utilisation of supporting posts, as well as the utilisation of a system of foundation, would strengthen the hypothesis of a second floor.²⁹

8.4.2 Roofing systems

The question of floors or terraces is strictly related to the roofing systems that might have been adopted on site. The site has not yielded traces of roofs, and we can only speculate on this issue; however, we may consider a few factors that could provide some clues

19 Cleuziou – Tosi 2000: 29.

20 Azzarà 2013: 17–18.

21 Frifelt 2002: 103–104, fig. 4; Thornton – Cable – Possehl 2013: 607, fig. 11, 13, 15.

22 Cleuziou 2002: 197.

23 Cleuziou – Tosi 2000: 29.

24 Azzarà 2013: 20.

25 Cleuziou – Tosi 2000: 31, pl. 15.

26 Azzarà 2015: 226, 249, fig. A.10.

27 Azzarà 2015: 30.

28 Azzarà – De Rorre 2018: 20.

29 Azzarà – De Rorre 2018: 13–14.



Fig. 9: Examples of roofs built with wood beams, mats and earth, typical of regional architecture (Photos: V. Azzarà, top right S. Cleuziou).

on the materials and the techniques used for roofing. Cleuziou and Tosi³⁰ suggest that roofs could be built with palm tree beams covered with mats and earth. This kind of roofing is typical of vernacular architecture in the region (Fig. 9), and more generally in regions characterised by an arid climate,³¹ and it seems reasonable to assume that similar techniques were used in the past. While clayey earth was obviously available and exploited on site, beams made of palm trees should have been transported from the inland (*cf. infra*). It is not impossible that this was the case; donkey (*Equus asinus*) was likely domesticated by the Early Bronze Age, and it is the most attested species among large livestock at RJ-2;³² in addition, trunks might have been transported as boat-shipments. Nevertheless, transport of palm tree beams might have constituted a logistical problem while coping with large numbers. On the other hand, flat roofs cannot

be set using solely compressible – and heavy – materials, such as clay; therefore, the quality of joists has critical effects on the implementation and the final characteristics of a roof.

If we consider local resources, anthracological remains attest the presence of *Ziziphus sp.*, *Tamarix sp.* and *Acacia (cf. infra)*.³³ The wood of *Acacia sp.* has a dense structure, and it could be exploited to produce posts and beams;³⁴ utilisation of *Tamarix* has been attested in Arabia, and *Ziziphus* could be exploited as well.³⁵ Despite the fact that these species do not provide very good-quality wood and their utilisation would limit the length of the beams, the exploitation of endemic ligneous cannot be ruled out. Indeed, this hypothesis would match the observation that, excepted a series of most likely unroofed spaces, such as courtyards, the rooms barely exceed 2 m in width. We might look for additional clues: the walls of Period IV present a series of postholes indicating that wooden

30 Cleuziou – Tosi 2007: 218–219.

31 *Inter alia*, Taylor-Soubeyran 1985: 17–18, fig. 34, 40, 50; Jerome – Chiari – Borrelli 1999: 42.

32 Bökönyi 1998: 99, fig. 19a.

33 Nisbet 1990.

34 Cartwright 2004: 49.

35 Tengberg 1999: 76.

supports were embedded in the masonries; however, their measures (c. 40 in diameter) cannot be considered as indicative, since the trunks could be refitted before utilisation, and it is also possible that several trunks could be joined to form a single post. In addition, we should consider the utilisation of thatching as a roof building method, which would have not required the utilisation of joists, but would have also precluded the construction of a second floor or a terrace. At any rate, if we cannot discard the hypothesis of palm trees used as a material for the fabrication of joists, it is possible that coastal communities would have rather exploited local resources, saving both labour and raw materials.³⁶

8.4.3 Storm water drainage and water reservoirs

An assessment of roofing systems cannot disregard the issue of water drainage and the exploitation of storm water. In traditional architecture, buildings often present rain gutters made of plaster, connecting the roof with a cistern located in the courtyard. This system allows the evacuation of storm water, which would not accumulate on the rooftops nor would it damage the walls causing rising damp and the subsequent spalling; in addition, it provides water supplies, exploitable for a series of activities.³⁷

A system of the sort was documented within the Northern Compound of RJ-2; the preserved portion of drain consisted of a square-section structure (15 x 15 cm), coated with clay and clad with flat stone slabs; from the inner courtyard, it crossed the wall closing the yard towards the north-east, and flowed into a partially preserved cistern, most likely circular (Fig. 10).³⁸ A comparable structure was excavated at Maysar 1, in the courtyard of House 4; better preserved, this drain, measuring about 7 m in length and clad with stone slabs, opened on a circular cistern of 1.40 m in diameter.³⁹ There is little doubt about the function of these elements, and it is not surprising that sites on both the coast and the inland would present this type of device, as creating supplies of non-saline water is clearly a major concern in arid regions, where it constitutes a rare resource.

8.4.4 Plasters and floors

While roofing systems can only be the object of speculation, plasters and floor surfaces are represented by a few remains on site, although rare. The most evident traces of plastering were found in Room 13 of Building I, deliberately clogged during the occu-



Fig. 10: The system of storm water drainage uncovered in the Northern Compound of RJ-2 (Photo: JHP).



Fig. 11: Plastering with finger marks preserved in Room 13 of Building II (Photo: JHP).

pation, where a filling of fragmented bricks has preserved the original surface of the walls; the latter were coated with a clayey non-tempered paste, simply applied by hands, as suggested by parallel finger prints (Fig. 11).⁴⁰ Similar traces were detected in Room 1, on a small surface. This kind of evidence was only found inside the buildings, for obvious reasons of preservation, but a fortiori the external surfaces, exposed to the elements, would be plastered.

36 Azzarà 2015: 254.

37 Ragette 2003: 31.

38 Cleuziou – Tosi 2000: 37–38, pl. 27.

39 Weisgerber 1981: 192, Abb. 16.

40 Cleuziou – Tosi 2000: 29, pl. 10.



Fig. 12: Examples of accesses at RJ-2: (top) a doorway filled by fragmented mud-bricks, most likely following the collapse of the walls, associated with a socket made of a naturally squared, flat slab; (bottom) a doorway marked by a stone sill, associated with a socket made of a roughly rounded limestone block (Photos: JHP).

As for floor surface, Cleuziou and Tosi⁴¹ assert that: “No proper floors were laid down [...] as if people moved into the houses directly on top of the early layers”. As a matter of fact, floors coated with clayey finishing materials, found for instance at the nearby HD-6,⁴² have not been documented at RJ-2; on the other hand, surfaces of butted earth were found in a series of spaces, such as Room 2, 3 and 4 of Building I, Rooms 14 and 17 of Building II,⁴³ or Room 7 of Building XII,⁴⁴ in a few cases, more than a floor surface was documented within the same room, showing

the refurbishment of these structures through time.⁴⁵ Even if most spaces appear to lack well-defined floors, it seems highly implausible that the dwellers did not attempt to improve the utilisation and the perception of their built environment; this is even more evident if we think that floors were documented within tiny storage-rooms.

8.4.5 Accesses

Although doorways have not been systematically identified, we can safely assume, based on the evidence, that accesses did not have distinct characteristics depending on their position; in other words, the main access to the building and internal doorways did not differ from each other. As a rule, and with a few exceptions, passages opening on a single room were slightly staggered (*cf.* Fig. 5 and Fig. 6). The passages identified for Period II and III were generally located at 40–50 cm above the floor level, although some were located at the floor level itself. Doorways were rather narrow, 50–70 cm in width, and often marked by stone sills, regardless of their position (Fig. 12, *cf.* Fig. 5 and Fig. 6); these elements have occasionally allowed to recognise the accesses, even though discontinuities were no longer observable in the walls.⁴⁶ In some cases, the remains document the raising of thresholds level, with two stone slabs separated by several layers of occupation, or the definitive closing of a door; the latter was the case, for instance, of the passage between Room 14 and Room 3 (Building II), once Room 3 had been abandoned during the last occupation of the dwelling.⁴⁷ Very little can be said about the system of accesses of Period IV, due to the poor preservation of the vestiges; a couple of large, flat slabs, isolated and standing against the walls, suggest the utilisation of stone thresholds; since no discontinuity could be documented in the masonries, it is possible that passageways were placed above the floor level, similarly to previous periods.⁴⁸ Door sockets, with an average diameter of 10–12 cm and marked by clear traces of rotation, were documented in at least five rooms (*cf.* Fig. 5); the sockets structures consisted either of roughly rounded limestone blocks, quite thick, or of naturally squared, flat slabs (Fig. 12).⁴⁹

41 Cleuziou – Tosi 2000: 29.

42 Azzarà 2015: 228–229, pl. 148–149.

43 *Inter alia* Pracchia 1988: 30.

44 Azzarà – De Rorre 2018: 18.

45 Azzarà 2015: 252; Pracchia 1988: 30, fig. 27.

46 Cleuziou – Tosi 2000: 29.

47 Cleuziou – Tosi 2000: 30.

48 Azzarà 2015: 191.

49 Cleuziou – Tosi 1990: 12–13, fig. 8; Cleuziou – Tosi 2000: 29.

SITING TECHNIQUES - UMM AN-NAR PERIOD

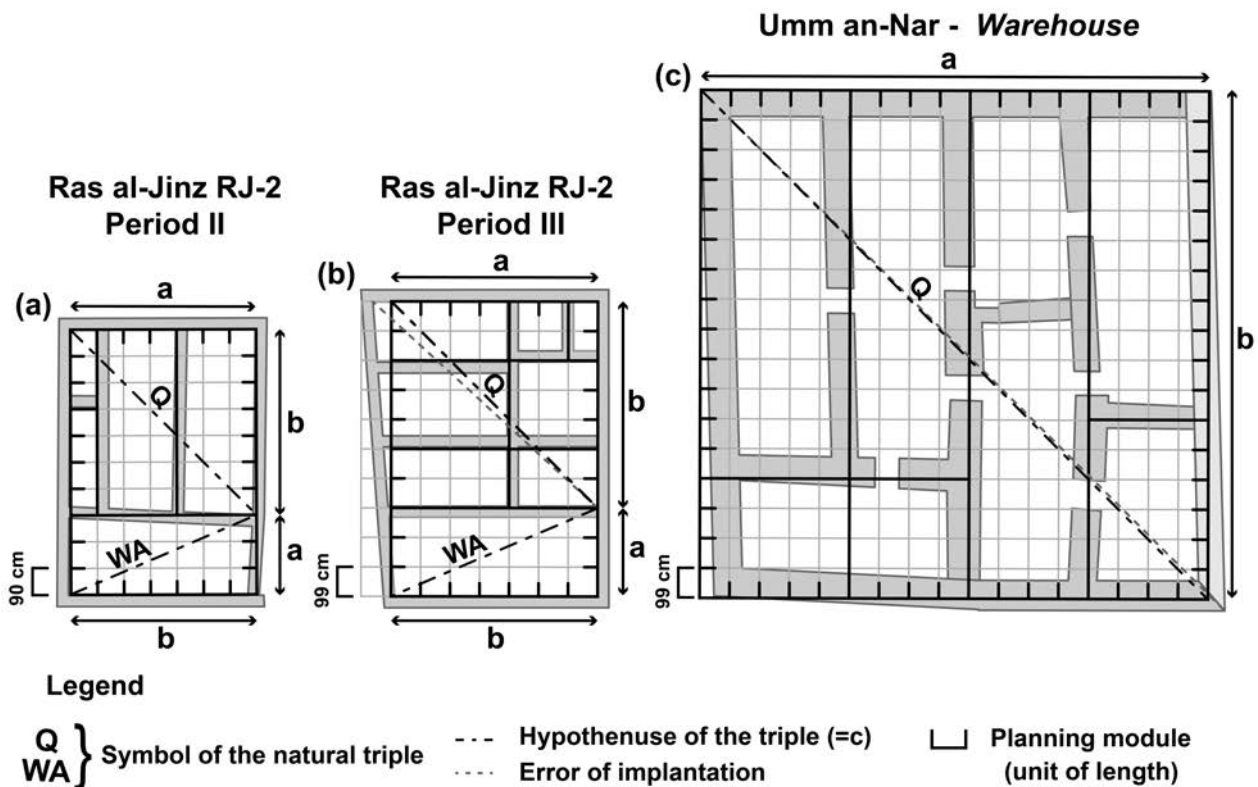


Fig. 13: Siting techniques during the UAN period: Periods II and III of RJ-2 (a–b) and the Warehouse of Umm an-Nar (c) show consistent structural proportions, expressed in terms of Pythagorean triples ($a^2 + b^2 = c^2$); planning module of the structures is a 'triple foot' of ≈ 90 cm (Plans: V. Azzarà; c: redrawn after Frifelt 1995: pl. 1).

8.4.6 Siting techniques

Along with building materials and techniques, analysis⁵⁰ of the plans reveals a variation of siting techniques, even though the base module (c , 90 cm) remained unvaried throughout the occupation.⁵¹ Period II and III display consistent modules and procedures for setting up the plan of the structures, which have parallels at other sites, such as Umm an-Nar, where the Warehouse shows analogous proportions and probably similar siting techniques (Fig. 13).⁵²

Period IV, on the other hand, is marked by a modification of proportions for both the perimeter and the internal partitions of the building (Fig. 14).⁵³ Comparable proportions characterise two structures uncovered within the same micro-regional context, at Khor Bani Bu Ali SWY-3 and Al-Ayn ALA-2.⁵⁴ The occupation of SWY-3 can be ascribed to the same time span of Period IV at RJ-2, i. e. the very end of the

3rd millennium.⁵⁵ In contrast, an accurate chronological frame of the Umm an-Nar occupation at ALA-2 could not be defined yet;⁵⁶ however, since architecture shall be considered as an integral part of the material culture, structural evidence might justify an attribution to the last centuries of the 3rd millennium BC, although our referential needs to be expanded.

8.4.7 Evolution of spatial layout: strengthening the social identity of the group

Along with technical characteristics of buildings, the evidence uncovered at RJ-2 allows grasping the social perception of the built environment. Architectural vestiges show, in fact, a modification of spatial layout, which evolves during the whole occupation (Fig. 15).⁵⁷ Period II is characterised by a series of structures arranged along the same axis; at the end of the occupation, Buildings I and II are connected by internal doorways, forming an integrated complex, most likely related to one single group. At Period III, the layout

50 Detailed description of these analyses and their methodological frame will be the object of further papers.

51 Azzarà 2015: 309–316.

52 Azzarà 2015: 309–311, 313, 316–317, fig. A.123, A.128–131.

53 Azzarà 2015: 311, 314, fig. A.123, A.128.

54 Azzarà 2015: 317–318, fig. A.136–137.

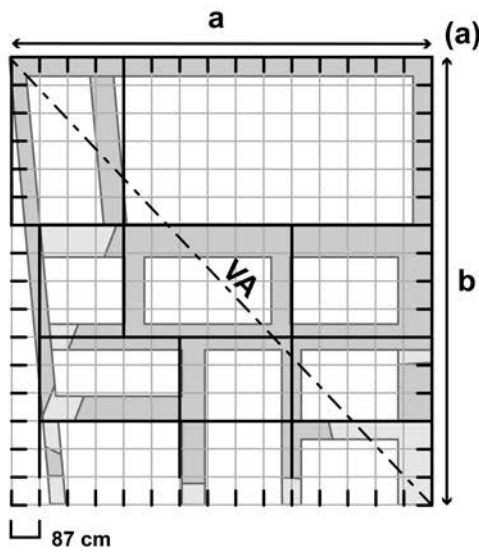
55 Méry – Marquis 1998; Méry – Marquis 1999.

56 Blin 2012.

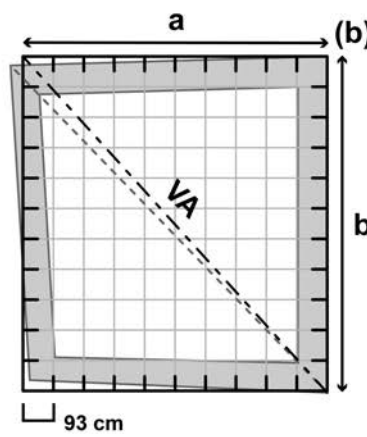
57 Azzarà 2015: 302–304, 307–309.

SITING TECHNIQUES - UMM AN-NAR PERIOD

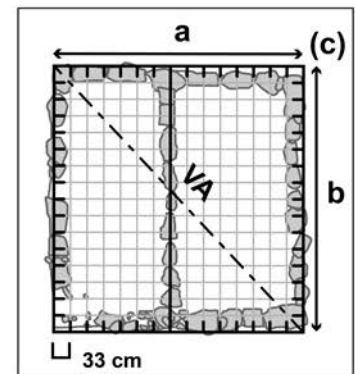
Ras al-Jinz RJ-2 - Period IV



Al-Ain ALA-2



Khor Bani Bu Ali SWY-3



Legend

VA Symbol of the natural triple

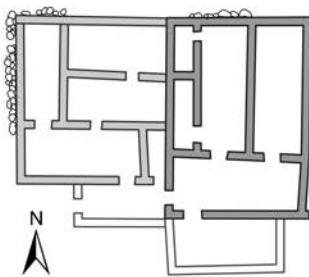
--- Hypotenuse of the triple (=c)
 Error of implantation

□ Planning module (unit of length)

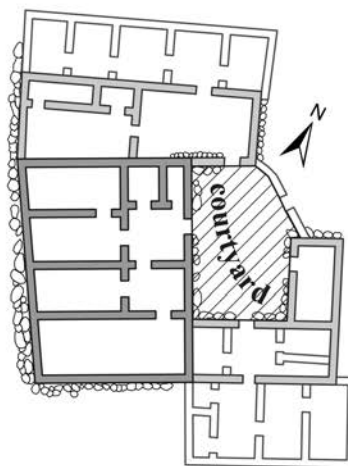
Fig. 14: Siting techniques during the UAN period: Period IV of RJ-2 (a) shows variation of proportions, expressed in terms of Pythagorean triples ($a^2 + b^2 = c^2$), with respect to earlier periods (cf. Fig. 13) and has parallels at ALA-2 (b) and SWY-3 (c); planning module of the structures is a 'foot' of ≈ 30 cm or a 'triple foot' of ≈ 90 cm (Plans: V. Azzarà; b: redrawn after Blin 2012: fig.13a; c: redrawn after Méry & Marquis 1998: fig. 3).

Ras al-Jinz RJ-2 - ORGANISATION OF SPATIAL LAYOUT

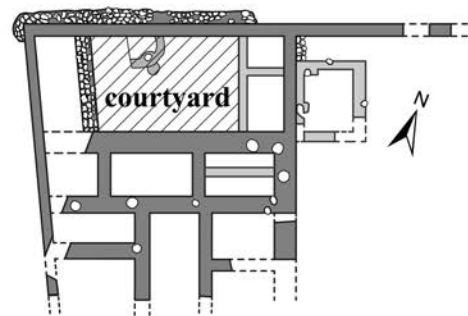
(A) Buildings I-II



(B) Buildings VI to X



(C) Building XII



■ Period IIa
 ■ Period IIb
 □ Period IIc

■ Period IIIa
 ■ Period IIIb
 □ Period IIIc
 ▨ courtyard (P. IIIc)

■ Period IVa
 ■ Period IVb
 ▨ courtyard (P. IVa/IVb)

Fig. 15: Variation of spatial layout throughout Periods II, III, and IV of RJ-2 (Plans: V. Azzarà).

gradually evolves towards a complex organised around a common courtyard; by the end of the period, this communal space, shared by the occupants of the different buildings, constitutes a fully merged part of the homestead, and the place of highest integration for the members of this group.⁵⁸ Period IV could be defined as the ‘crystallisation’ of this system.⁵⁹ From the very beginning, Building XII is organised along three sides of an internal courtyard, and the similarities with Building IV suggest that the latter had comparable layout. Surface of these structures is almost equivalent to that of the whole compound of Period III, suggesting that each of them might accommodate groups of similar sizes. Building layout, marked ever since the construction by the separation between internal and external space, was originally designed to represent the preferential relationships among the members of the group, and the stronger connections between them. Therefore, the transformation of spatial layout might reflect a reorganisation of cultural nature, rather than technical advancements.

8.5 Artefacts and ecofacts: production, consumption and trade

Cultural modifications and systems of activities can also be perceived through the material culture characterising the various phases of RJ-2. Preliminary studies of the material culture were already published, *inter alia*, by Cleuziou and Tosi (*cf.* also *infra*).⁶⁰ The different assemblages have been the object of new, more comprehensive analyses, whose results will converge in a monograph.⁶¹ The following paragraphs summarise preliminary results for the categories having larger impact on the construction of the chronological sequence, and address the finds from the point of view of production/consumption strategies, organisation of work and regional/interregional trade.

8.5.1 Pottery and soft stone vessels: chrono-cultural markers

Pottery is one of the main indicators of cultural change, and helped building the chronological sequence of the site. As a general assessment, the site has delivered a corpus comparable with other Early Bronze Age sites in the region, displaying Buff Sandy Ware, Fine Red Painted Ware and Grey Painted ware, as well as Indus pottery and sherds of Mesopotamian origins.⁶² According to preliminary stud-

ies, up to 40 % of the total assemblage of Period II consists of pottery from the Indus valley, while Period III is marked by the increasing predominance of locally-made ware.⁶³ Nevertheless, only a small part of the corpus was analysed, and the refining of the stratigraphic sequence might lead to a different picture.⁶⁴ As for Period IV, this occupation is marked by the appearance of a new type of pottery, represented by sherds of bicolour Sandy Ware, characterised by an orange surface and a sharply zoned grey core. This kind of pottery is very distinctive of the final phase of the Umm an-Nar period, and it has parallels at Khor Bani Bu Ali SWY-3.⁶⁵ Regardless of their respective proportions, perhaps to be reevaluated, these types fairly represent the assemblages attested within the settlement throughout the occupation.

Pottery of Indus origin mostly consists of large, black-slipped jars, presumably used as containers for long distance cargo shipments (Fig. 16.9); besides, the site has yielded other types of Indus ware, showing one of the most diversified Indus assemblages in the Oman Peninsula.⁶⁶ In addition, the settlement has delivered several fragments of Mesopotamian buff ware jars, all bearing traces of bitumen;⁶⁷ the bitumen itself, fairly represented at RJ-2, was of Mesopotamian origin, according to isotopic analyses.⁶⁸ Local Buff Sandy Ware is a wheel made standardised production, quite uniform both in terms of technology (fabric, techniques of shaping, finishing) and range of shapes (Fig. 16.6–8).⁶⁹ These vessels, probably produced in the Wadi al-Batha, have close parallels with the domestic wares of interior Oman, and in particular with the assemblages of Maysar 1.⁷⁰ Among local production, suspension vessels with lattice decorations seem to represent a chronological marker typical of Period III (Fig. 16.2–3).⁷¹ Fine Grey Ware, as well as Black-on-Red Fine Painted Ware are less frequent.⁷²

Together with pottery, other elements of the material culture have been considered as chronological markers. Most part of the soft-stone vessels, namely, are associated with evidence of Period III, matching the date generally agreed for the first productions of the *série récente*, c. 2300 BC; about forty pieces were found in these contexts (Fig. 16.11–14).⁷³ Much rarer, a few fragments were uncovered in later contexts of

58 Azzarà 2009: 10–12.

59 Azzarà 2015: 308–309.

60 Cleuziou – Tosi 2000.

61 Azzarà *et al.* forthcoming.

62 Cleuziou – Tosi 2000: 44, 52–53, fig. 6–9.

63 Cleuziou – Tosi 2000: 44.

64 Azzarà *et al.* forthcoming.

65 Azzarà – De Rorre 2018: fig. 3.6; Cleuziou – Tosi 2000: 53; Méry – Marquis 1998: 217–219, 223, note 4.

66 Cleuziou – Tosi 2000: 44, 52, fig. 8–9.

67 Cleuziou – Tosi 2000: 53, pl. 39.

68 Cleuziou – Tosi 2000: 66.

69 Cleuziou – Tosi 2000: 52, fig. 6–7.

70 Cleuziou – Tosi 2000: 52, fig. 6.1, 6.4–5.

71 Cleuziou – Tosi 2000: 52, fig. 7.2–3.

72 Cleuziou – Tosi 2000: 52, fig. 7.5–6.

73 David 1996: 34–35; Cleuziou – Tosi 2000: 53, fig. 10.1–4.

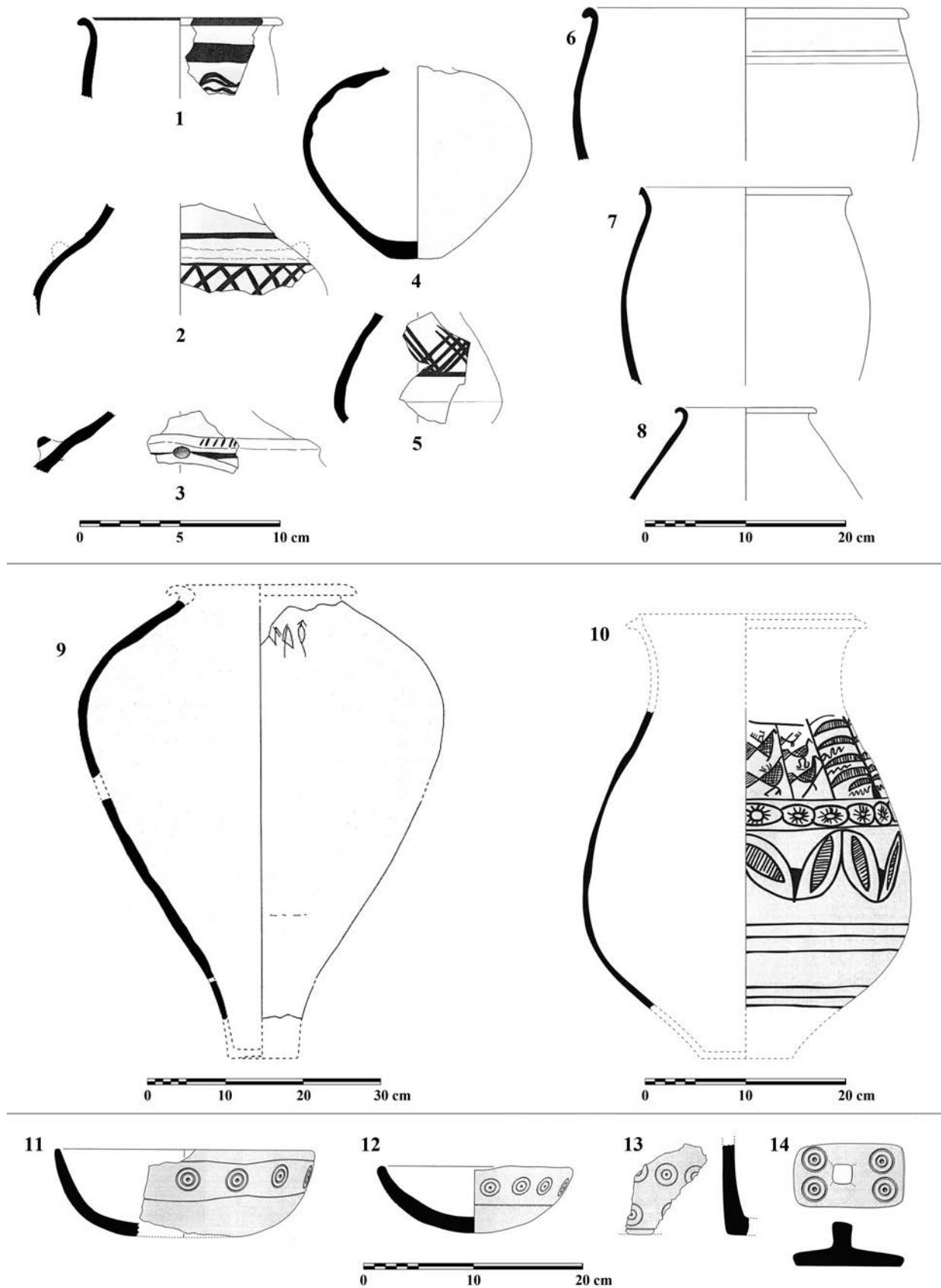


Fig. 16: Vessels from RJ-2. *Pottery*: 1. Decorated Buff Sandy Ware, 2–3. Suspension vessels; 4–5. Black-on-Red Fine Ware, 6–8. Local Buff Sandy Ware (Ja'alan Ware); 9. Inscribed Indus Black-slipped jar; 10. Indus Black-on-Red Jar; *Soft-stone vessels (série récente)*: 11–12. Hemispherical bowls with dot-in-circle decoration; 13. Compartmented rectangular box; 14. Rectangular lid (after Cleuziou – Tosi 2000: fig. 6–10).

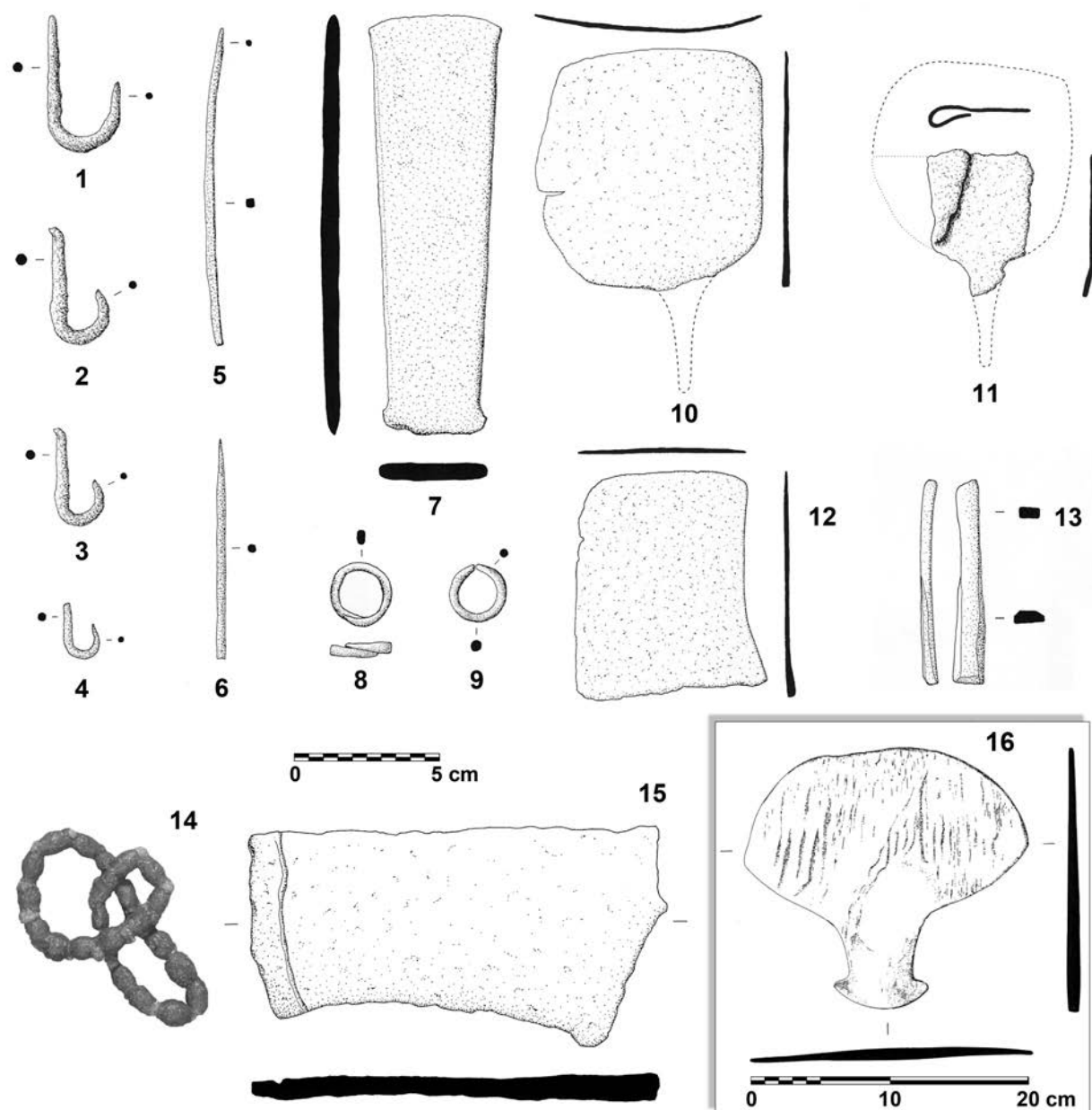


Fig. 17: Metal objects from RJ-2: 1–4. Hooks; 5–6. Pins; 7. Flat celt with flaring ends; 8–9. Rings; 10–12. ‘Razors’; 13. Flat bar; 14. Necklace; 15. Ingot; 16. Hoe-shaped tool (after Cleuziou – Tosi 2000: fig. 12–15)

Period IV.⁷⁴ It is worth mentioning, as well, the presence of seals made of soft stone, which constitute the most consistent assemblage in the region.⁷⁵

8.5.2 Metallic assemblage: the evolution of craftsmanship

Significant evolutions from Period III of RJ-2 can also be detected through the metallic assemblage, which shows the appearance of new types of objects. All

along the occupation, the most common classes are represented by simple artefacts, such as small blades, chisels, awls and, especially, fish-hooks, related to one of the main economic activities on site (Fig. 17.1–6, 13). This kind of objects were worked by cold-hammering of bars with circular or quadrangular section.⁷⁶ From the very end of Period II onwards, the metallic corpus includes much more refined artefacts, as well as clear traces of melting activities. The assemblage presents a number of metallic beads, and namely an entire necklace found in Building VII, as well

⁷⁴ Azzarà – De Torre 2018: fig. 3.2–3.

⁷⁵ Cleuziou – Tosi 2000: 59–63, fig. 16–17, pl. 36.

⁷⁶ Cleuziou – Tosi 2000: 54, fig. 12.1–6.

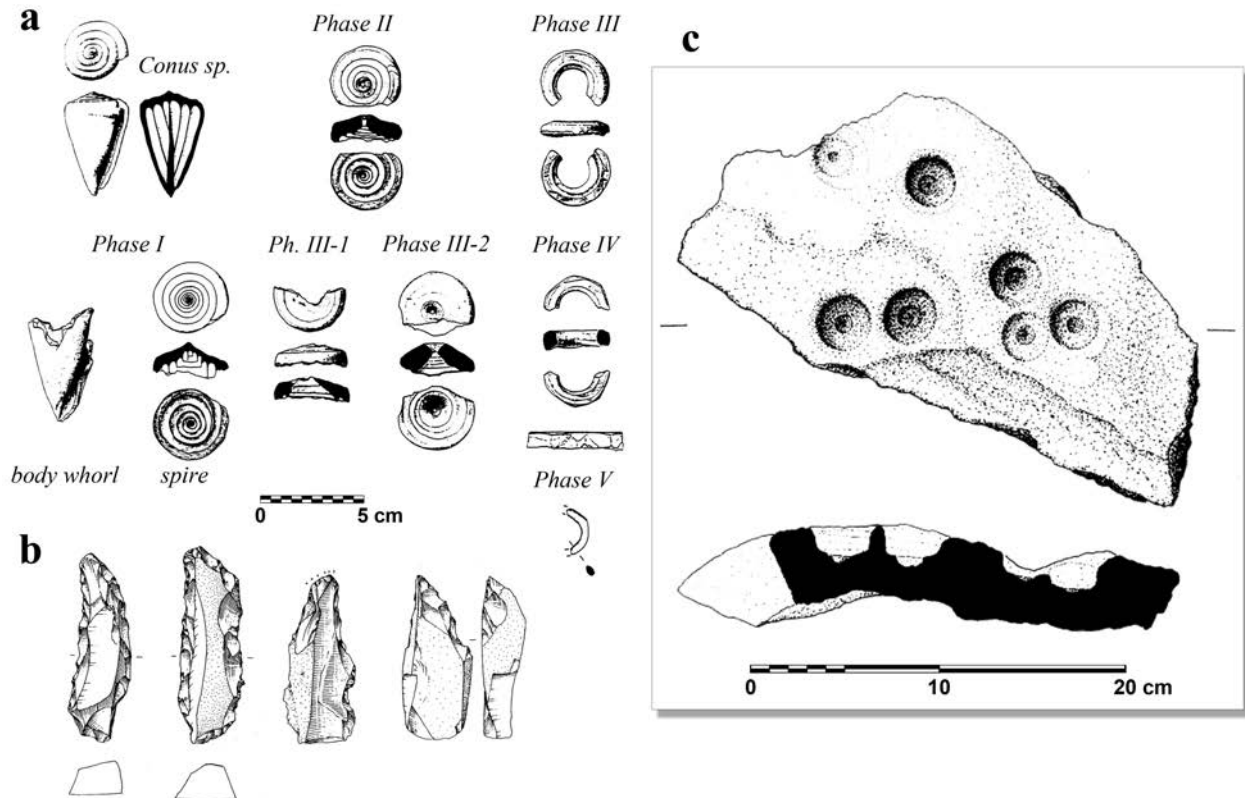


Fig. 18: Interaction of techno-complexes at RJ-2: a) *Chaîne opératoire* of *Conus* rings manufacture (selected items, after Charpentier 1994: fig. 13.2–4); b) Lithic implements made on flakes (selected items, after Cleuziou – Tosi 1990: fig. 23–24); c) Ground stone with multiple cupulae (Drawing: JHP).

as some rings (Fig. 17.8–9, 14).⁷⁷ Besides, the set of metallic implements encompasses large cutting tools, such as axes (Fig. 17.7), a series of so-called ‘razors’ (Fig. 17.10–12), and a hoe-shaped tool (Fig. 17.16),⁷⁸ the latter possibly used for squaring-off wood.⁷⁹ Period IV has also delivered a fragment of decorated vessel.⁸⁰

As a whole, characteristics of the assemblage are consistent with the observation that the most refined metallic productions of the Oman Peninsula develop towards the end of the 3rd millennium BC.⁸¹ The presence of at least two different contexts showing the traces of melting activities, storage and recycling at relatively significant scale, at the end of Period II and during Period III,⁸² corroborates the picture of an evolution, both in terms of production and technical skills.

8.5.3 Lithic assemblages and shell ornaments: the interaction of two techno-complexes

The lithic assemblage represents one of the most widespread classes of the material culture at RJ-2. The site has delivered a large amount of debitage, together with numerous tools, mostly manufactured on silicified limestone.⁸³ Along with translucent flint, silicified limestone nearly equal the entire range of raw material used at RJ-2 to produce lithic implements; both these materials originate in the large clastic reserves of the Jebel Saffan, extreme foothill of the Jebel Khamis (cf. Fig. 1).⁸⁴ *In situ* production was oriented towards flake blanks, mainly aimed at the manufacture of expedient implements, lacking formal specialisation. On the other hand, the different contexts yielded a significant quantity of blade blanks and tools manufactured on blades. Quite thick, the blanks were most likely produced at nearby sites located on the Jebel Saffan, such as RJ-5, RJ-16 or RJ-32;⁸⁵ Charpentier⁸⁶

77 Cleuziou – Tosi 2000: 54, 57, fig. 12.8–9, pl. 34.

78 Cleuziou – Tosi 2000: fig. 12.7, 13, 15, pl. 35.

79 A. De Rorre, personal communication.

80 Cleuziou – Tosi 2000: 57.

81 Weeks 2003: 55.

82 Cleuziou – Tosi 2000: 57; De Rorre 2007: 24–28, fig. 21–22, 33; De Rorre 2012: 477–480, fig. 2.

83 Charpentier 1999: 30, 40–41.

84 Charpentier 1999: 29–30.

85 Charpentier 1988: 48–49.

86 Charpentier 1988: 49.

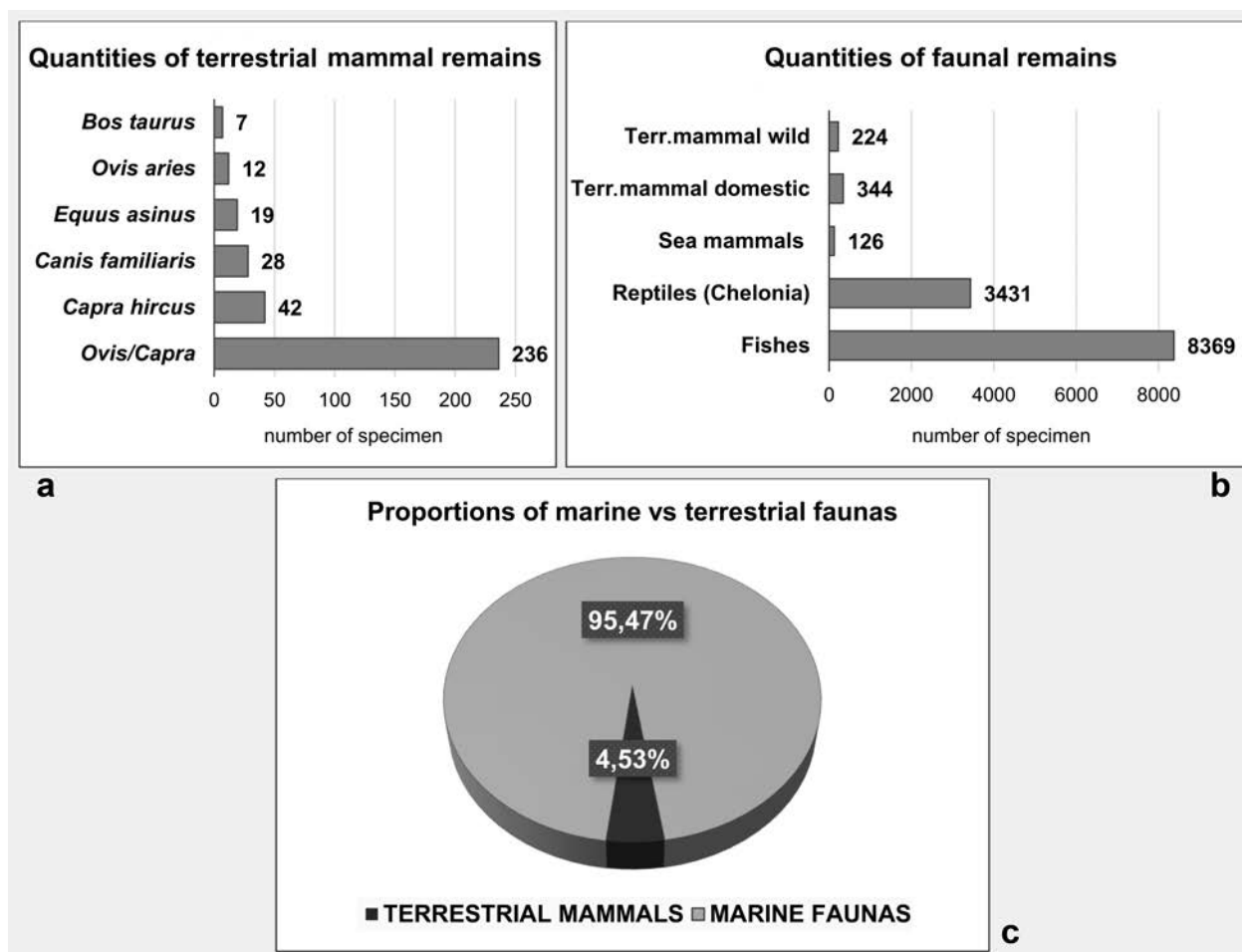


Fig. 19: Faunal remains from RJ-2 (main species only): a) Quantities of mammalian domesticates; b) Quantities of faunal remains per groups; c) Percent of terrestrial faunas and marine faunas (after a sample study of Bökönyi 1992: tab. 6.1).

remarks that the dynamics related to raw material extraction, debitage, manufacture of tools, and their utilisation, reveal the spatial segregation of different activities, with obvious implications on the organisation of work and of the workforce.⁸⁷ At any rate, most of these blades were transformed in a series of specific implements, namely fabricators, borers and composite tools (combining borer/fabricator functions), showing intense use wear and marks of striking on their distal part (Fig. 18b).⁸⁸ This lithic kit is clearly function-specific, and a series of experimental reproductions could prove its interaction with another techno-complex, namely the manufacture of shell rings.⁸⁹

Among different sorts of non-utilitarian artefacts, the settlement has delivered a large amount of remains related to the production of rings made of *Co-*

nidae and nacre. Charpentier⁹⁰ could reconstruct the operational sequence of this manufacture, identifying five main stages, and highlighting the existence of a few variables (Fig. 18a). Compared to the Hafit settlement of Ras al-Hadd HD-6, the sequence appears as much more standardised.⁹¹ In fact, at least another element points out to higher specialisation of work at RJ-2: a series of ground stones marked by multiple circular cavities on one or several faces, used as a support to maintain the manufactured pieces during their processing (Fig. 18c).⁹² As a matter of fact, shells rings appear to be a typical production of coastal settlements of southern Sharqiyah, attested on a series of Umm an-Nar sites of the area, such as Ras al-Hadd

87 Charpentier 1994: 163.

88 Charpentier 1988: 49.

89 Charpentier 1994.

90 Charpentier 1994: 158–162, fig. 13.2–4.

91 Azzarà 2015: 479, 572–573, pl. 195–196.

92 Charpentier 1994: 163, fig. 13.4e.

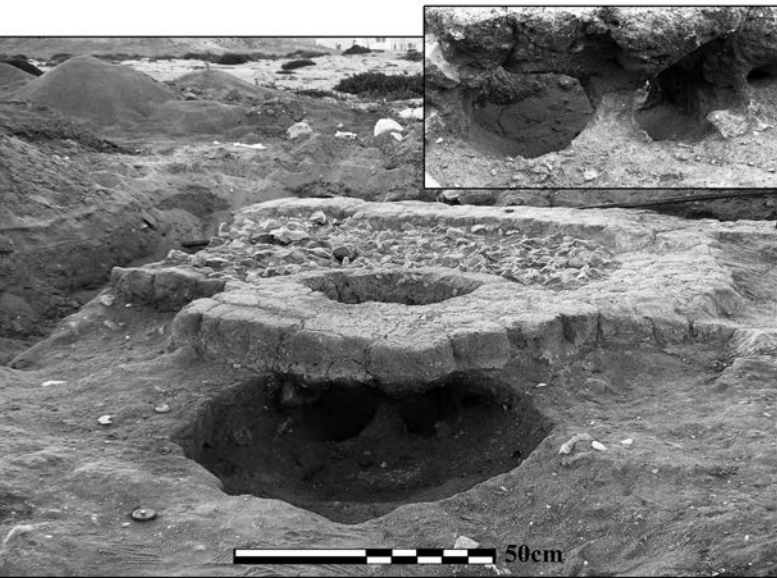


Fig. 20: The drier/smoker located in Room 7 of Building XII and a detail of the two pipes opening on the fireplaces (Photo: A. De Rorre).

HD-60,⁹³ Ras al-Ru'ays RWY-2⁹⁴ or Khor Bani Bu Ali SWY-3⁹⁵. Documented from the Hafit period, this manufacture had certainly evolved and amplified during the second half of the 3rd millennium BC.

8.5.4 Botanic and faunal remains: availability of resources, subsistence strategies, and food-processing

As already stressed, the area of Ras al-Jinz reveals an intense territorial exploitation from the Neolithic onwards. Along with the lowering of freshwater supplies during the Early Bronze Age,⁹⁶ continuity of the occupation from the Early Holocene has most likely played a role in the aridification of the area, and namely in soil degradation. Anthracological studies indicate the presence of succulent and ligneous species, adapted to harsh climatic conditions (*Acacia sp.*, *Ziziphus sp.*, *Tamarix sp.*), which still characterise wadi beds not far from the coast.⁹⁷ Besides, the site yielded numerous remains of date stones (*Phoenix dactylifera*) and jujubes stones (*Ziziphus spina christi*).⁹⁸ While jujubes could be collected nearby the site, dates would unlikely be a local resource. Environmental conditions would have not allowed the development of agriculture, and we can assume that these crops were

not cultivated in the area.⁹⁹ Therefore, date remains from RJ-2 suggest the acquisition of agricultural resources from the inland, perhaps from the cultivable lands of the Wadi al-Batha, some 70 km south of Ras al-Jinz.¹⁰⁰

Nevertheless, a range of valuable natural resources characterised the territory. The area was an ideal spot for the exploitation of marine biomasses. Micro-climatic local conditions, influenced by the monsoon, lead to significant halieutic diversity, which played an essential role for the subsistence and production economy of local populations, in prehistory, as in a recent past; the settlement of RJ-2 displays clear traces of such condition. While terrestrial faunas represent about 5 % of the assemblage, with only 2.8 % of domestic species, 95 % of protein consumption was related to aquatic species (Fig. 19).¹⁰¹ Although these data emerge for preliminary studies and need to be refined, other coastal sites, such as the nearby HD-1,¹⁰² or the distant Umm an-Nar,¹⁰³ show marine-predominated assemblages, corroborating the idea of consumption (and production) patterns oriented towards marine faunas. A wide range of fishing tools from these sites confirms the importance of this activity; RJ-2, namely, has delivered different types of copper hooks (*cf. supra*) and of net sinkers, both in large numbers.¹⁰⁴

The site has also yielded remains hinting at the filleting and curing of large pelagic species, such as the yellow-fin tuna (*Thunnus albacares*); in particular, the last occupation of Room 3 (Building II), which had become an open space by the end of Period II, presented a large number of packed heads and tails, associated with scales and scales imprints.¹⁰⁵ In addition, at least one structure uncovered on site, in the courtyard of Building XII (*cf. supra*), might be related to fish-curing. The structure, functioning probably as a drying/smoking device, consisted of a quarter circle composed of unmoulded mud-bricks, forming a chamber that was most likely closed, as suggested by technical characteristics of the structure itself (Fig. 20).¹⁰⁶ On the southern side, the quarter circle presented an elliptical protuberance, marking the limits of a plastered pit, which could be identified as a 'chimney'. The hollow was only filled with fine ash, and connected to the outer side of the device through two circular plastered 'pipes' opening on a series of superimposed hearths, which indicate that the complex

⁹⁹ Cleuziou – Tosi 2000: 44; Giraud 2007: fig. 512.

¹⁰⁰ Cleuziou – Tosi 2000: 44.

¹⁰¹ Bökönyi 1992: 47, fig. 6.1–2; Bökönyi 1998: 97–99; Martin – Cleuziou 2003: 137–141.

¹⁰² *Inter alia*, Cartwright 2004: 43 48, 51–52.

¹⁰³ Hoch 1995: 249.

¹⁰⁴ Azzarà 2015: 420–421, fig. 76.

¹⁰⁵ Cleuziou – Tosi 2000: 42, pl. 28.

¹⁰⁶ Azzarà – De Rorre 2018: 17–19.

⁹³ Marcucci 2012.

⁹⁴ Charpentier 2001: 40.

⁹⁵ Méry – Marquis 1999: 12.

⁹⁶ Lézine *et al.* 2010: 413.

⁹⁷ Nisbet 1990: 31–32.

⁹⁸ Costantini – Audisio 2001: 145.

had several phases of utilisation.¹⁰⁷ A similar structure, although less preserved, stood against the northern wall of Building IV. If the structure was actually used for drying/smoking activities, we might expect that large quantities of food were processed at once; based on the composition of faunal assemblage, we may legitimately suppose that the drier/smoker was related to fish curing.

8.5.5 Production, consumption and the question of regional/interregional trade

According to the data at our disposal, marine faunas, and especially large pelagic species, represented the main staple, or at least one of the staples, for coastal communities. It is necessary, therefore, to consider the role of fishery in the expansion of local economy, as fishing would likely be not only aimed at subsistence, but also at generating a real food surplus.¹⁰⁸ Cured fish would constitute reserves of food, assisting coastal groups in coping with conditions of penury and predictable periods of food shortage, related to seasonal fluctuations. Part of these supplies might have been exchanged with inland populations¹⁰⁹. The area of Ras al-Jinz was unsuitable for farming, but the settlement of RJ-2 has delivered almost 300 remains of date stones indicating, indeed, the consumption of agricultural products (*cf. supra*).¹¹⁰ Cured fish, which could potentially travel along the same trade routes of archaeologically attested goods found beyond their area of origin, might have been traded to obtain such products, along with other goods not produced by the community, or not available in coastal ecosystems.¹¹¹ Ras al-Jinz displays several examples of this type of goods, such as pottery produced at regional and micro-regional level (respectively Fine Red Ware and Buff Sandy Ware), copper, or soft stones vessels (*cf. supra*).

Of course, fish would not be the only product traded with other communities. From the very beginning of the Early Bronze Age, inland contexts have yielded goods originating from the coast, such as *Conus* rings, whose production is well attested in coastal Sharqiyah (*cf. supra*), as well as other ornaments made of marine shells.¹¹² Other products that could reach

the inland include shell valves of *Arcidae*, *Cardidae* etc., used as packaging for cosmetic powders¹¹³, also attested at RJ-2,¹¹⁴ the manganese-rich deposits of Jebel Saffan provided here the pyrolusite used to produce dark cosmetic powders.¹¹⁵ Comparable makeup boxes were uncovered in overseas contexts,¹¹⁶ together with other shell artefacts, made of *Fasciolaria trapezium*;¹¹⁷ several specimens of this shell, widespread in the Gulf of Oman, were detected at RJ-2.¹¹⁸

At the same time, goods of Indus and Mesopotamian origin landed at Ras al-Jinz (*cf. supra*). The presence of these items, and their quantity compared to other sites, could be interpreted not only as an indication of interregional exchange, but also as a hint of direct contacts with foreign populations. Nevertheless, it is unlikely that the acquisition of these goods implied direct contacts with sailors or traders from overseas regions. Despite the strategic position along the Omani coast, the bay of Ras al-Jinz would not offer suitable shelter for large ships, nor would it provide adequate terrestrial connections with the inland, and the presence of a main harbour is at best dubious.¹¹⁹ In addition, the lagoons of Ras al-Hadd, to the north, and of Khor Bani Bu Ali, to the south, would constitute much better spots for ports-of-trade. On the other hand, Ras al-Jinz was certainly part of a micro-regional and regional system of exchange, and goods produced here by local populations would have likely reached the routes of inter-regional trade through a series of intermediate passages, as allochthonous goods would have been obtained through the same network.

8.6 Conclusions

The analysis of the vestiges detected at Ras al-Jinz RJ-2 and in the neighbouring region allows us drawing a complex picture of this community. Even though it probably represented only one of the many villages scattered along the Omani coast during the 3rd millennium BC, rather than an exceptional or prominent occupation, the settlement was involved in the network connecting Early Bronze Age populations at regional and interregional scale.

Although evidence is far from suggesting full specialisation and rigid hierarchisation of work and

107 Azzarà – De Rorre 2018: fig. 8.

108 *Inter alia*, Azzarà 2012: 255–257, 259–260; Azzarà – De Rorre 2018: 19–20; Cleuziou – Tosi 2000: 42.

109 There is no true consensus on the matter of fish curing during the Early Bronze Age or before, and, accordingly, on the use of cured fish as a tradeable good (*inter alia*, Uerpmann – Uerpmann 2007: 58–59). For more extensive discussion of this subject, see Azzarà – De Rorre 2018: 19–20.

110 Costantini – Audisio 2001.

111 El Mahi 2000: 104.

112 *Inter alia*, Cleuziou – Méry – Vogt 2011: fig. 64, 75–77, 250, 266; de Cardi – Bell – Starling 1979: fig. 9.1–5; Edens 2008: fig. 5.1–8.

113 Three such shells were found at Bisya (author's personal observation, collections of the Muscat National Museum); one valve was found at Bahla, although its use as a makeup box is uncertain (Munoz 2014: 276).

114 Cleuziou – Tosi 2000: pl. 18.

115 Cleuziou – Tosi 2000: 23.

116 *Inter alia*, Moorey 1970: 105–126; Woolley 1934: 245.

117 *Inter alia*, Woolley 1934: 283.

118 Cleuziou – Tosi 2000: pl. 11.

119 Cleuziou – Tosi 2000: 19.

of the workforce, a series of productions indicate a clear evolution from the previous Hafit period, but also technical advancement and increasing specialisation through the Umm an-Nar period, with the presence of more standardised operational sequences, more specific tools and more refined objects. Several characters, such as function-specific areas, and even productions performed at dedicated sites located outside the settlement, imply segregation of activities at different levels. The analysis of architectures indicates, among other traits, the application of reiterated modules and their different combinations. Hinting at formalisation of geometric principles would be anachronistic, but a clear perception of geometrical properties (orthogonality, proportions, symmetry...) seems unquestionable; construction workers would likely constitute a specialised category, even if this does not exclude that other members of the community could contribute to construction works.

Spatial layout evokes as well gradual strengthening of social relationships among the members of each individual group. The arrangement of architectural units, and the way they were plausibly occupied, imply the existence of different clusters of affiliated groups. At the beginning of the social evolutionary path, each group probably identified a social unit (a household, whatever the composition of the household might be). Towards the end of this path, the household is assimilated to a cluster of groups, as suggested by the increasing integration of adjacent structures, connected by internal circuits of circulation.¹²⁰ This process culminates during Period IV in the construction of unitary buildings, which might have housed groups previously distributed, in terms of size, within several contiguous dwellings.¹²¹ We may suppose, therefore, that the focus on each individual group had increased towards the end of the Umm an-Nar period, perhaps to the detriment of the role of the community as a social unit.

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Architectural layout and its evolution, gradual transformations in the perception of the built environment and of the social units themselves, increasing specialisation of work and of the workforce, suggest growing socio-economic complexification towards the end of the 3rd millennium BC, and a socio-economic disparity more tangible than the communal graves of the Early Bronze Age *seem* to imply. Indeed, evolution of funerary practices throughout the millennium point out to rising stratification, and a consequent social crisis, related to the breakdown of egalitarian principles and the emergence of economic and political elites at the end of the 3rd millennium.¹²² The analysis of the vestiges uncovered at RJ-2 corroborates this picture, showing how a comprehensive assessment of settlement evidence is crucial to refine our interpretation of pre-protolithic communities.

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¹²⁰ Azzarà 2009: 9–12.

¹²¹ Azzarà 2015: 596–597.

¹²² *Inter alia*, Cleuziou – Munoz 2007: 312–313; Munoz 2015: 262–263.

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