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'Umm an-Nar' and 'Wadi Suq' Domestic Architecture
at the Settlement Slope, Bat (Oman)*

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A House Complex in Bronze Age Arabia:

A Study of 'Umm an-Nar' and 'Wadi Suq' Domestic Architecture at the
Settlement Slope, Bat (Oman)

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Abstract

In comparison with the well-documented funerary and monumental archaeology, remarkably few settlement sites have been excavated that can be dated to the Umm an-Nar (c. 2700 - 2000 BC), Wadi Suq (c. 2000 - 1600 BC) and Late Bronze Age (c. 1600 - 1250 BC) periods in southeast Arabia. Consequently, domestic architecture from this region is often studied in chronological isolation. A multi-period analysis of the nature of settlement sites and their domestic structures is key to understanding how these cultures functioned and developed during these periods.

A complex of domestic structures was discovered at the Settlement Slope in 2013, situated within the Bronze Age archaeological site at Bat in Oman. The aim of this dissertation is to present and analyse the architecture of this single, well-preserved settlement site from the Umm an-Nar, Wadi Suq and Late Bronze Age periods.

To this end, a catalogue of domestic structures from published Umm an-Nar and Wadi Suq sites was assembled, identifying architectural trends typical of these periods. The stratigraphy and construction style of the walls from the Settlement Slope were analysed and, from this, a provisional sequence of construction phases could be proposed for the site. The sequence was compared with the domestic structures attested at contemporary settlement sites to

establish whether the architectural development of the Settlement Slope is typical of the Umm an-Nar, Wadi Suq and Late Bronze Age periods.

The aims and objectives of this dissertation are fully met. This research represents an original study of a 3rd and 2nd millennium BC domestic site in southeast Arabia. It presents architectural data that increases our understanding of how a settlement site changed through three contrasting cultural periods. It is hoped that this research will encourage further discussion regarding domestic archaeology from the Umm an-Nar, Wadi Suq and Late Bronze Age periods.

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I especially wish to thank the American-Japanese Bat Archaeological Project (AJBAP) team in Bat for the kind generosity and hospitality offered during my time there. Dr Chris Thornton, University of Pennsylvania, welcomed me as part of his team from the start and was kind enough in permitting me to study the Settlement Slope site and analyse its data. Chris has taken time out from his busy schedule to provide me with the necessary excavation documents and photographs, for which I am thankful. Thanks must also go to both Dr Yasuhisa Kondo, University of Tokyo, and Dr Charlotte Marie Cable, University of New England, for

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Introduction

This paper will analyse the architectural data collected from published domestic Bronze Age sites in southeast Arabia, and, in particular, discuss in detail the development of a single settlement site at Bat throughout the 3rd and 2nd millennium BC 'Umm an-Nar', 'Wadi Suq' and 'Late Bronze Age' periods.

The Bronze Age Chronology

Before introducing these Bronze Age periods, it is important to establish a single chronology and terminology for the 3rd and 2nd millenniums BC. Currently throughout southeast Arabia, each archaeological site and its respective excavators adhere to their own system of chronological marks. Over the last fifty years the result has culminated in a confusing - and often contrasting - collection of chronological systems that encompass southeast Arabian archaeology during the 'Umm an-Nar' and 'Wadi Suq' periods.

The 'Umm an-Nar' period – dated to the second half of the 3rd millennium BC - can be characterised by continuity and homogeneity, especially when compared with the periods that precede and postdate it. Nevertheless, this part of the Early Bronze Age is also represented by a multitude of different 'Periods', 'Phases' and 'Sub-phases', based on various pottery typologies and radiocarbon dates discovered at different sites. Dan Potts, for example, coined the terms 'Protohistoric A and B' and 'Early Historic,'

referring to what he saw as clear observable discontinuities present during the 3rd millennium BC at a site at Tell Abraq (1993b: fig. 1). This, however, contrasts with Serge Cleuziou's chronological continuum applied at Hili 8, where a single Period was divided into eight subgroups based on changing ceramic typologies and C¹⁴ dates (1989: 63-71). At another major 3rd millennium settlement on Umm an-Nar island, the archaeological layers were roughly contemporary with Hili 8 but the sequence was termed 'Periods 0, I and II' (Frifelt, 1995: 40). Subsequently, due to a lack of common terminology applied to sites across southeast Arabia, many contemporary archaeological sequences are allocated a variety of names.

The succeeding 2nd millennium BC 'Wadi Suq' period also offers a confusing variety of contrasting chronologies. For the settlement at Tell Abraq, Potts described a sequence in terms of Wadi Suq I, II, III and IV, referring to the various breaks observed in the ceramic tradition throughout the 2nd millennium BC (Weeks, 1997: 12, Table 1). The contemporary Wadi Suq domestic site at Kalba, however, was divided into 'Classic' and 'Late Wadi Suq', as the Early/Middle division seen at Tell Abraq could not be isolated (Carter, 1997: 12). Meanwhile, excavations at the late 2nd millennium BC settlement at Shimal revealed a completely new series of pottery forms and fabrics evident in the 'Late Wadi Suq' layers (Velde, 2003: 112). These, Velde argues, represent a clear separation of the 2nd millennium BC into two distinct cultural groups and that each should be given their own terminology. Based on the Shimal assemblage, therefore, the 'Wadi Suq' period will only be used to describe the material culture associated with the first half of the 2nd millennium BC. The 'Late Bronze Age', meanwhile, will be applied to features dated to the period c. 1600 - 1250 BC.

To assist with analysing and comparing the material culture from the 3rd and 2nd millennium BC domestic sites in southeast Arabia, the table below displays the chronological terms used throughout this dissertation and the corresponding phases implemented at selected contemporary sites (fig. 1).

Periods (used in this chapter)	Date	Hili 8 phases	Umm an-Nar Island phase	Tell Abraq phases	Kalba phases	Ra's al-Jinz
Hafit	3100-2800	Period I a-c	-	-	-	-
Early Umm an-Nar	2800-2500	a	Period 0			
Middle Umm an-Nar	2500-2200	b	Period I			
		c1	Period II			
Late Umm an-Nar	2200-2000	d	-	Umm an-Nar I/II	Phase I	RJ2 Period II
		e				RJ2 Period III
		f				RJ2 Period IV
		g				
Wadi Suq	2000-1600	Period III		Wadi Suq I	Phase II (Classic Wadi Suq)	RJ1
Late Bronze Age	1600-1250	-	-	Wadi Suq II	Phase III (Late Wadi Suq)	-
				Wadi Suq III		
				Wadi Suq IV		

fig. 1 – Table outlining the chronological terms referenced in this paper

The Geography of Southeast Arabia

In addition to setting out a clear Bronze Age chronology, it is also important to clarify the multitude of contrasting environments and variable climates of southeast Arabia. It is possible to divide this region into six broad geographical zones (Carter, 1997: 15) (fig. 2):

(1) The Gulf Coast - this is a long stretch of coastline found in the United Arab Emirates; it extends from Abu Dhabi in the south to Ras al-Khaimah in the north. The coast is

mostly barren and characterised by *sabkha* salt flats and sand dunes. The limited number of domestic sites that were identified in this zone are located either on the small, sandy islands or close to the lagoons and mangrove swamps.

(2) Sir and Shimaliya - these are the northern coastal plains, east and west, respectively, of the northern extent of the Hajar mountains, situated in the northern UAE. Groundwater is abundant and well-based agriculture is predominant, which accounts for the dense collection of domestic sites discovered in this zone.

(3) The Batinah Coast - this 270km strip on the eastern coast of Oman consists of alluvial gravel fans that extend between the Hajar mountains and the sea (Carter, 1997: 20). Rainwater run-off from the mountains gets trapped in the water table and forms an accessible freshwater supply. This explains why, today, this zone is the most densely populated region in the Oman Peninsula.

(4) The Hajar Mountains - these limestone mountains sweep in a 600 km long arc along the length of the interior of Oman. Although, generally unsuitable for human habitation, domestic sites can be found in the wadis which penetrate deep into the range and make use of the abundant copper mineral resources.

(5) The Western Oasis Belt - this flat zone extends between the desert and the foothills to the immediate west of the Hajar mountains; this zone is situated mostly in Oman but also extends into the eastern parts of the UAE. A large proportion of the known domestic

sites from the Umm an-Nar period can be located in this zone. This is due to the availability of freshwater obtained from both the wash-out of the wadis running down from the highlands and from the large underground aquifers, which can be easily accessed by shallow wells.

(6) The Ja'alan coast - the shore of the easternmost zone of Oman is characterized by limestone outcrops and mesa features surrounded by *sabkhas*.

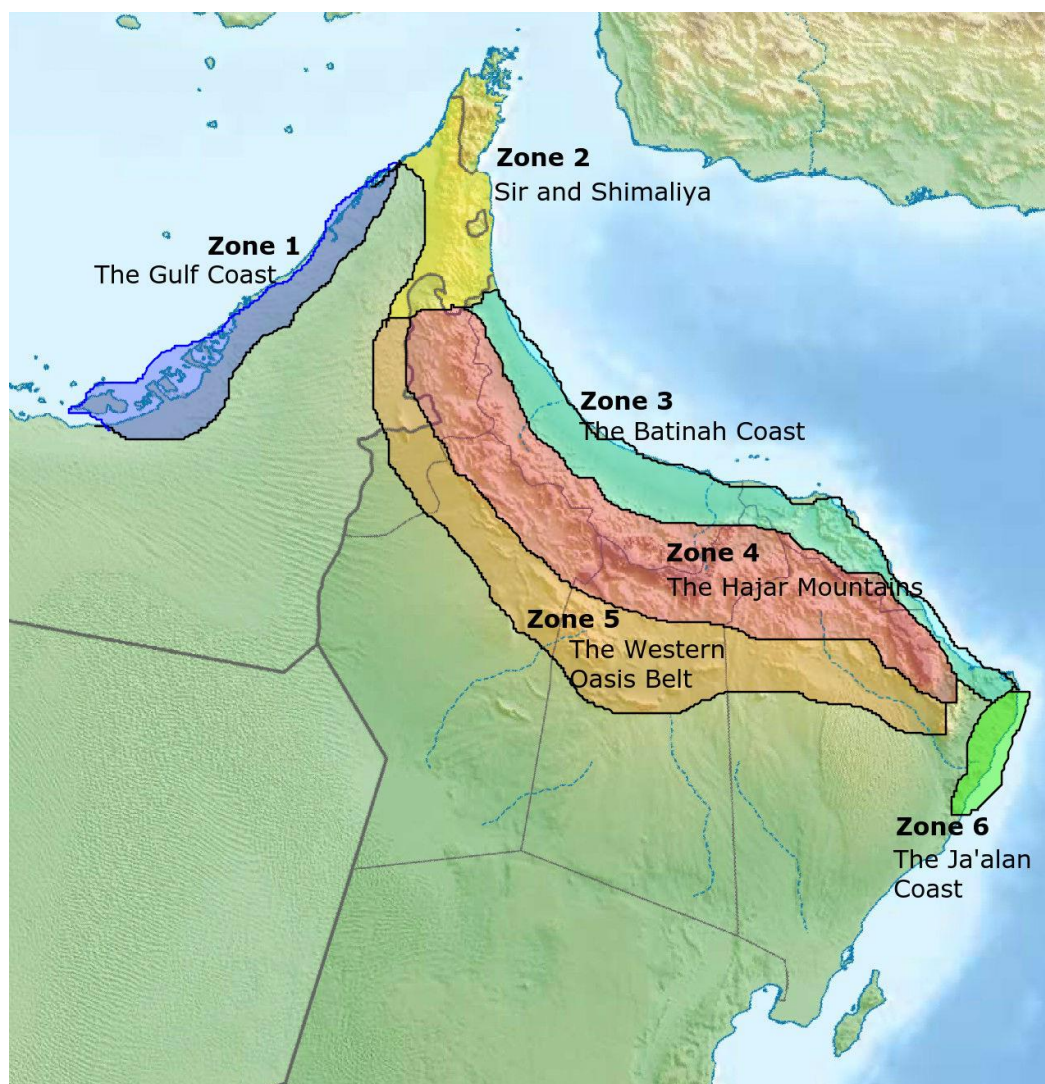


fig. 2 - The six different geographical zones in which the domestic sites are located

(after Carter, 1997: 15)

The Umm an-Nar & Wadi Suq periods

Before the two primary 'cultures' of this paper are introduced, it is important to include a brief critical discussion addressing the concept of cultures themselves and to clarify the effectiveness of using such a loaded term in archaeological practice and research.

There is an inherent danger in discussing 'culture' in modern archaeology as it is now commonly regarded as a vague and dated descriptive term with roots grounded in overly culture-historical terminology; the early 20th century archaeologist V. Gordon Childe popularised the use of the term in his now-outdated theories on the 'diffusion of pre-historic cultures' (Ravetz, 1959: 59-66). The many limitations behind such an anthropological-cultural historical approach will not be discussed in this paper, yet it is important to illustrate that its major deficiency was its specifically ethnic framework which denied rigorous theorisation of its major concepts. Archaeologists are still searching, however, for an appropriate term that conveys the dynamics of cultural transmission. For example in southeast Arabia during the Bronze Age - the subject of this paper - there is a complex pattern of regional and inter-regional distribution of material culture – such as ceramics, architecture and funerary traditions. Therefore, while recognising the term 'culture' as a dated, heuristic archaeological device, it will nevertheless be used sparingly in this paper primarily for its ability to effectively characterise a distinctive assemblage of cultural material.

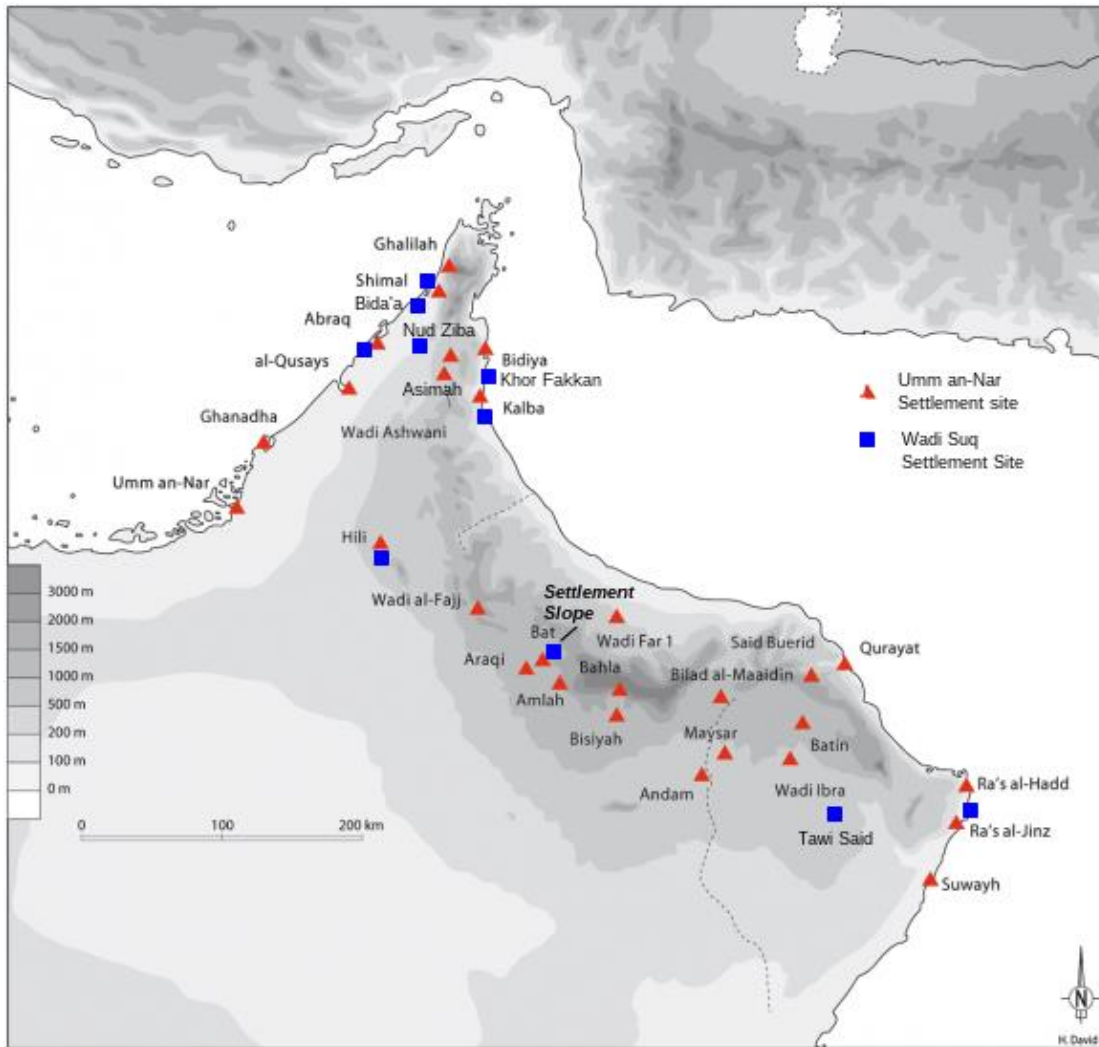


fig. 3 - Main Umm an-Nar and Wadi Suq settlement sites (after Carter, 1997)

Archaeological evidence for 'Umm an-Nar' social groups extends across most of modern-day northern Oman and the United Arab Emirates (*fig. 3*). The name Umm an-Nar is derived from the island off the coast of the Emirate of Abu Dhabi where the first tombs and settlement from this era were identified during the late 1950s (Thorvildsen, 1962). The Umm an-Nar period spanned from approximately 2800 BC to 2000 BC.

During the last fifty years, the archaeology of this period has been thoroughly researched with a large number of tombs, monumental round towers and settlements having undergone excavation and publication. Yet, opinion as to how Umm an-Nar society was organised has changed over time. The Umm an-Nar social groups were initially presented by Bibby (1972: 298) as belonging to a rich, urban and hierarchical civilisation. Despite evidence that suggested the Umm an-Nar populations were in fact rejecting the ideology behind state-building, words such as 'state-like' and 'affluent' were often used to describe this period (Tosi, 1989). The Gulf region was also portrayed as a periphery to an economic 'world system' centered on Sumeria (Edens, 1992). Conversely, recent analysis of human remains from Umm an-Nar collective graves reveal there may have been no differentiation between age or gender (McSweeney et al. 2010: 52) and no grave indicates higher status in death for any individual (Cleuziou 2007: 217). Current approaches, therefore, now tend to focus on what is thought to be the egalitarian and kin-based 'tribal system' of Umm an-Nar society (Potts, 2009: 32; al-Jahwari, 2008: 329; Rouse & Weeks, 2011).

The homogeneity of Umm an-Nar material culture is a possible indication that the period c. 2800 - 2000 BC marked a highpoint in the development of societies in southeast Arabia; the standardised, high-quality and large-scale pottery production (Mery, 2000; Potts, 1990: 102-106), the presence of distinctive collective burial traditions (Benton, 1996; Cleuziou & Vogt, 1983) and large-scale copper ore exploitation and trade (Weisgerber, 2007: 194; 2007: 251–254; Potts, 1990: 119–125) seemingly all attest to the presence of a 'common culture' in southeast Arabia during the Early Bronze Age period (Costa & Wilkinson, 1987: 370). Indeed, it has been suggested that the Umm an-Nar social groups underwent a transformation towards greater socio-economic

complexity during the 3rd millennium BC (Gregoricka, 2013: 355; Cleuziou & Tosi, 2007: 61–254; Cleuziou, 2009: 731). A recent study has utilised theoretical frameworks in order to establish possible socio-political models for Umm an-Nar society: the most likely model portrays increasing levels of complexity for the Umm an-Nar period, based primarily on the introduction of new technologies and the management of trade links with foreign powers (Deadman, 2012: 95-111).

This system, however, is thought to have abruptly collapsed by 2000 BC and replaced by the 'Wadi Suq' period (Cleuziou, 2002: 204; 2007: 218). Interpretations of this collapse vary, focusing on environmental factors (Parker et al. 2006: 473), a decline in foreign trade links (Gregoricka, 2013: 356) and internal social pressures (Rouse & Weeks, 2011). The term Wadi Suq originates from an Omani site of the same name, excavated in the early 1970s by Karen Frifelt, where new stylistic forms of 2nd millennium BC ceramics and funerary practices were first reported (Frifelt, 1975).

The Wadi Suq period has traditionally been associated with a widespread decline in population, site abandonment and a return to a pre-Umm an-Nar level of nomadic lifestyle (Cleuziou, 2007: 218; Righetti, 2015: 1). The dearth of domestic sites from this period is regarded as evidence that sedentary life in southeast Arabia ceased and that Wadi Suq societies experienced a gradual reversion to full time nomadism and which was accentuated during the latter half of the 2nd millennium BC (Cleuziou, 1981: 204; al-Khalifa & Rice, 1986: 204). Recently, however, the discovery of unbroken occupation sequences at a handful of permanent settlement sites, primarily concentrated in the northern coastal regions, suggest that this model may be viewed as outdated -

'resilience rather than collapse' would have been the natural response of these coastal Wadi Suq populations during the 2nd millennium BC (Preston, 2012: 128).

Nonetheless, the majority of Wadi Suq domestic sites from the interior regions typically consist of ephemeral structures that are thought to have belonged to the camp sites of highly mobile, disparate groups (al-Jawari, 2008: 345). It is proposed, therefore, that signs of sub-regional variation become accentuated during the Early Wadi Suq period (Carter, 1997: 75-78; al-Jahwari, 2008: 339). This period seems to have experienced a contraction of intensive settlement, mainly restricted to the northern coastal zones, while the absence of large, permanent communities is cited as evidence of a decline in social complexity within the interior (*fig. 3*) (Crawford, 1998: 142; Gregoricka, 2013: 355). The likelihood is that the Wadi Suq period was characterised by two societies, displaying contrasting subsistence and economic strategies, who co-existed side by side (al-Jahwari, 2008: 345).

The nature of the Bronze Age transition (c. 2000 BC) from the Umm an-Nar to the Wadi Suq period has been highly debated by archaeologists. The Umm an-Nar settlement sites that have been documented include domestic structures which display well-constructed stone walls that often form complex, multi-celled interior layouts (Cleuziou, 1989: 63-71; Frifelt, 1995; Thornton, 2013). In contrast, the walls of domestic structures from the Wadi Suq period were typically constructed using unorthodox styles that appear to demarcate smaller, simple interior plans (Monchablon et al, 2003: 44; Cleuziou, 1989: 72). The architectural data implies that there was a transformation in the nature of occupation in many, if not all, parts of southeast Arabia, during this period;

it is important, therefore, to study settlement sites that transcend this transition phase. Yet, archaeological research has, to date, been predominantly focused on the domestic elements from either the Umm an-Nar period or the Wadi Suq period. Rather than study their developments in isolation, we should instead concentrate on the transitions that occurred to domestic architecture during both cultural periods. Indeed, recent excavations have yielded evidence of a more complex transition phase than was once envisaged: there appears to be sustained elements of continuity in occupation, not only at the settled sites on the coast (Carter, 1997: 125-145; Potts, 1993b: 117), but domestic sites from the interior regions of southeast Arabia (Thornton, 2013; Weisgerber, 1981: Abb. 17. 4). The hypothesis of a major upheaval between the 3rd and the 2nd millennium BC might therefore need to be reconsidered.

The archaeological data, therefore, for both the Umm an-Nar and the Wadi Suq periods is generally well preserved and has been frequently surveyed, excavated and published. There has, however, been limited research carried out concerning settlement sites - namely, those that include architectural evidence of domestic structures. These non-funerary sites have been often overlooked in favour of large, collective tombs and monumental round towers. Consequently, we know remarkably little about the residential units themselves, especially those situated in the interior regions of Oman. Further excavation and publication of 3rd and 2nd millennium BC settlement sites is important, as it will help in our attempts to elucidate patterns of subsistence for the Umm an-Nar and Wadi Suq cultures (Gregoricka, 2013: 364).

The ‘Settlement Slope’ site at Bat

The focus for the main body of this dissertation will be the complex of domestic structures discovered during two seasons of excavation in 2013-14, carried out at the ‘Settlement Slope’, part of the well-known archaeological site at Bat.

The UNESCO World Heritage site at Bat is a village situated in the Western Oasis Belt (zone 5), in the al-Dhahirah region of northwest Oman - 24 km east of the modern day city of Ibri (*fig. 4*). It is an extensive complex of monumental, funerary and domestic structures dated to a succession of different Bronze Age periods. These surround the palm groves and the small modern day village of the same name. It achieved World Heritage status in 1988 for being ‘one of the most complete necropolises from the 3rd millennium BC in the world’ (<http://whc.unesco.org>). In addition, Bat also contains contemporary monumental and domestic structures, plus a wide range of funerary evidence, with dates extending from the early 3rd millennium BC to the 2nd millennium BC.

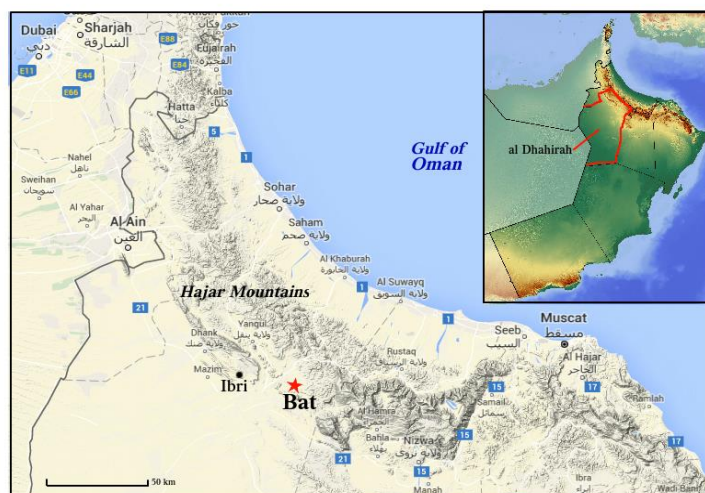


fig. 4 - Location of Bat, in al-Dhahirah

The results of the recent excavations carried out at Bat include a multi-phased, well-preserved complex of domestic stone structures discovered on a slope. Based on C¹⁴ and pottery, the 'Settlement Slope' domestic structures and their associated features have subsequently been allocated possible Middle Umm an-Nar to Late Bronze Age dates. Significantly therefore, its sequence of occupation can be shown to cover both the Umm an-Nar and Wadi Suq periods - including the transition phase - and may continue into the Late Bronze Age (c. 1600 BC). To date, the Settlement Slope remains the only settlement area, from both the Umm an-Nar and Wadi Suq periods, that has been fully excavated in the Bat area.

The dissertation will look to fulfil the following five objectives:

- To conduct a review of the archaeological data from both Umm an-Nar and Wadi Suq periods and present a critical understanding of societal models proposed in the published literature.
- To describe and to classify the structures excavated on the Settlement Slope.
- To catalogue all known domestic structures from contemporary cultural groups and thereby to identify common features and trends.
- Based on the above, to create a construction sequence for the Settlement Slope and to date it using internal and external (comparative) evidence.

- To discuss the architectural development of a sequence of domestic structures.

In order to complete these objectives, the dissertation will be divided into six chapters. The opening chapter will be a Literature Review which examines the published archaeological data of both the Umm an-Nar and Wadi Suq periods. This will cover tombs, ceramics, trade links and settlements, and will be followed by a critical analysis of the published societal models for each culture. The second chapter will then provide an introductory description of the overall UNSECO site at Bat.

The third chapter is concerned with the architectural data, and will form the main body of this dissertation. The first part will describe in detail each wall excavated at the Settlement Slope and attempt to organise them into construction 'types'. This information will be used to create a sequence of construction phases for the domestic structures at the site. This will be followed by a catalogue of all the published domestic structures from the Umm an-Nar and Wadi Suq periods in southeast Arabia. It will include a presentation of the architectural data and an identification of possible trends in the wall construction styles and house plans. This will provide a context for my own architectural data from the Settlement Slope. The nature of the architectural data from both the Settlement Slope and the comparable domestic sites will then be analysed and discussed in the chapter's concluding section.

A fourth chapter will collate the diagnostic pottery discovered at the Settlement Slope and look to organise the assemblage into provisional 'types'. These can help ascribe approximate dates to the construction phases proposed in the previous chapter. A fifth

'Results' chapter will then use the architectural data to create a possible sequence of construction for the Settlement Slope site; this will be dated using the pottery assemblage, associated radiocarbon dates and stratigraphy. From this proposed sequence, the final chapter will present the architectural changes that occur at the Settlement Slope during the Umm an-Nar period, the 'transition phase, and the Wadi Suq & Late Bronze Age periods. Using the published literature, the dissertation will then compare these changes with those recorded at contemporary sites and assess whether the interpretations of this dissertation conform to the current consensus regarding the development of settlement sites in southeast Arabia during the Umm an-Nar, the Wadi Suq and the Late Bronze Age periods.

Chapter 1 - The Literature Review

Part I: The Umm an-Nar culture

In the first part of this chapter there will be a review of the published evidence for the Umm an-Nar culture. It will provide background context for the Umm an-Nar domestic architecture and pottery excavated from the Settlement Slope, presented later in this dissertation. This introductory chapter will consist of sections on the following topics:

i) tombs, ii) ceramics, iii) trade and iv) settlements.

i. *Tombs (fig. 5):*

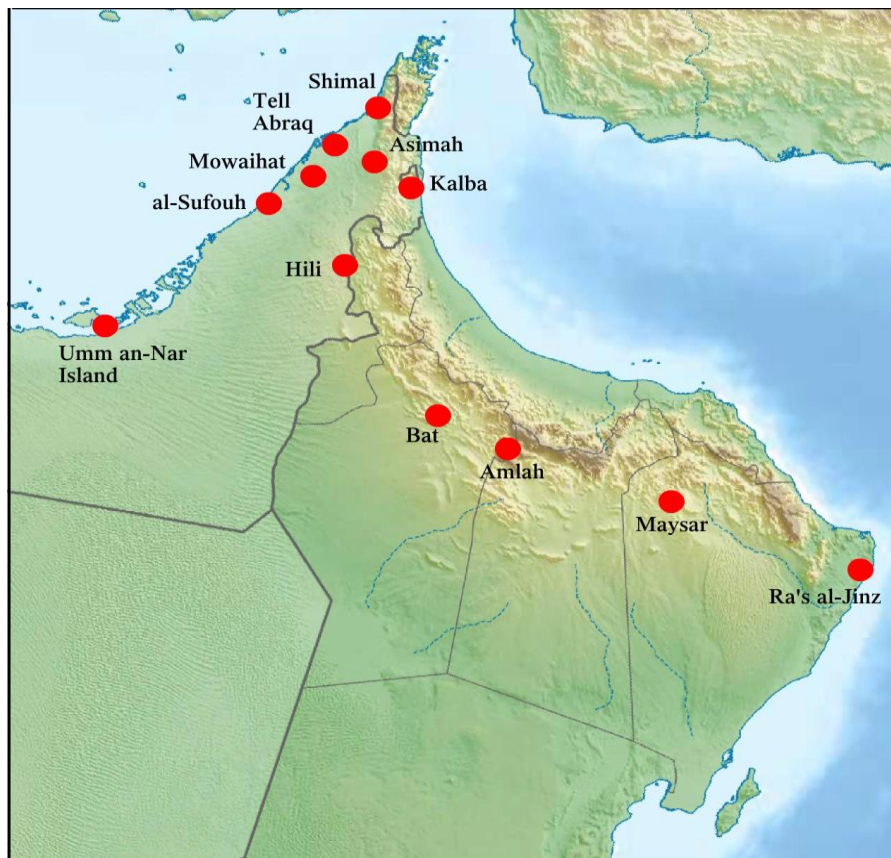


fig. 5 - Examples of the major Umm an-Nar funerary sites

The Umm an-Nar culture was defined partly by its grave architecture. Distinctive Umm an-Nar-style tombs have been excavated throughout southeast Arabia - from Umm an-Nar Island (Frifelt, 1991) and Ghanadha Island (al-Tikriti, 1985) in the northern coastal zones, to Bat (Boehme, 2011) and Maysar (Yule, 1993) in the oasis belt of the interior, to Ra's al-Jinz (Monchablon et al. 2003) on the eastern Ja'alan coast - and, despite some local variation, there is a clear homogeneity with regards to the tomb design, locations and associated material culture.

The tombs were universally circular, with the interior space subdivided into a number of low, corbelled chambers by a series of cross-walls (*fig. 6*). The graves were typically set on a plinth of flat un-mortared flagstones (Potts 2012: 54; Schmidt 2011), which sometimes covered a subterranean level - for example, Tomb 401 at Maysar (Wesigerber, 1980) and Tomb 1 at Ra's al-Jinz (Monchablon et al. 2003). No selective burial appears to have taken place (Gregoricka, 2011: 62). The biological profiles of 31 articulated skeletons from Tomb A, Hili North, revealed 'male adults, female adults and children of various ages were buried together in the same chamber' (Bondiolo et al. 1998: 229-234). Among the adult skeletons included in the Late Umm an-Nar pit grave Tomb N, also at Hili, there was no evidence of bias towards either sex or age indicating that the grave 'was a burial place for the whole community' (McSweeney et al. 2010: 8). Although it is still unknown how exactly the collective tombs were regarded by Umm an-Nar society, it has been proposed that evidence of mixed burial is a possible indication of an enhanced sense of community membership during this period.

While the overall style of construction remained consistent across the Umm an-Nar region, intricate decorative additions varied both chronologically and at a local level. A few tombs displayed carvings on their exterior wall: at Grave II, on Umm an-Nar island, four slabs are decorated with animals and an anthropomorphic 'idol' (Potts, 2012: 55). While the basic circular plan is nearly universally adhered to, the capacity of the tombs also varied across many sites: the pit-grave Tomb N, at Hili, contained the remains of over 650 individuals (al-Tikriti & Mery, 2000), but Tomb M403 at Maysar measured just 5 metres in diameter and would have served as a burial place for a small group (Yule & Weisgerber, 1998: 194).

Further site-specific disparities existed with the processes of secondary manipulation. At some sites, 'bones were pushed into corners to make room for multiple, successive inhumation' (Benton 1996: 170). At Tomb A, Hili North, for example, the remains were re-positioned into the eastern corner to create room for succeeding burials (Cleuziou, 1983) and at Ra's al-Jinz a complex mortuary system is formed by a series of bone pits (*fig. 7*) (Monchablon et al. 2003: 39). Evidence of secondary burials also occur at sites such as Mowaihat, Pit Grave B (Phillips, 2007), Tell Abraq - where the tomb includes 'receptacles for overflow' (Potts, 1993: 120) - and the Hili N pit grave (McSweeney, 2008).

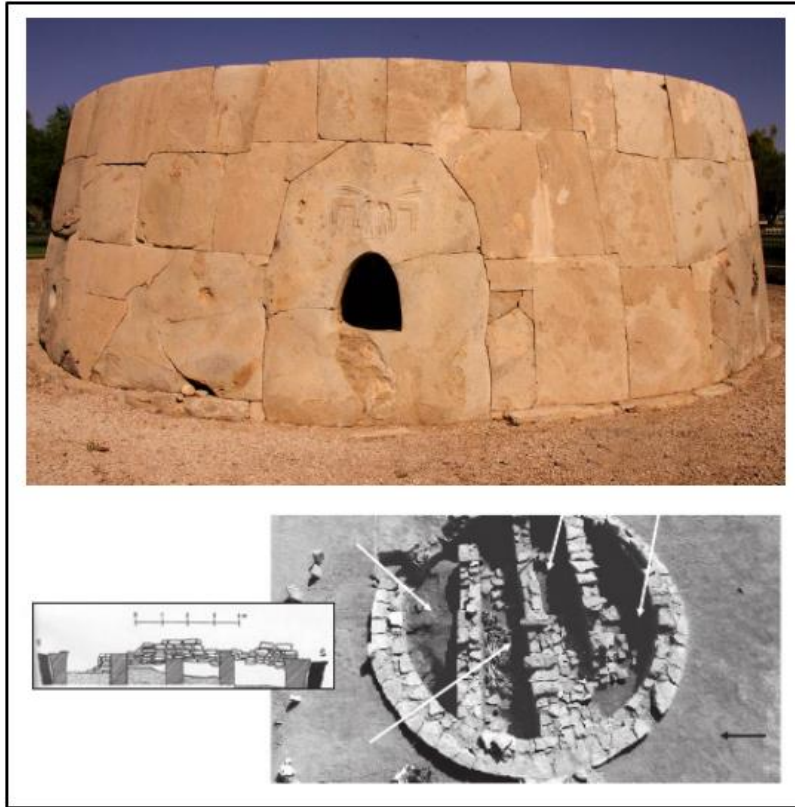


fig. 6 - A reconstruction and interior plan of Tomb A, Hili North (after Cleuziou et al. 2011)



fig. 7 - Mortuary system at Ra's al-Jinz (after Guy & Munoz, 2007: 133, fig. 136)

During the 3rd millennium BC, the emergence of a distinct funerary tradition was widely distributed across southeast Arabia. The Umm an-Nar populations buried their dead in uniformly round and collective tomb structures, using the shared burial practices of primary inhumation. Localised fashions manifested themselves through acts of secondary manipulation. The funerary evidence is therefore an indication of a possible common culture that was distributed throughout the region during the Umm an-Nar period.

ii. Ceramics:

Just as the complex Umm an-Nar tombs of the late 3rd millennium BC seem to have heralded a social and economic high point in the development of the culture, so too the manufacture of highly standardised ceramics by part-time specialists may be indicative of an organised manufacturing system (Mery, 2000; Potts, 2009: 31-33). This contrasts with the 2nd millennium BC 'Wadi-Suq' culture, which has traditionally been defined by a technically inferior production of ceramic vessels (Mery, 2000; Potts, 2012: 78).

The two key types of locally manufactured Umm an-Nar ceramics are the local 'domestic' wares and 'fine red' wares. Geochemical analyses comparing domestic wares from different sites revealed that they often derived from a variety of local clay sources and were retained as a local product. The fine red wares, on the other hand, were manufactured at a small number of specific sites and then distributed through the traditional routes of exchange as a luxury product (Mery, 1997: 177). While the

local domestic wares are well attested in both settlement and funerary assemblages, the fine red wares are nearly exclusively a characteristic of funerary contexts during the Umm an-Nar period (Cleuziou & Vogt, 1983: 40).

- 'Domestic' ware:

The fabrics of domestic wares differ at each site. The local ware present at Hili 8, for example, is recorded as a porous sandy tempered ware, yellow/brown in colour, and often finished with a dark brown/red slip (Cleuziou, 1989: 76). Yet at Bat, the domestic ware is often thicker and lower-fired, resulting in a pinky/orange appearance (*fig. 8*) (Ghazal, 2014: 15). However, during the Middle and Late Umm an-Nar period, the form and decoration of the vessels tended to follow standardised templates and correlate well between sites. For example, large globular jars that were painted with a simple linear decoration or spiral motifs, with raised appliques, below the neck, are extremely well attested at nearly every domestic site during these 3rd millennium BC periods (*fig. 9*) (Mery, 1997: 176).



fig. 8 - Domestic ware of Hili (left, after Mery, 2013: 8, fig. 6) and Bat (right)

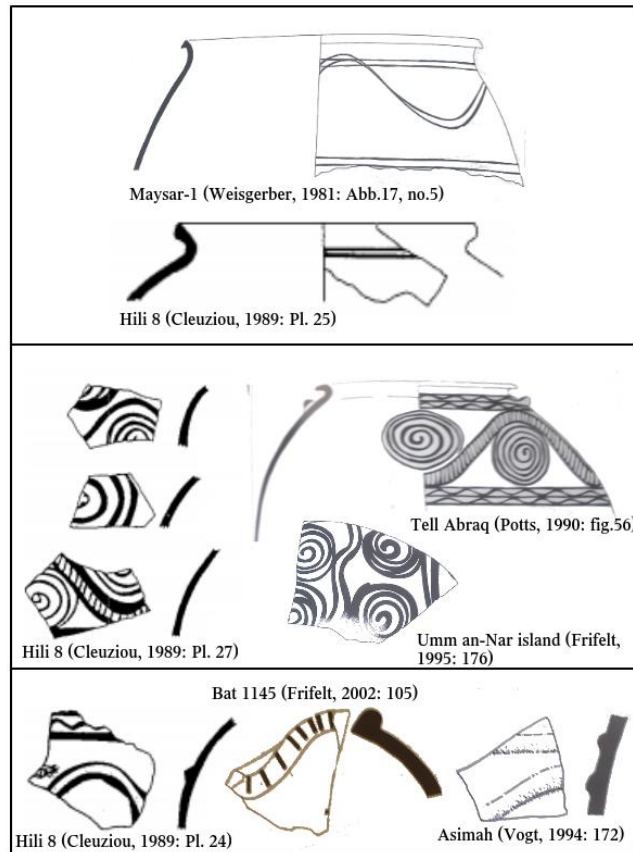


fig. 9 - Decorated motifs of Umm an-Nar domestic ware

- Red fine ware:

The fine wares are more common in funerary contexts than in settlement areas. During the Early Umm an-Nar period, however, the fine black-on-red ‘funerary jars’ form the bulk of ceramics found in both funerary and domestic assemblages. These fine types adhered fairly conservatively to a homogenous typological and technological tradition for the majority of the 3rd millennium BC (Ghazal, 2014: 14). While the domestic wares do not appear to have been circulated widely, petrographic analysis indicates that the fine wares were distributed across considerable distances: for example, the fine red ware attested at Kalba, in the northern coastal zone, may derive from the same source

material as the material discovered at Hili 8, in the western oasis belt (Eddisford & Phillips, 2009: 105). The fine wares are defined by their characteristic wheel-made forms and smooth pastes (Mery, 1997: 178). The most popular form was the short-necked pot decorated with black painted chevrons framed by horizontal or oblique lines (*fig. 10*).

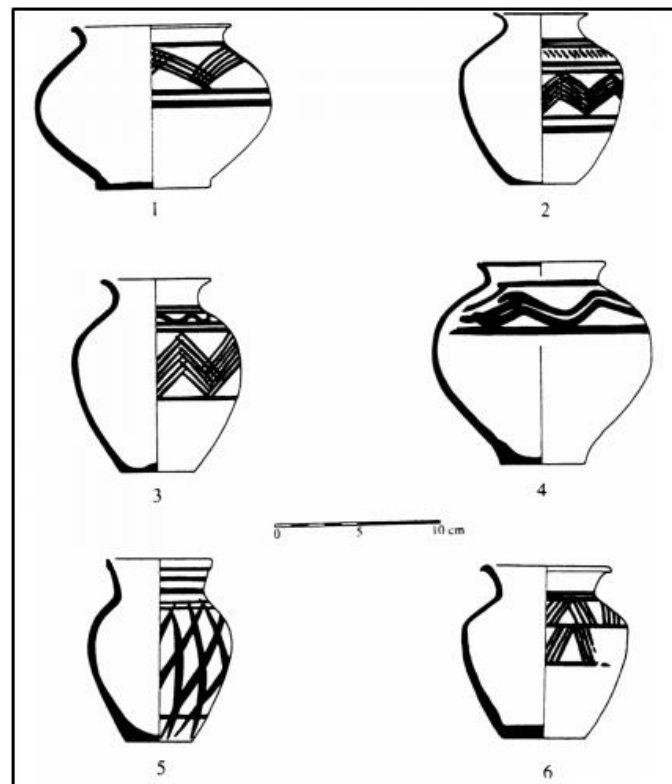


fig. 10 - Decorated Umm an-Nar funerary jars (after Mery, 1997: 178)

It is argued that the highly standardised manufacture of these ceramic vessels might have been a consequence of emulating neighboring economies - such as Mesopotamia and the Indus Valley - during the Early Umm an-Nar period (Mery, 2013; Potts, 2005: 72). Some have highlighted how the indigenous craftsmen of this period were acting in the role of peripheral 'passive receivers' (Edens, 1992). The emergence of new, local 'domestic' and fine wares during the Middle Umm an-Nar period, however, implies that the technical knowledge necessary, not only to emulate, but to

innovate, had been achieved by c. 2500 BC (Mery, 2013: 6). Mery argues that the standardised ceramic and soft-stone assemblages were a consequence of specialised potters working within competing household units at a small number of sites, and whose products were widely distributed along established interior exchange routes in southeast Arabia (Mery, 2010: 41).

iii. Trade

Another distinctive feature of the Umm an-Nar culture was the presence of a successful exchange network with the urban centres of Mesopotamia and the Indus Valley civilisation. It has been suggested that the export of its products - notably copper ore, but also a range of stones, woods and marine artefacts - stimulated the development of Umm an-Nar social and economic structures (Cleuziou & Tosi, 2007: 186). The variety of luxury foreign goods received in return - such as textiles, grain, precious metals, semi-precious stones and ivory (Weeks, Rouse, 2011: 1583) - penetrated to all parts of the region. This long distance exchange can be interpreted as an incorporation of the Umm an-Nar culture into a wider Bronze Age 'world system' (Edens, 1992; Crawford, 1998). It has been argued that the 'evolution towards complexity' experienced during the Early Umm an-Nar period (Cleuziou & Tosi, 2007) was a process first initiated through the establishment of broad scale economic processes, such as the demand from urban centres for copper (Glassner, 1989: 187-189).

The emergence of 3rd millennium BC oases sites at Hili 8 and Bat is commonly linked to the foreign demands for copper exploitation at this time (Cleuziou, 2002: 200). It has been suggested that the capacity of Mesopotamian trading vessels, sent to buy copper products from the Umm an-Nar coastal sites, was on average a 'staggering 90,000 litres' (Postgate, 1992: 218). This is supported by the presence of slag deposits discovered at over 20 sites, where it has been estimated that 2000 - 4000 tonnes of copper was produced during the Umm an-Nar period (Hauptmann, 1985: 108). Although agriculture appears to have formed the basis of the Umm an-Nar economy (al-Jawari, 2009), copper extraction and trade may have also played an important role in its development (Weeks, 1999: 53; 2003: 24; Potts, 1991: 137).

Imported ceramic types discovered within Umm an-Nar funerary deposits are a common example of trade with foreign polities. Distinct Mesopotamian jars, with high necks and collared rims, are present at a number of 3rd millennium BC coastal sites: at Umm an-Nar island, these forms, diagnostic of the Early Dynastic III Period, are commonly found in Cairns I and II (Mery & Schneider, 1996: 83; Frifelt, 1991: 125-130, figs. 86-89) and the site at Ghanadha 1 (al-Tikriti, 1985: pl. 9). Black-slipped jars were characteristic of the Harappan cultures in the Indus Valley and are attested at Umm an-Nar settlement and funerary sites throughout the peninsula: at Tomb A, in Hili North, approximately 4% of the pottery assemblage was formed of Indus fine red wares (Mery, 1997: 185), and at Bat Harappan ceramics formed 5% of the total assemblage (Ghazal, 2014: 25). Iranian black-on-grey wares are also found at Umm an-Nar sites: at UNAR 2, a tomb in Shimal, it formed 10% of the entire assemblage (Carter, 2002b: 9), and at Umm an-Nar island, black-on-grey ware comprises 20% of the assemblage of Tomb 1 (Frifelt, 1991: 94). Iranian grey wares are further attested

at Hili 8 (Mery, 2000: 205), Tell Abraq (Potts, 2003: 8), Bat (Ghazal, 2014) and Kalba (Phillips, 2009: 106).

iv. Settlements:

In comparison to the tombs, Umm an-Nar settlement sites are not as well represented in the archaeological record. The evidence we do have suggests that the Umm an-Nar period was characterised by the development of a number of agriculturally-based, permanent village sites throughout southeast Arabia.

Umm an-Nar domestic architecture is typically represented by compounds of square and rectangular buildings, the walls of which were constructed using locally available materials: for example, adobe mud-brick (Kalba, Ra's al-Jinz), dressed slabs of limestone (Umm an-Nar island) or large natural wadi cobbles (Maysar). The stone walls are often horizontally laid and preserved to multiple courses in height. The domestic units were invariably multi-celled and utilised connecting doorways, passageways and courtyards in order to create well-integrated complexes. The domestic buildings were sometimes arrayed in conjunction with a nearby monumental 'round tower' structure. These range in dimension, from 21 metres (Bat, 1145) to 40 metres in diameter (Tell Abraq). Wesigerber interprets these round towers as 'fluchtberg', meaning refuge or keep (1981: 198-204), while Cleuziou and Tosi similarly regard them as 'fortified residences' (2007: 147). On the other hand, there is limited evidence of habitation on the towers themselves (Cable, 2002: 200). Instead, wells found contained in the central space of the towers may suggest an association with

irrigation and date palm cultivation (Cable & Thornton, 2012: 385), as well as providing the local population with access to a permanent water supply. Although their precise function is unknown (Cable & Thornton, 2012: 383), they often formed the focus for the surrounding domestic structures at a number of sites - such as Bat (Frifelt, 1976: fig. 2), Maysar (Weisgerber, 1981) and BB19 at Bisya (*fig. 11*) (Hastings et al, 1975: fig. 8).

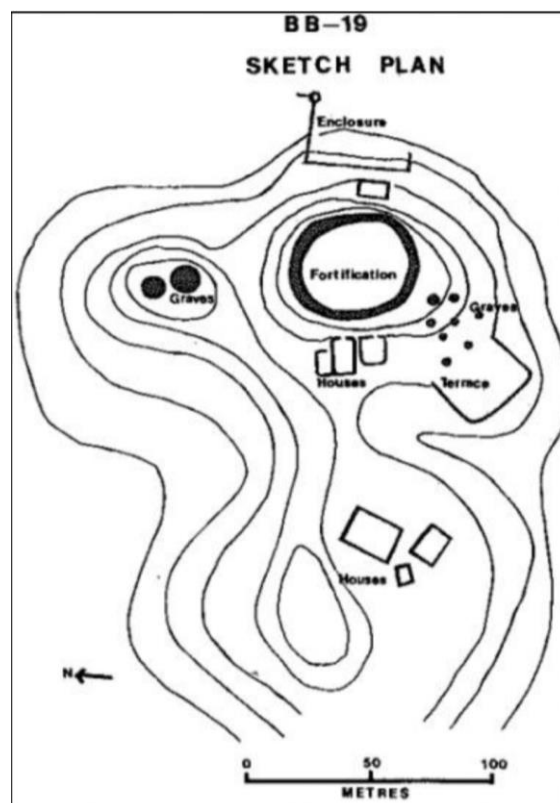


fig. 11 - Round tower 'BB-19' and domestic units (after Hastings et al, 1976: fig. 8)

Studies carried out on the distribution of Umm an-Nar settlement sites (al-Jahwari, 2008; Deadman, 2012: 90-94) illustrate how they are either located in very close proximity to the coast or within the interior oasis belt (*fig. 12*). Yet a dichotomized distribution need not take away from the idea of a homogenous and integrated culture. Rather, it highlights the importance of paired economic variables: agriculture and

copper exploitation in the interior piedmont, with international trade and maritime resources occurring in the coastal areas (Deadman, 2012: 93). In order to sustain an active society effectively on a large scale it was necessary to incorporate both the maritime and oasis economies into a possible common culture (Costa & Wilkinson, 1987: 370).

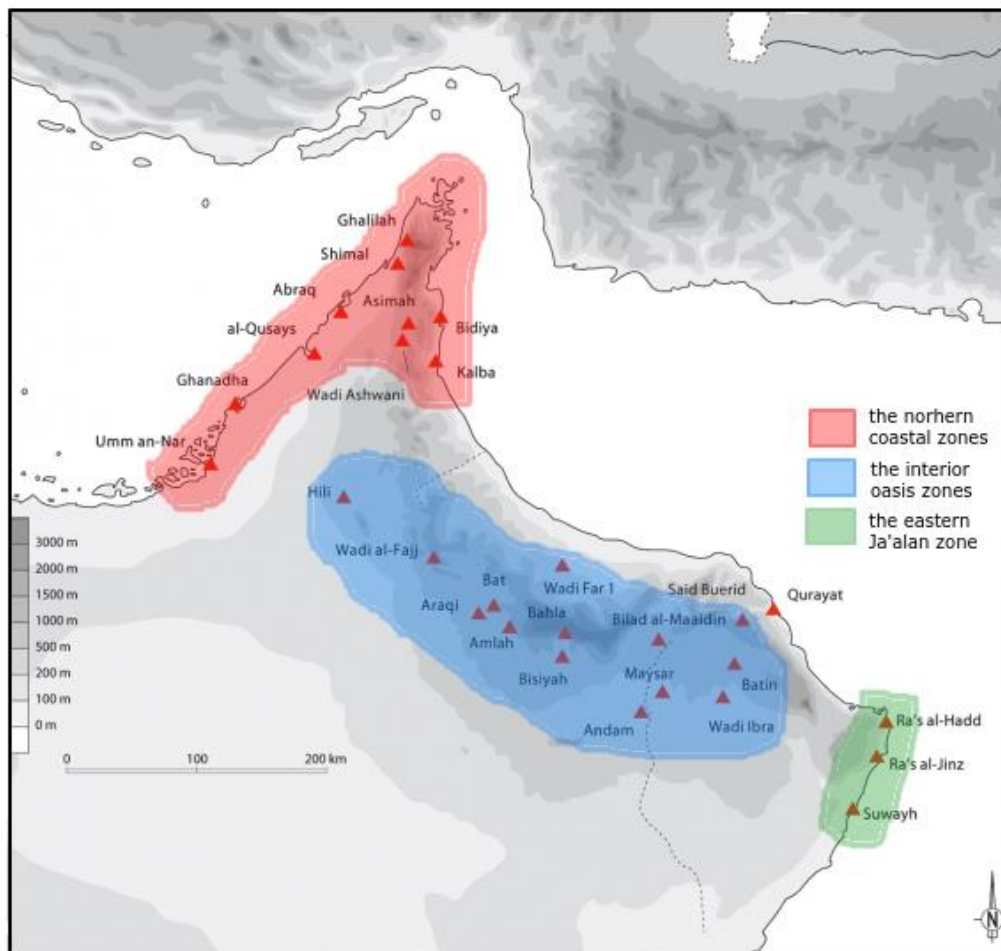


fig. 12 - Distribution of Umm an-Nar settlement sites

It has been suggested that oasis settlements were established as the key driving force in the economy of the region during the Umm an-Nar period (Giraud & Cleuziou, 2009); for example, the extensive site at Hili 8 (fig. 13). The cultivation of the date palm was hugely important for the oasis settlements in this interior region. The discovery of 71

carbonized date stones and traces of date wood at Hili 8, indicate that domesticated palm gardens were an integral part of the landscape in the region during the 3rd millennium BC (Potts, 2003: 35). They may also have provided the shade in which cereals and fruits were able to grow. Analysis carried out on the skeletons from the Hili tombs revealed substantial tooth wear and caries resulting in high levels of ante-mortem tooth loss, which can be equated with the increasing reliance on carbohydrates such as cereals and date fruit (Blau, 2001; Gregoricka, 2011: 60). A further study of 136 animal bone specimens at Hili indicated that more than 90% of the consumed meat came from domesticated animals, such as cattle and donkey (Magee, 2014: 103). These results, therefore, perhaps signify the presence of a successful rural agricultural economy that operated at Umm an-Nar oasis settlement sites.



fig. 13 - Hili 8 round tower and domestic unit, Building II (after Cleuziou, 1989: fig. 21)

In the eastern Ja'alan zone there are examples of Umm an-Nar maritime centres, such as Ra's al-Jinz (RJ-2) and Ra's al-Hadd, adopting alternative subsistence strategies.

The occupation of RJ-2 consisted of two main compounds containing, in total, nine stone square buildings (*fig. 14*). These were highly integrated and clustered together to form a composite network of courtyards, inter-connected rooms and corridors (Azzara, 2009: 10). The private spaces were situated alongside manufacturing areas designated to shell working, food processing and metalworking. The large majority of the associated animal remains consisted of turtles, dugong, fish and shellfish; unsurprisingly therefore, marine resources were the primary mode of subsistence for these coastal groups.

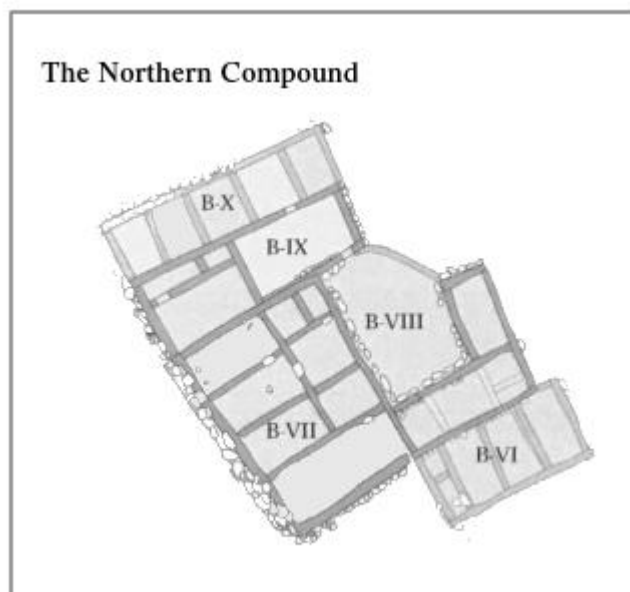


fig. 14 - Closely-integrated domestic units at Ra's al-Jinz (after Azzara, 2009: 4)

The smaller village site was another type of Umm an-Nar domestic settlement located in both the coastal and interior regions. Ephemeral maritime sites of the northern coastal zones were found at al-Sufouh, Mowaihat, Ghanadha Island and Abu Dhabi Airport. These were characterised by extensive areas of hearths and pits containing animal bones, shells and ceramic scatters (de Cardi, 1997; al-Tikriti, 1985; Benton, 1996: 24-33). Although collective tombs appear to represent populations at these small

sites, there was often no indication on the surface of any underlying domestic structures. It has been argued, therefore, that these small coastal domestic sites were in fact peripheral 'satellite' sites consisting of ephemeral houses or '*barastis*' built from palm-fronds (Phillips, 2007: 5), important in their own right but which existed in association with the larger, permanent centres at Tell Abraq and Umm an-Nar island.

The small, sedentary, agricultural villages of the interior regions would also have played a significant role in the wider Umm an-Nar economy. Statistical analysis of pottery collections sampled from the Wadi Andam reveals that occupation in the oasis belt was dense with small villages scattered along the banks of the large wadis (al-Jahwari, 2008: 170). The difficulty in identifying small rural sites, however, is a real, if not entirely surprising, issue: their location on the wadi banks means that over an extended period of time any structural evidence would have been sufficiently buried in the wadi flood build-up to leave only a handful of associated ceramic sherds as a record of habitation (al-Jahwari & Kennet, 2008). Despite the absence of structural evidence, the density of pottery associated with the Umm an-Nar villages demonstrates that these sites should not be overlooked within any overall settlement hierarchy, as they would have contributed significantly to the wider economy.

The two main characteristics of Umm an-Nar settlements, therefore, were the highly integrated interior spaces of the domestic structures and the socio-economic interactions that occurred between sites from a variety of environmental regions in southeast Arabia.

The Nature of Umm an-Nar Society

As demonstrated in the previous section, the period c. 2700 - 2000 BC was a high point in the development of a distinctive uniform culture. Cleuziou writes that the Umm an-Nar period experienced a continuous growth in complexity throughout the 3rd millennium BC, which culminated in the final few centuries (2009: 731). However, the Umm an-Nar communities approached, but never achieved, 'state-level' complexity (Potts, 2008; Cleuziou, 2003), like that of contemporary cultures in Bahrain and Mesopotamia. The building blocks - settlements, material culture, trade etc. - for the creation of a complex socio-political state were in position, and yet the Umm an-Nar communities failed to develop concepts of urbanisation, political centralisation and social hierarchy until their eventual disappearance at the end of the 3rd millennium BC. If the collective graves, uniform material culture, long-distance exchange networks and well established settlements were the by-products of a highly integrated population, what was the exact nature of Umm an-Nar society?

This issue has been heavily debated throughout the 50 years of archaeological excavation undertaken throughout southeast Arabia. Magan was presented by Bibby (1972: 298) as a rich, urban and hierarchical civilisation. Ten years later Tosi was using words such as 'state-like' and 'affluent' in describing the culture (1986: 480). Despite evidence that suggested Umm an-Nar society was in fact rejecting the ideology behind state-building, many archaeologists remained convinced that this culture attempted to emulate the urban centres of Mesopotamia, the Indus and Iran

(Weeks, 2011: 1589). The Gulf region was merely portrayed as a periphery to an economic 'world system' centered on Sumeria (Edens, 1992).

More recent approaches, however, tend to focus on what is thought to be the egalitarian, kin-based 'tribal system' of the Umm an-Nar culture (Cleuziou, 2002, 2007, 2009; Potts, 2008, 2009: 32, 2012; al-Jahwari, 2008: 329; Rouse & Weeks, 2011). Commenting on the social significance of the collective graves, it is argued that the apparent absence of exceptional individuals is an indication that society remained strongly kinship-orientated during the 3rd millennium BC; Blau cites the social collectivity of the living with regards to the indiscriminate distribution of skeletons of all ages and genders in the tomb sub-chambers (Blau, 2001).

What were the essential traits, therefore, of a tribal, kinship-based society? Social formations appear to have been underpinned by an ideology that promoted group identity, equality, community and socio-economic co-operation, whilst simultaneously curtailing the efforts of individual economic accumulation and status (Cleuziou, 2002). With this in mind, the spatial arrangements of the highly, integrated domestic units of RJ-2 reflect those principles listed above (Azzara, 2009: 10). Cleuziou cites RJ-2 when emphasising the roles of nuclear families; the house units belonged to independent agents with 'decision-making freedom' (Cleuziou, 2007). This is compounded by Lancaster and Lancaster (1992: 145) who reaffirm that the very core of kinship ideology is 'the expression of peace through individual autonomy'.

Furthermore, in adhering to the tribal ethos, the Umm an-Nar societies did not support the development of redistributive or tributary exchange mechanisms that underpinned the complex political structures in neighbouring areas (Rouse & Weeks, 2011: 1584; Cleuziou & Tosi, 2007: 95). Therefore, one would imagine that, without the presence of political integration and elite-based redistribution mechanisms, those marginal environments of the Umm an-Nar culture which lacked the ability to offer desirable products - such as local foodstuffs or minerals - would rapidly suffer isolation. However, the presence of a 'local exchange economy' - the exchange of regionally specialized production groups (copper, soft-stone, agricultural goods, marine resources etc.) (Cleuziou & Tosi, 2007: 66, 168) - was a viable adaptive strategy of economic interdependence which facilitated cultural integration in southeast Arabia during the 3rd millennium BC (Cleuziou & Tosi, 2000: 26).

It would be inaccurate, however, to completely disassociate the Umm an-Nar tribal model with the existence of wealth and power. The presence of inequality in Umm an-Nar society has often been over-looked; indeed, it may have in fact been *less* homogenous and egalitarian as previously thought (Deadman, 2012: 112). For an example of social inequality one can cite the construction of the monumental round tower-structure at Bisya (Orchard, 2000: 171) where a minimum of 350-700 tonnes of limestone blocks were quarried. Yet, the round tower is believed to have only housed small groups or may have in fact remained empty (Deadman, 2012: 107). Thus, the Umm an-Nar monumental round towers are perhaps evidence of the unequal control of social and material resources. This is supported by the osteoarchaeological evidence which suggests that a significant proportion of the Umm an-Nar population were malnourished and involved in heavy labour (Blau, 2001). Thus, although the level

of heterogeneity and inequality does not compare with other contemporary fully-formed states, such as Dilmun, Mesopotamia, the Indus or Egypt, the possible inequality in housing, division of labour and distribution of grave goods may suggest a class of semi-elites existed during the end of the Umm an-Nar period.

The local exchange economy, which emerged as the only viable means to integrate the many marginal environments of southeast Arabia, may have resulted in an unbalanced accumulation of power and wealth. Cleuziou cites the 'progressive intensification of resource exploitation and regional exchange' that led to the creation of specialists and niche markets (2007: 226). These, in turn, likely benefitted certain individuals and resulted in an inevitable wealth disparity (Rouse & Weeks, 2011: 1589). These 'certain individuals' would have been those, for example, involved in the management and organisation of transport, building and equipping boats, hiring crews and contacting merchants (Cleuziou, 2009) - thus, were ideal agents in the promotion of exchange at a regional and international level (Rouse & Weeks, 2011). Therefore, Cleuziou argues that the evolution of social formation was a dialectical process: 'the core concepts of jural equality and equal access from within the tribal system were consistently opposed by the various stimuli originating from outside' (Cleuziou, 2009: 227).

In assessing the nature of Umm an-Nar society, an alternative to the tribal, egalitarian model would be one represented by a 'loose, confederation of kinship based groups' with a decentralised political structure (al-Jahwari, 2008: 329). Whilst other foreign contemporary polities achieved state-level complexity, Umm an-Nar society failed to establish concepts of political centralisation and social hierarchy, in favour of

egalitarian kinship ideologies such as equality and cooperation. Yet, the instigation of a 'local exchange economy' may have resulted in the accumulation of wealth in certain individuals, resulting in aspects of inequality in Umm an-Nar tribal society. An alternative to the traditional tribal model can be proposed, therefore: a semi-stratified tribal structure with semi-elites conducting trade on behalf of the tribe (Deadman, 2012: 112). It is important to stress, however, that the exact manner in which Umm an-Nar society functioned remains largely unknown and any models remain merely hypothetical propositions.

The Collapse of Umm an-Nar Society

In 1979, during his excavation at the settlement site at Hili 8, Serge Cleuziou discovered new pottery forms within layers associated with the early 2nd millennium BC (Cleuziou, 1989; Potts, 2012). He discovered distinctive squat beakers and spouted vessels with zig-zag decorations that were without precedent in previous 3rd millennium BC deposits. Cleuziou noticed that the fabrics were much coarser, the shapes less professionally fashioned and the decoration applied in a less geometric manner; he therefore associated the different style of pottery with the known disparity apparent in burial forms (Cleuziou, 1979). The work of de Cardi at Ra's al-Khaimah and Frifelt at Wadi Suq, during the early 1970's, revealed a considerable degree of variety with regards to the shapes and sizes of early 2nd millennium BC graves. In 1980, it was agreed that the 2nd millennium BC would be defined as break in culture

and assigned a new name, the 'Wadi-Suq period (c. 2000 - 1600 BC) (Potts, 2012: 71).

The emergence of a new cultural horizon dated to c. 2000 BC would imply the Umm an-Nar culture vanished remarkably soon after it reached its period of 'greatest developments' (Cleuziou, 2002). Cleuziou suggests that the Umm an-Nar culture was the victim of an 'abrupt collapse' represented by 'drastic cultural change' (2007; 2009). What were the reasons, therefore, for such a transformation in southeast Arabia during the end of the 3rd millennium BC?

The gradual disintegration of Umm an-Nar life may in part be explained by shifting environmental conditions (Gregoricka, 2013: 355). A mega 'historic-climatic' event has been suggested - the '4.2 kyr BP event' in c. 2200 BC (Parker, 2006: 473) - which consisted of a sustained period of intense aridity in the region (Cleuziou, 2009). Weiss argues that the desertification - the reduced moisture which leads to an increased aeolian loss of soil - of Southern Mesopotamia, caused the abandonment and displacement of populations and contributed to the collapse of the Akkadian Empire (1993: 1002). A similar trend of increasingly hyper-arid conditions is represented by decreasing water levels at Hili (Jorgensen & al-Tikriti, 2003: 39): comparable analysis of two wells dated 700 years apart (c. 2500 and 1800 BC) revealed a decline in the groundwater level by 3.8 metres (Jorgensen & al-Tikriti, 2003: 41). The lowering water tables would have made it increasingly difficult to sustain an oasis agriculture and the populations at sites such as Hili would have gradually declined during this period.

It can be argued, however, that citing climate as the primary force behind social change is an outdated model. Cleuziou goes so far as to refer to this as 'crude environmental determinism' (Cleuziou & Tosi, 2000: 200). Instead, Gregoricka argues that it may instead have been the breakdown in the profitable inter-regional exchange networks which played a greater role in the marked decline of the Umm an-Nar societies (Gregoricka, 2013: 356). The collapse of the Akkadian Empire, in c. 2200 BC (Weiss, 1993: 995) would have disrupted the established trade routes and mechanisms organised by public institutions. This is reinforced by the reduction in the capacity of trading vessels during subsequent periods, down from 90000 to 12000 litres (Postgate, 1992: 218). With the collapse of the short-lived Ur III dynasty (2100 - 2004 BC), commercial exchanges between Magan and Sumeria disintegrated. During the beginning of the 2nd millennium BC, control of the copper trade with Mesopotamia shifted to the emerging state of Dilmun, based in modern-day Bahrain (Oppenheim, 1954). Furthermore, Dilmun appears to have neglected the Umm an-Nar copper sources by introducing it from localities *outside* the Oman peninsula in the early 2nd millennium, such as central Iran, Rajasthan and Gujarat (Laursen, 2009; Weeks, 2007: 94). The control of the copper trade was, therefore, a vital constituent of the decline and rise of organisational and social complexity in Magan and Dilmun respectively (Carter, 2003: 40).

Such an approach, however, incorrectly portrays the Umm an-Nar culture as existing within a state of passive cultural reception, reliant on an exchange system of foreign luxury goods. This detracts from the involvement of village agriculture and local exchange operating within the Umm an-Nar system itself (al-Jahwari, 2008: 329; Rouse & Weeks, 2011). Rather, Umm an-Nar society should be afforded a greater

role in its own decline. As discussed above, economic disparity and the possible emergence of a group of semi-elites is likely to have been an inevitable and intrinsic element to the internal socio-economic system of this culture (Rouse & Weeks, 2011). However, the gradual materialisation of such differences in wealth represented an *internally* generated force for instability. There was an increasing sociological conflict between those individuals who had acquired status - semi-elites - versus those who held to the ideology of a kinship-based society which promoted group identity, affiliation and equality. Cleuziou describes the situation as a 'dialectical process' (2002: 227) between the basic concepts of jural equality and equal access to resources, and the various stimuli originating from outside the tribe. Therefore, the strengthening of the semi-elites through the consolidation of the local exchange economy led to the destabilisation of these basic concepts. It may, therefore, have been internal social factors which were the primary instigator for a decline in the Umm an-Nar culture in c. 2000 BC. This would have inevitably been compounded by the increasingly hyper-arid environment and the breakdown of the well-established long-distance trade networks with Mesopotamia.

Part II: The 'Wadi Suq' Culture

In this section of the chapter I will use the available literature to provide a general background on the Wadi Suq culture. This will then contextualise the Wadi Suq architecture and pottery described later in the dissertation. The Wadi Suq culture is described using the same parameters as the preceding Umm an-Nar period: i) tombs, ii) ceramics, ii) trade and iv) settlements.

i. Tombs (fig. 15):

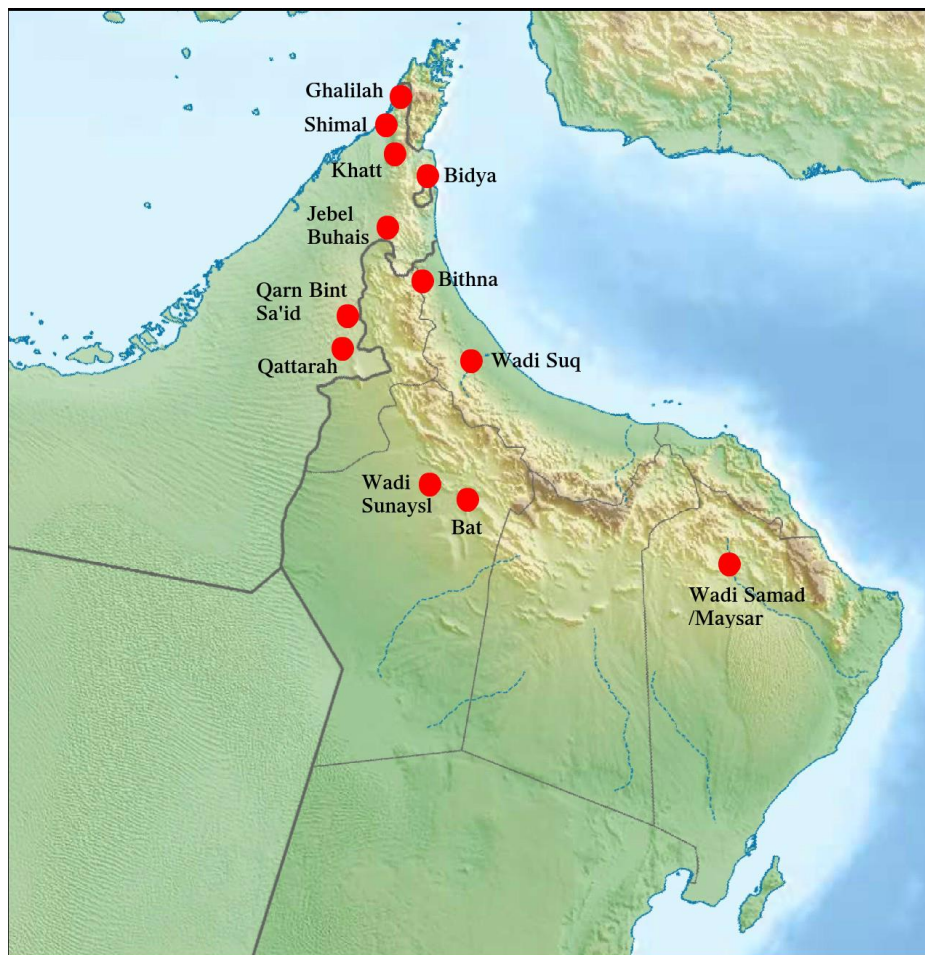


fig. 15 - Major Wadi Suq funerary sites

Much of what we know about the Wadi-Suq culture is derived solely from the funerary data (Carter, 1997). In the northern coastal zones, distinctive subterranean tombs date to the early 2nd millennium BC and were first detected by Beatrice de Cardi during her work in Ra's al-Khaimah in 1968. The first excavations carried out on these tombs were undertaken by the Danish archaeologist Karen Frifelt in the Wadi Suq region of Oman (Frifelt, 1975). It quickly became clear that there was considerable variety in the size and shape of the Wadi-Suq period graves (Potts, 2012: 75). Indeed, in clear contrast to the Umm an-Nar tombs, the most notable feature of the Wadi Suq funerary practices is the sheer variety of tomb types (Carter, 1997).

Using Carter's tomb typology, there are six principal 'types' of Early and Middle Wadi Suq tombs (*fig. 16*) (1997: 31-38): *Types 1 and 2* are simple single or double cist burials, with the latter including a surrounding superstructure above-ground. These cist tombs are best represented in the Wadi Samad (Yule & Weisgerber, 1988: 10), Wadi Suq (Frifelt, 1975: 376, *fig. 4*) and Wadi al-Qawr areas (Phillips, 1997: 210). There are also examples visible on the Settlement Slope at Bat; these were intrusively built through earlier settlement layers (see Chapter 5). *Type 3*, or 'Ghalilah type' tombs, are named after Donaldson's site in Ra's al-Khaimah, in the northern UAE (Donaldson, 1984). These are oval-shaped with a central free-standing wall constructed along the tomb's interior. In tombs GH02 and SH103 at Shimal, the dividing wall is separated from the ring wall at both ends to allow free passage between the chambers (Vogt, 1987: 37). *Type 4* is represented by a series of unusual partitioned, collective round tombs found at Qarn Bint Sa'id. These resemble the Umm an-Nar graves, yet have been firmly dated to the early 2nd millennium BC based on

their Wadi Suq pottery assemblages (Vogt, 1985: 189). The *Type 5* tombs are characterised by collective subterranean long burials; these are widely distributed inland and on the northern and eastern coasts. The best preserved example is that of Bidya 1 in Fujairah, northern UAE (al-Tikriti, 1989). Finally, Carter’s *Type 6*, or the so-called ‘Shimal-type’, are the collective, overground long burials. An example of such would be Tomb 1 at Shimal (Donaldson, 1984: 196, fig. 2).

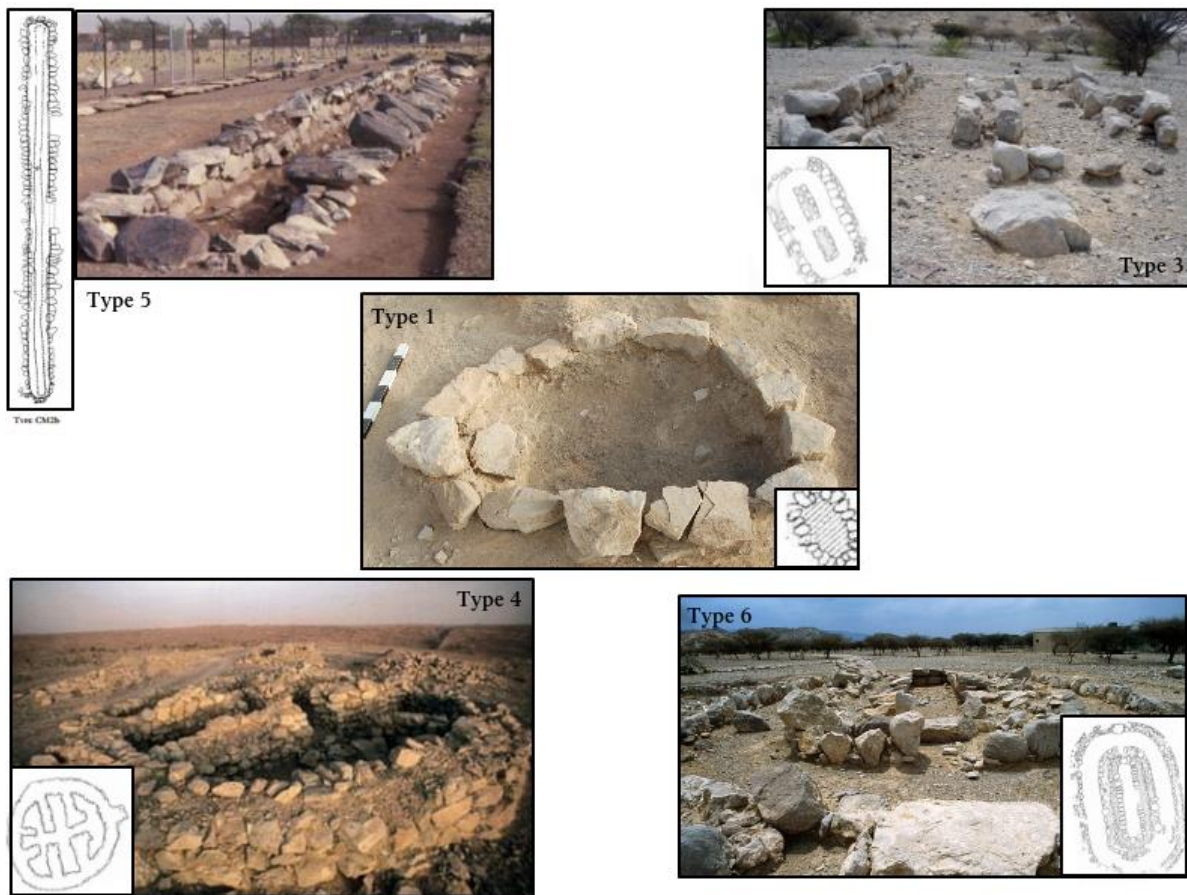


fig. 16 - Carter’s main Wadi Suq tomb types (photographs after Righetti, 2015)

Diversity in Wadi Suq burial practices is sometimes observed within the same cemeteries. A variety of forms, for example, are represented by eleven Wadi Suq tombs at Jebel Buhais, in Sharjah, northern UAE (Jasim, 2012). These include above-ground ring tombs, a horseshoe-shaped tomb, a U-shaped tomb and an unparalleled

clover-shaped tomb (*fig. 17*) (Magee, 2014: 189). The idiosyncratic burial types, therefore, appear to represent Wadi Suq communities that became increasingly isolated from each other, especially when compared to the preceding Umm an-Nar period.

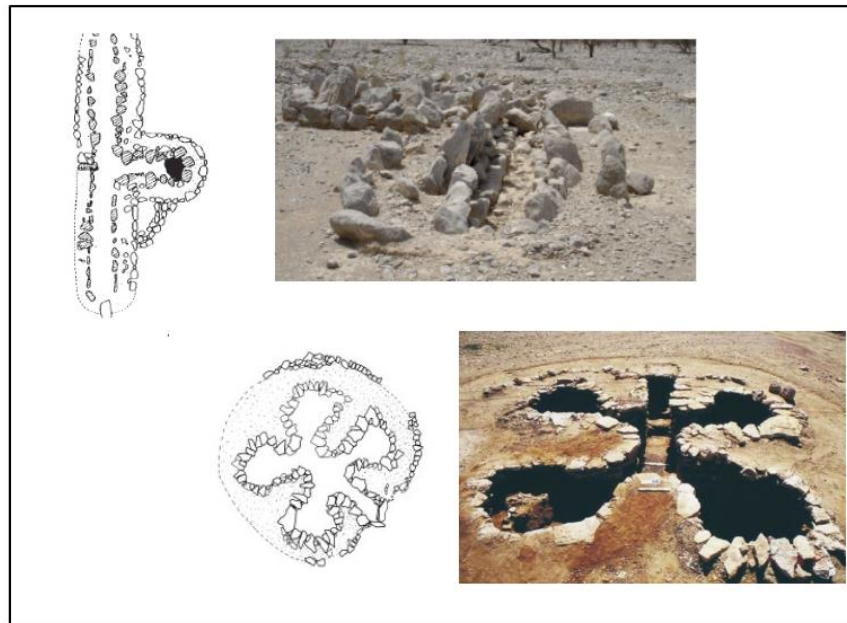


fig. 17 - Different Wadi Suq collective tomb designs (after Potts, 2001: 45)

Another departure from Umm an-Nar funerary traits can be seen in the regional variation of different tomb types. Whereas large cemeteries formed of smaller, single cist graves (Types 1 and 2) were more characteristic of the central and southern parts of southeast Arabia - Wadi Suq, Wadi Samad - it is evident that large, collective tombs - such as Types 3 and 5 - were focused in the northern coastal zones (Carter, 1997: 53). Even more northerly are the Type 6 “Shimal” tombs, which were restricted to the north of the peninsula at Shimal, Khatt and Ra’s al Khaimah. This, again, seems to emphasise the regional fragmentation of a previously homogenous cultural area.

ii. Ceramics:

The decision to define a 'completely new material culture' was initially based upon ceramic types that contrast with preceding Umm an-Nar assemblages. Indeed, whereas Umm an-Nar ceramics and soft-stone vessels were characterized by a standardisation of vessel forms and a uniformity of technology (Blackman, 1989), the Wadi Suq pottery was seemingly focused on locally derived forms and decorative repertoires. Potts writes: 'when we compare the ceramics of the Umm an-Nar period with those of the Wadi Suq era, there is no doubt that the latter is stylistically simpler...and less professionally fashioned' (2012; 78).

The Wadi Suq funerary pottery consists primarily of two principal forms (*fig. 18*): fine beakers, decorated with vertical patterns, are extremely common and appear within the majority of Wadi Suq grave assemblages (Carter, 1997: 79). Spouted globular jars were another characteristic shape often associated with the Wadi Suq tombs. Typical domestic types, meanwhile, include undecorated bowls with divergent sides, coarse storage jars, with varying types of necks and rims, and globular cooking pots with slightly everted rims and decorated with wavy lines (Righetti & Cleuziou, 2010: 290). Shared forms and decorative motifs in the pottery typologies, however, did appear throughout southeast Arabia during the Wadi Suq period. This is possible evidence for the existence of recognised patterns and stylistic homogeneity within the manufacture of their ceramics (Mery, 2013: 8). Examples of wavy-line decorations painted on beakers and string-cut bases were found at numerous Wadi Suq sites, demonstrating the presence of a possible collective mental template (Velde, 2003: 104).

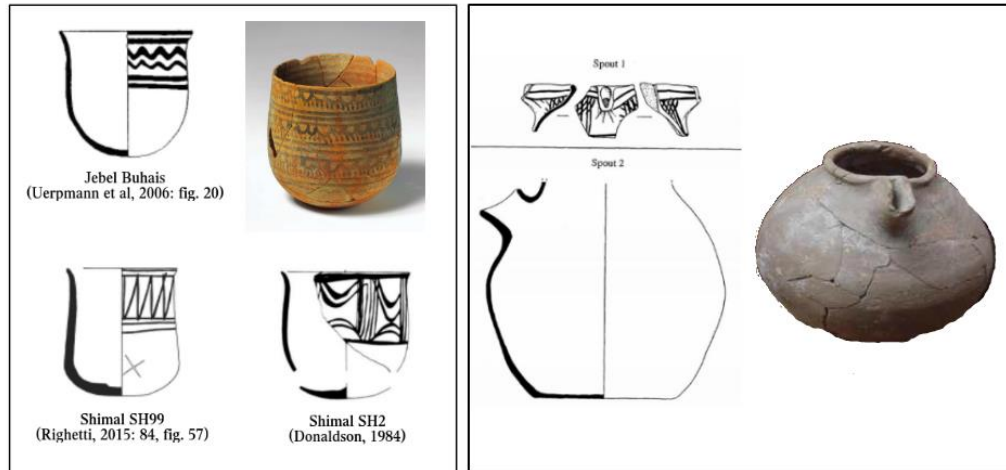


fig. 18 - Wadi Suq funerary pottery types (after Carter, 1997: figs. 20, 23)

Although a shared ‘mental template’ may have been applied to some ceramic types, the predominant characteristic of Wadi Suq pottery was the divergence of styles into regional facies. Consequently, typologies tended to be fairly broad and limited to certain sites (Ghazal, 2014: 23). The geometric, carefully-applied designs of the Umm an-Nar period gradually become looser and more variable. This style of Wadi Suq pottery can be attributed to the change in the mode of production; it is argued that, in comparison with the Umm an-Nar specialised in-house manufacturers, the potters of the 2nd millennium BC may have been autonomous individuals or ‘generalists’, who, while remaining skilled craftsmen, seemed to work more on a part-time and ‘opportunistic’ basis (Carter, 1997).

iii. Trade:

Umm an-Nar trade connected southeast Arabia with Mesopotamia, the Indus and Iranian civilisations; this appears to have declined considerably during the successive

Wadi Suq period. Furthermore, the emergence of the Dilmun civilisation as the principal controller of trade, throughout the coastal regions of the Gulf, would have had a detrimental effect on attempts to re-assert an exchange network during the 2nd millennium BC (Carter, 1997: 114).

It would be incorrect, however, to assert that southeast Arabia universally experienced a decline in trade during the early 2nd millennium BC. A small number of Wadi Suq settlement sites situated in the northern coastal zones demonstrated continuity by maintaining contact with foreign states: at Shimal, 'Harappan' ware has been discovered in Wadi Suq tomb assemblages (Mery, 1987: 101, Table 1; de Cardi, 1988, fig. 11); Potts also draws attention to the existence of post-Harappan Indus pottery in 2nd millennium BC contexts at Tell Abraq (Potts, 1993); finally, Vogt compared a comb found at a Middle Wadi Suq tomb at Shimal (Sh.99) with examples known from Shahr-i Sokhta, in eastern Iran (1996: 114). These examples reflect the ongoing trade with foreign polities that continued unabated at a few northern settlement sites during the Wadi Suq period.

Even these coastal sites, however, were affected by the appearance of Dilmun waystations or 'trading posts' (*fig. 19*), established on islands off the northern coastal zones during the early 2nd millennium BC (Carter, 2003b: 129). The emergence of Dilmun as a seemingly complex culture included a takeover of the previous mercantile functions of the Umm an-Nar communities situated along the northern coastlines. Weeks emphasises that current fieldwork has yet to clearly identify any copper-smelting sites that date to the early 2nd millennium BC in southeast Arabia and instead proposes a large-scale trade in copper obtained from sources such as Gujarat,

Rajasthan and south-central Iran (2012: 94). The emergence of Dilmun and its monopoly over the copper trade in the Gulf, during the early 2nd millennium BC, appears to have been achieved at the expense of southeast Arabian copper production, which consequently suffered a gradual decline in the region during this period.



fig. 19 - Dilmun trading way-stations (after Carter, 2003: 124, fig. 1)

iv. Settlements:

An important characteristic of the Wadi Suq culture is the change that occurred in the nature and intensity of Wadi Suq settlement during the 2nd millennium BC (Carter, 1997: 72). This period has traditionally been defined by a contraction of intensive settlement to the northern coastal zones and a decline in social complexity experienced within the interior regions (Crawford, 1998: 142; Gregoricka, 2013: 355).

Large sedentary sites at Tell Abraq and Kalba suggest that continuity in occupation during the Umm an-Nar/Wadi Suq transition phase did exist. The large majority of Umm an-Nar settlement sites, however, appear to have been subject to increasing abandonment and depopulation as the 2nd millennium BC progressed: excavation at Umm an-Nar island revealed no sign of permanent occupation in layers that postdate Phase II (c. 2300-2000); the population at Hili 8 suffered a 'gradual decline' after Period IIc (c. 2200-2000) up until its 'eventual abandonment' in approximately 1500 BC (Jorgensen, 2003: 45); the occupation of small wadi villages diminished as the increasingly arid climate may have forced populations to relocate to more sustainable areas (al-Jahwari, 2009: 128; Jorgensen, 2003: 45). Significant reorganisation appears to have occurred, therefore, with regards to the distribution of the settlements during the Wadi Suq period.

The layouts of the Wadi Suq domestic structures themselves also change at settlement sites. The residential units associated with the Umm an-Nar period were often defined by "weak architectural boundaries" that created a 'composite and integrated socio-cultural system' in which essential domestic tasks were shared by extended families (Azzara, 2009: 12). In contrast, the few Wadi Suq houses that have been excavated are mostly small, isolated house units formed of four cells or less. The early 2nd millennium BC settlement at RJ-1 includes domestic structures defined by their simple layout (*fig. 20*); these consist of two parallel rooms (2 x 3 metres) with a small adjacent courtyard (Monchablon et al. 2003: 44).

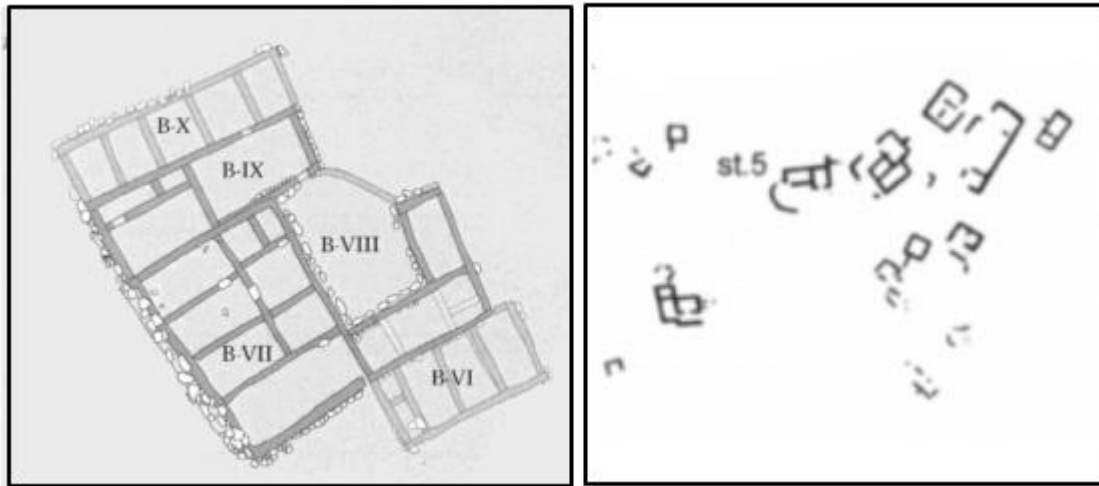


fig. 20 - Umm an-Nar units at RJ-2 (left) and the Wadi Suq units at RJ-1 (right) (after Monchablon et al. 2003: fig. 11)

The construction of the walls at domestic Wadi Suq structures is further evidence of a divergence from the Umm an-Nar period. The well-dressed stone walls of Umm an-Nar settlement sites appear to be replaced by new unorthodox styles during the 2nd millennium BC. A Wadi Suq wall, built from two faces of triangular slabs placed in an upright position and laid either side of a coarse gravel fill is a style of construction found at Hili 8 (Cleuziou, 1989: 72), the Late Bronze Age settlement at Shimal (Vogt & Franke-Vogt, 1987) and at the Shimal graves (Donaldson, 1984). This construction type is also attested at the Settlement Slope at Bat, associated with contexts dated to the Early Wadi Suq period (see 'wall 409' and 'wall 418B' in *Part I*, Chapter 3).

There is certainly a lot we still do not know with regards to Wadi Suq domestic architecture. This particular Wadi Suq wall type would have made a poor foundation choice for the construction of a secure stone structure. Instead, the upper part of the walls is thought to have been constructed from either mud brick or palm-fronds; the

walls might even have been limited to a single course in order to create an open animal pen. The evidence of transient '*barasti*' housing (*fig. 21*) and ephemeral architecture discovered at Wadi Suq domestic sites (Gregoricka, 2013: 355) suggests that part of the population may have been nomadic, engaging in alternative building techniques, re-visiting ancestral sites and occupying the settlements on a seasonal basis.



fig. 21 - A modern-day barastis house (after google images)

On the other hand, there is evidence of continuity in the occupation of some large sedentary settlements during the early 2nd millennium BC: at Tell Abraq (Potts, 1993a), Kalba 4 (Carter, 1997) and Nud Ziba (Kennet & Velde, 1995). These sites were typically defined by the construction of large monumental structures: at Tell Abraq, a 2m-wide stone wall was constructed at the start of the 2nd millennium BC (Potts, 1993a: 118); Hili 8 included a stone wall encompassing a large area, measuring 25-30 metres in diameter, located at the foot of the earlier Umm an-Nar round tower (Cleuziou, 1989: 71); at Kalba, a wall made of flat, rounded slabs and a substantial mud-brick platform were both built directly on top of an earlier Umm an-Nar round tower

(Carter, 1997: 132). The organisation required to build such major monumental structures implies the continued existence of large, sedentary populations at these settlement sites during the Wadi Suq period.

It can be argued that the concentration of major settlements was restricted to the northern coastal zones during the 2nd millennium BC. This may have been a consequence of an increasingly arid climate that rendered agriculture in the piedmont environment no longer viable. The discovery of small, ephemeral domestic sites in the interior regions may reflect a system that was no longer able to support its marginal settlements (Tainter, 1988). The settlements are consistent with the regional variation that characterised the tombs, ceramics and trade of the Wadi Suq period.

The Nature of Wadi Suq society

Based upon a lack of Wadi Suq domestic sites, this 'thousand years of negative evidence' appeared to suggest a gradual reversion back to nomadism, which culminated in the Late Bronze Age period (Cleuziou, 2002: 204). Yet, based on further excavations in the region, many now regard this view as outdated: Preston argues (2012: 128) that 'resilience rather than collapse' would have been the natural response of Wadi Suq populations to a changing climate, while Cleuziou insisted (2002: 221) that he was not evoking a 'dark age' in the region, but rather highlighting the fact that settlement patterns were less visible during the 2nd millennium BC.

To date, the large majority of archaeological research carried out at sites within the Oman Peninsula has been focused on Umm an-Nar monumental round tower structures or Wadi Suq large collective tombs; as a result, the domestic structures themselves have traditionally been ignored (Jasim, 2000: 153). The discovery of substantial permanent settlements at Tell Abraq (Potts, 1993: 118), Shimal (Vogt, 1987: 7), Kalba (Carter, 1997) and Nud Ziba (Kennet & Velde, 1995), infers that the perceived paucity of domestic Wadi Suq sites does not reflect a real situation. In fact, settlement continuity can be regarded as an important characteristic of their society. More excavations of Early Wadi Suq settlements are required in order to elucidate patterns of subsistence (Gregoricka, 2013: 364). The results may corroborate the levels of continuity found at the few Wadi Suq settlements located in the northern coastal zones.

Furthermore, some clear 'mental templates' in the manufacture of Wadi Suq ceramics should be highlighted (Carter, 1997). The regular occurrence of decorative motifs and forms attest to the fact that potters were adhering to recognised patterns. This is suggestive of a number of interdependent Wadi Suq sites; the reoccurrence of similar vessel types indicate that the latest styles and craft techniques were shared across a wide region. Rather than leaving the Wadi Suq populations nomadic and isolated, therefore, the socio-economic transformations that occurred were more likely to have been 'evolutionary rather than revolutionary' (Potts, 2001: 44).

Evidence of sub-regional variation becomes accentuated during the Early Wadi Suq period in southeast Arabia (Carter, 1997: 75-78; al-Jahwari, 2008: 339). There

appears to have been a clear contrast between the northern and the southern regions; two societies with very different subsistence and economic strategies may have co-existed side by side during this period (al-Jahwari, 2008: 345).

Within the northern coastal zones, there was a handful of permanent centres, probably occupied by large populations and who were then buried in nearby collective stone tombs. It is important to note, however, that, despite there being no sudden abandonment in these northern areas, the importance of the sites may still have been significantly reduced during the Wadi Suq period (Carter, 1997: 122). Potts identifies these sites as 'settled' and not sedentary communities (1993: 428), yet Cleuziou cites the presence of mixed cemeteries, containing single subterranean cist burials alongside the collective over-ground tombs, as evidence that a significant proportion of the relatively settled northern coastal populations was in fact formed of disparate mobile groups (2002: 221).

The Umm an-Nar domestic centres found in the interior regions of southeast Arabia can be characterised by gradual depopulation and eventual abandonment. Although it would be incorrect to envisage a collapse of society and a return to the nomadic pastoralism of the 4th millennium BC (Gregoricka, 2013: 356), the Early Wadi Suq domestic sites typically consist of ephemeral structures. Al-Jahwari identifies them as possible camp sites belonging to semi-nomadic groups who revisited their ancestral mortuary landscapes (2008: 345).

Why was the Wadi Suq culture characterised by regional variation, whereas the Umm an-Nar culture, by contrast, was characterised by relative uniformity and standardisation? Firstly, a period of regional aridification appears to have occurred during the end of the 3rd millennium BC in southeast Arabia during which the annual rainfall decreased, affecting many of the interior regions (Jorgensen & al-Tikriti, 2003: 39-41). In contrast, steadier climatic conditions in the northern coastal zones meant Wadi Suq communities had access to a higher mean annual rainfall. This is reflected by current measurements (*fig. 22*): the recorded mean annual rainfall was 108 mm for 2009-2013 in the northern coastal region of Ra's al-Khaimah, compared to just 41.2 mm for the inland city of Al Ain (tutiempo.net/climate). Consequently, in the northern coastal regions the maintenance of a varied diet was possible and included fishing and the gathering of littoral shellfish, often supplemented by agricultural products.

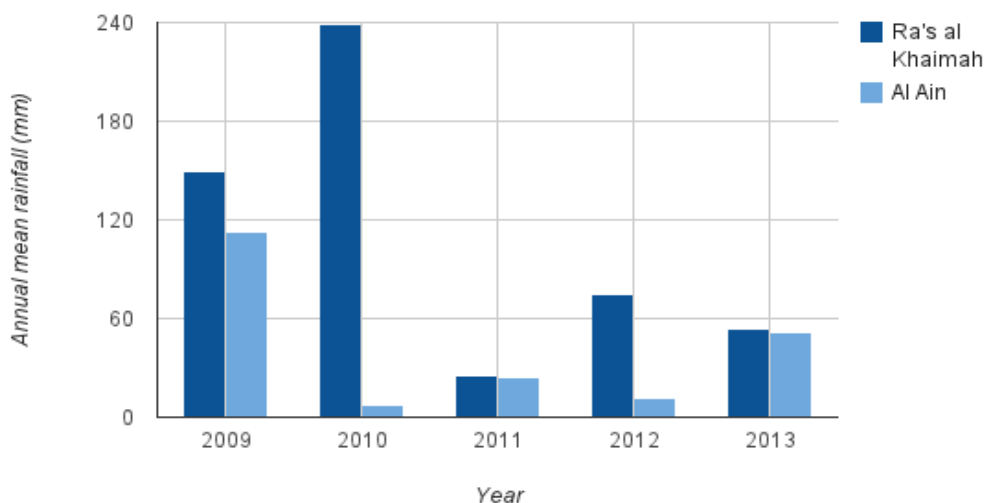


fig. 22 - A comparison in annual rainfall between the northern coastal region of Ra's al-Khaimah and the inland region of Al Ain (both UAE), 2009-2013 (after tutiempo.net/climate)

In conclusion, the decline of the Umm an-Nar culture in c. 2000 BC heralded a period in which settled communities appear to have been concentrated around the northern coastal zones. A sedentary lifestyle on the coast was more viable as a result of a steadier climate, varied ecology and integration within emerging trade networks in the Gulf. Conversely, societies located within the interior zones seem to have become regionally isolated with increasingly mobile populations and more ephemeral architecture. These two very different social groups, however, did appear to coexist, interact and share funerary sites. Yet, the nature of Wadi Suq society never matched the elevated levels of socioeconomic complexity and craft specialisation displayed by the previous Umm an-Nar culture.

Chapter 2 - The Site at Bat

Introduction

This section will consist of a general introductory description of the archaeological site at Bat and is aimed at providing a background to the architectural dataset from the Settlement Slope presented in *Part I*, Chapter 3. It is important to address why Bat's favourable geography, climate and geology meant that this particular site was inhabited during the 3rd and 2nd millennium BC. This will be followed by a brief account of the different archaeological aspects incorporated within this UNESCO world heritage site.

The Geography

The al-Dhahirah geographical zone is characterised by a fertile piedmont fringe, located in between the foothills of the Hajar Mountains to the east and the desert of the 'Empty Quarter' to the west. Bat is located within the Wadi al-Hijr (*fig. 23*); a small sided valley, several kilometers wide, which floods seasonally and creates one of the few natural routes leading east through the Hajar mountains (Cable, 2012: 18-19).



fig. 23 - The Wadi al-Hajr valley (after Google Images)

At Bat, a modest collection of modern housing is located next to a wadi bed that runs along the foot of a range of low hills. The valley floor, which surrounds the modern village, consists of open, flat areas of disused agricultural fields (Thornton & Cable, 2014: 6). The different archaeological components at Bat, therefore, are typically associated with either the low piedmont foothills and high valleys or the flat alluvial plains (Thornton et al. 2013: 260, fig. 2).

This region of southeast Arabia would have represented a highly advantageous location for a 3rd millennium BC settlement site. The area contains a number of traditional land routes that may have been utilised by Bronze Age populations. 'Wadi Sumail to Ibri to Ra's al-Khaimah' was a key trading route that runs the length of zone 5. It seems to have been an

important means of transporting copper, stone and other resources from their mountain origins to the northern trading hubs on the Gulf coast (Carter, 1997: 18). Today this trail is now Route 21, a main highway which links Nizwa with the UAE.

There is also evidence of another key trade route that wound its way through the Hajar mountains. This connected the zone 5 piedmont settlements with the Batinah coast, via the valley passes of the Hajar mountains. The trail today is represented by a modern road, Route 9, which connects Ibri with As Suwayq. Thus, Ibri and the surrounding settlements - including Bat - benefit from being situated close to the crossroads of two traditional trade routes (*fig. 24*); Ibri itself is thought to have been named after the arabic term for 'crossing' ('a-b-r'). This area can be regarded as highly significant in terms of facilitating the long distance trade networks which are argued to have played a key role in the development of the complex and integrated societies during the 3rd millennium BC.



fig. 24 - Traditional trade routes, now major highways (9, 21)

The climate of this region is typically unfavourable to human habitation (Orchard & Stranger, 1994: 91). Furthermore, the original Bronze Age settlement at Bat is thought to have experienced an extreme climate fluctuation that occurred during a period of increasing aridity in the late 3rd millennium BC (Carter, 1997: 25; Cleuziou, 2009; Parker et al. 2006: 474). The average rainfall today for Ibri is 88mm per annum, recorded over 25 years (1975-1999) (al-Ghafri, 2006: 86). This is a negligible amount of rainfall and lies well outside the 300mm per annum isohyet which marks the practical minimum rainfall necessary for dry farming (Ellison, 1978: 7). The management of water was therefore a key aspect of Bronze Age settlement at Bat. As the emergence of the *falaj* technique is considered to have occurred no earlier than the Iron Age II period, c. 1100 BC (Potts, 2003: 162; Weisgerber, 1981: 233), any Bronze Age occupation appears to have relied heavily on a combination of wells and channeling the perennial wadi flows and seasonal floods (Wilkinson, 2003: 160)

Owing to effective systems of water management, a distinctive feature of zone 5 habitation today are the fertile areas of agricultural production. More than half of this cultivation consists of date palms (*fig. 25*). The date palms are commonly the main product of oases, as they not only provide food but the palms also provide a canopy for household-orientated horticulture. It is thought that Bronze Age occupation at Bat would therefore have been reliant on the maintenance of its palm gardens (Wilkinson, 1977: 16). Wilkinson proposes (2003: 160) that the gardens at Bat may have occupied an area encompassing 40-60 ha, demarcated by the surrounding round tower structures and capable of supporting c. 1200 people; but further work is certainly required in order to establish a better understanding of the palm gardens during the Umm an-Nar and Wadi Suq periods.



fig. 25 - A typical palm garden in al-Dhahirah

The unique geology of the Bat region also contributes to the favourable nature of this geographical zone. The western piedmont foothills of the Hajar mountains contain older geological deposits positioned above the younger ones - a phenomenon known as abduction. It is relatively easy, therefore, to access minerals and ores typically acquired through deep subsurface prospection (Cable, 2012: 16): these include lead, silver and sulphide coppers, as well as semi-precious stones, such as jasper and carnelian. Furthermore, the Jebel Shuwa'i lies only a few kilometres from Bat and is currently mined for its distinctive white limestone; this was the likely source for the building materials used for the 3rd millennium BC tombs at Bat.

Although a moderately-sized village today with approximately 1200 inhabitants, the complex of Bronze Age monumental, funerary and domestic sites at Bat is thought to have formed one of the largest known settlements of this period. The site would have been able

to support a considerable population due to the favourable geographical factors discussed above. These include its location close to a crossroads formed of two primary trading routes, the ability to maintain oases gardens through various water management techniques and a local geology that provided mineral and stone resources for both trade and building materials.

The Archaeology at Bat

The following section will briefly outline the monumental, funerary and domestic aspects that together form the Bronze Age complex at Bat (*fig. 26*).

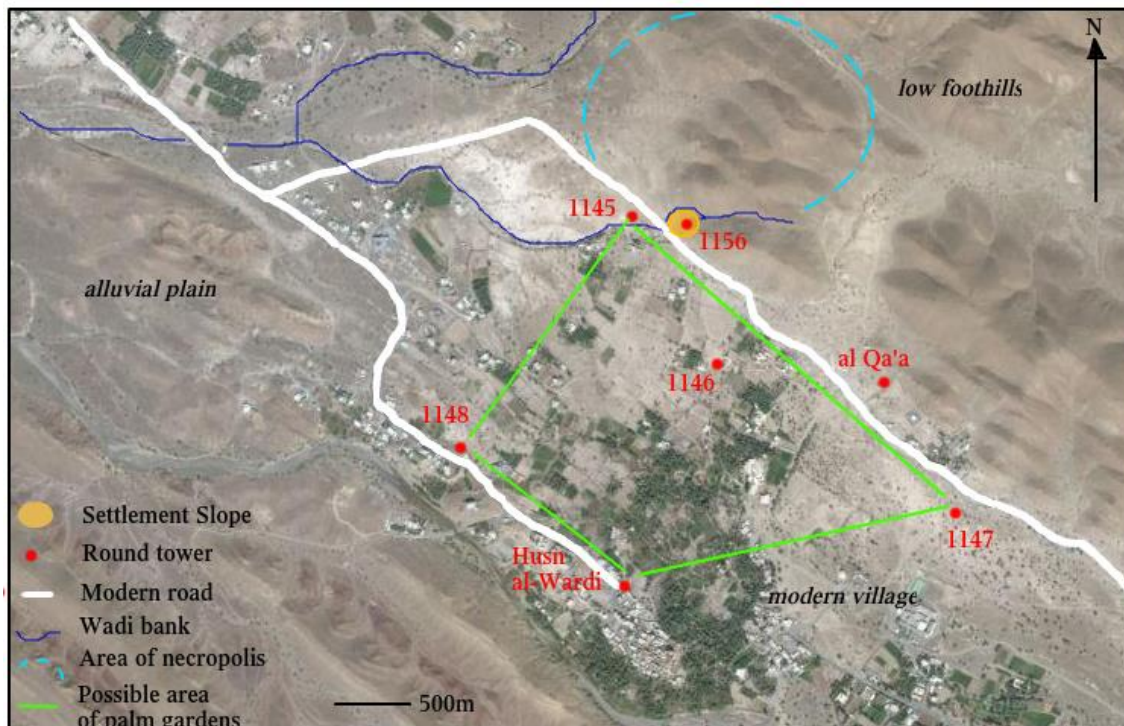


fig. 26 - A satellite image of Bat with the location of the 3rd millennium BC features (after Google Earth)

- *The Round Towers:*

During the 1970's, Karen Frifelt carried out the first detailed study of the 3rd millennium BC round towers at Bat (Frifelt, 1976). The round towers are consistent with similar structures identified at contemporary settlement sites throughout southeast Arabia and are considered a characteristic monumental feature typical of the Umm an-Nar culture (c. 2700 - 2000 BC). There are a total of seven Umm an-Nar round towers, spread out evenly around the site at Bat (*fig. 26*), with another situated 3 km north west of Bat at al-Khutm (de Cardi et al. 1976: 101, site 57). These monumental structures appear to demarcate an area between 40-60 ha and are thought to have represented a form of settlement boundary during the Umm an-Nar period.

The list below displays the original numbers given to the round towers by the Danish team, along with their modern Arabic names (the two structures without numbers were discovered by an American team in 2007-2014):

- 1145 Kasr al-Rojoom (*fig. 27*)
- 1146 Kasr al-Khafaji (*fig. 28*)
- 1147 Matariya (*fig. 28*)
- 1148 Kasr al-Sleme (not excavated)

- 1156 - the 'Settlement Slope' round tower
- Husn al-Wardi - Bat Qala (not excavated)
- A possible round tower platform at al-Qa'a (not excavated)

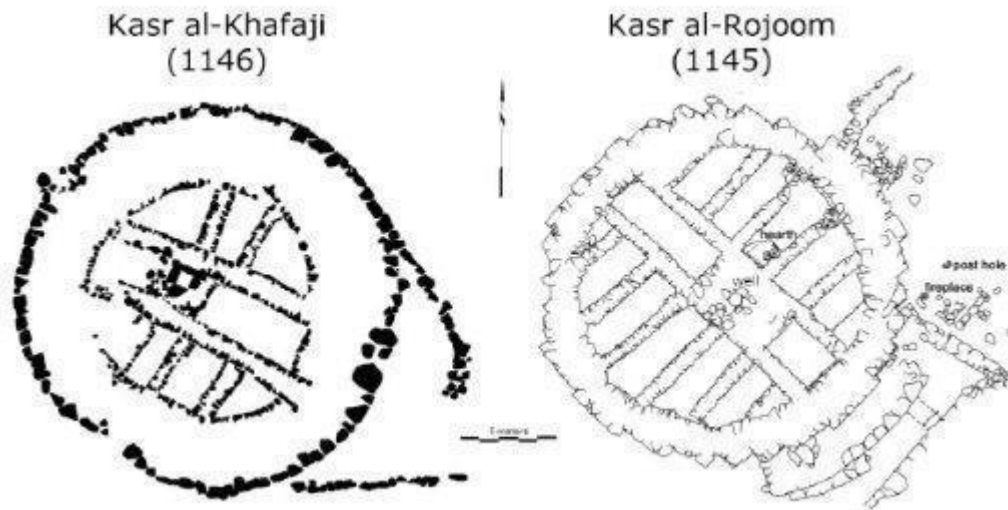


fig. 27 - Round towers 1146 (after Possehl et al, 2010: 8) and 1145 (after Frifelt, 1979: fig. 15)



fig. 28 - Round towers 1146, left (Possehl et al, 2010: fig. 12) and 1147, right (after Possehl et al, 2011: fig. 3)

As the nature of the Umm an-Nar round towers has been discussed previously (see *Part I*, Chapter 1), this section will briefly illustrate two important characteristics specific to the structures found at Bat.

Firstly, well-preserved stone structures were discovered immediately outside the round tower at Khafaji (1146) and are significant as they attest to the existence of a series of contemporary domestic buildings (Possehl et al, 2009: 8, fig. 21; Thornton et al, 2014: 24, fig. 17). The excavated stone walls display a series of multi-celled, rectilinear structures (*fig. 29*) which illustrate that habitation areas surrounded the round tower. These domestic structures have been dated to c. 2450-2250 BC. They are believed to be associated with the original occupation of the round tower as the construction of its internal walls were also C¹⁴ dated to c. 2450 BC (Possehl et al, 2010: 12, table 1). The situation at Bat reflects the archaeology at Hili 8, another zone 5 settlement site; here, a complex of domestic stone and mudbrick structures were built in the areas immediately outside the round tower. Interestingly, however, this contrasts with the transient *barasti* housing associated with round towers, from the contemporary northern coastal zones, at Kalba, Tell Abraq and Bidya. The work carried out at Khafaji, therefore, highlights the presence of a regional divergence in settlement patterns during the 3rd millennium BC; a period which has been traditionally perceived as representative of a homogenous and uniform culture.



fig. 29 - Multi-celled, rectilinear domestic structure found outside round tower 1146 (after Thornton et al. 2014: 24, fig. 17)

Secondly, the excavation of the round towers at Bat has revealed that they were not all contemporary structures related to a single period. The occupation levels at round tower 1156 were dated to c. 2900-2670 BC with its architecture likely representing an ‘early experimental phase’ (Thornton & Mortimer, 2012). The round towers at Matariyah (Possehl et al, 2011) and Khafaji (Possehl et al, 2010: 7), by contrast, appear to have been occupied during the Early and Middle Umm an-Nar periods respectively. Finally, round tower 1145 has been ceramically dated to a Late Umm an-Nar phase, 2200-2000 BC. It is misleading, therefore, to apply a single blanket term of ‘round towers’ for these features, as it masks the significant variability in their construction techniques, locations and dates (Thornton & Cable, 2012: 379). Preliminary results from the excavations show that these structures represent a multitude of different Umm an-Nar phases and therefore display a chronological

component that has previously been overlooked. Further excavation is required in order to fully establish the nature of the association between the round tower structures and the areas of settlement at Bat during the 3rd millennium BC.

- *The Tombs:*

The site at Bat contains a large number of tombs that are dated to multiple periods: The Hafit 'beehive' cairns are located on the rocky outcrops in the northern areas, while a collection of Umm an-Nar dry-stone tombs are situated in the southern lower areas. Finally, a collection of small Wadi Suq cist burials were discovered on top of round towers 1156 and 1145, as well as inside the Bat Necropolis itself.

- I. Hafit Tombs:*

The distinctive 'beehive' cairns date to the Late Hafit period (c. 2900-2700 BC) and are typically found along the ridges, where their high visibility suggests they marked the boundaries of tribal territories (al-Jahwari, 2008: 172). The 'Bat-type' tombs of this period are built in a distinctive style (*fig. 30*): they contain a ring wall with a false dome, creating a chamber c. 2m high, with a triangular entrance (Bohme, 2011: 25). The abundance of

these tombs, in conjunction with the mud-brick structures at round tower 1147, illustrate that groups occupied this area during the Hafit period.



fig. 30 - Hafit cairn in the Bat Necropolis

ii. Umm an-Nar tombs:

These reflect the typical complex burial structures observed at numerous Umm an-Nar sites throughout southeast Arabia (see *Part I*, Chapter 1). Their circular interior was divided into multiple chambers using drystone corbelling and internal supporting walls (Deadman, 2012: 78). The distinctive white limestone blocks used in their construction are typically faced with distinctive convex masonry and are precisely finished to join perfectly. Unlike the Hafit funerary structures, the Umm an-Nar tombs were built on low-lying, flat areas close to the wadi bank.

The German Archaeological Expedition excavated a few of these tombs, such as Tomb 156 (Schmidt, 2011: fig. 13) and Tomb 401 (Bohme & Ali Al-Sabri, 2011: 113-154). The construction style of Tomb 401 (*fig. 31*) is comparable in many ways with Tombs B and 1059 discovered at Hili, dated to c. 2200 BC (Bohme & Ali Al-Sabri, 2011: 152). The Umm an-Nar tombs represent a substantial sedentary population that displayed social complexity through their tomb layouts and collective burial rituals. Those interred within these tombs appear to have been the inhabitants of the contemporary domestic structures found at the 'Settlement Slope'.

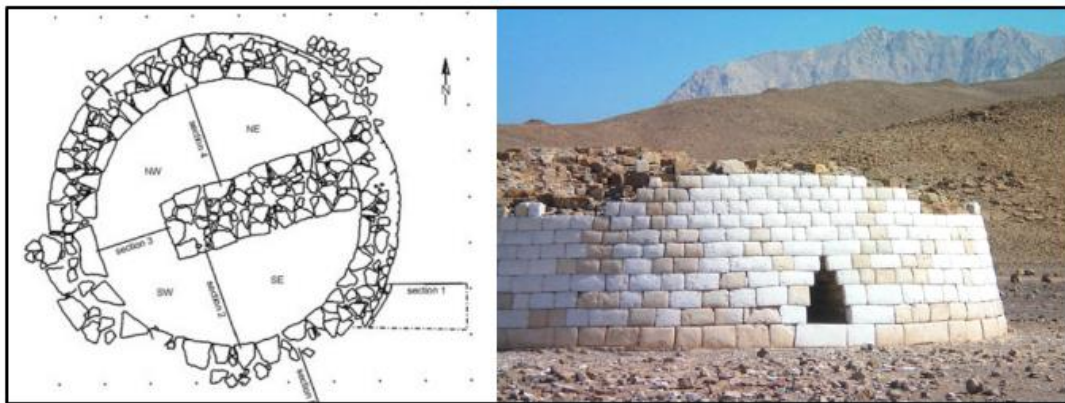


fig. 31 - Tomb 401, left (after Boehme & Ali Al-Sabri, 2011: 135, fig. 3) and a reconstructed typical Umm an-Nar tomb in the Bat Necropolis, right (after author)

iii. Wadi Suq tombs:

These are simple subterranean stone-lined cist burials containing a single or double burial (*fig. 32*). They are a common feature of the 2nd millennium BC 'Wadi Suq' culture (see *Part II*, Chapter 1) and are best represented in the Wadi Samad cemetery near Maysar (Weisgerber, 1981: 176). A number of Wadi Suq tombs were discovered on top of the ruined Early Hafit round tower, 1156 (Possehl et al. 2010: 14; Williams & Gregoricka, 2013: 3-8). These were presumed to each contain at least one adult individual, though only a small amount of poorly preserved bone has survived. The bodies were found interred with ceramic sherds dated to the Wadi Suq period, as well as fragmented marine shells (*ibid*). The location of the cist burials discovered around round tower 1156 and the Settlement Slope is an indication that this domestic area was perhaps transformed into an ancestral mortuary landscape during the 2nd millennium BC.



fig. 32 - Wadi Suq single cist burial found at the Settlement Area

- *The 'Settlement Slope':*

A long-standing complication of the excavations carried out at Bat was the lack of domestic structures. Until recently the only evidence of Umm an-Nar and Wadi Suq 'houses' had been the discovery of badly preserved stone wall foundations in the 1970s located close to round tower 1156, which Frifelt termed 'trench 1155' (Brunswig, 1989; Frifelt, 1976: 60). It was originally assumed that any domestic structures associated with the 3rd and 2nd millennium BC occupation of Bat would be located on the slopes immediately surrounding the wadi bank (Wilkinson, 2003: 160). Unfortunately, the contents of the terraced structures identified by Frifelt around 1156 had been completely eroded out (Frifelt, 1985: 99; Thornton, 2013: 1): her test trench targeted an area of the slope with a steep gradient where erosion appeared to be an inevitable byproduct.

The difficulty in locating a settlement area for the Umm an-Nar and Wadi Suq periods is surprising considering it has long been acknowledged that Bat was the site of a significant sedentary 3rd millennium BC population. This is illustrated by the discoveries of seven round towers and an extensive necropolis containing collective Umm an-Nar tombs. Interestingly, a domestic hearth 'feature' found during Frifelt's original excavation, inside trench 1155, was radiocarbon-dated to c. 1600 BC (1979: 584). This, along with the Wadi Suq cist tombs, was considered evidence for a continuity of settled occupation at the site during the 2nd millennium BC. Wilkinson proposes that if the area enclosed by the round towers (c. 40-60 ha.) was devoted to palm gardens, this had the potential to support some 1200 people during both these periods (2003: 160). It was therefore assumed that any

structural evidence for these Bronze Age groups may have been buried underneath the alluvium deposited around the modern day palm gardens.

Thus, the AJBAP (American-Japanese Bat Archaeological Project) excavation began in 2013 and sought to excavate an area of undisturbed slope adjacent to round tower 1156, aiming to expose possible domestic Bronze Age structures. Crucially, the area chosen for excavation was significantly flatter than that carried out previously by Frifelt during the 1970's. The results of the first two seasons of excavation are discussed in the next section (*Part I*, Chapter 3).

Chapter 3 – The Architectural Data

This chapter will focus on presenting the architectural datasets from Bronze Age southeast Arabia and will form the principal part of this dissertation. The first part sets out the results of two seasons of excavation at the Settlement Slope and will specifically look to categorise the wall features into construction types. The following section catalogues all the comparable contemporary structures published from domestic sites elsewhere in the Oman Peninsula. The final section will be an analysis and discussion of the architecture from the Settlement Slope and all other domestic Bronze Age sites, seeking to highlight common construction styles, standardised layouts of house plans and possible wider geographical trends. The dating of the Settlement Slope structures and the functionality of some its areas will be assessed later (Chapter 5), after the pottery assemblage has been presented in full (Chapter 4).

Part I: The 'Settlement Slope'

Introduction

This section will present the architectural data obtained during the first two seasons of excavation at the Settlement Slope. The excavations exposed a series of well-preserved domestic stone structures with evidence for continuous occupation extending through multiple phases. The pottery types (see Chapter 4) and C¹⁴ dates retrieved from within the rooms (see Chapter 5) (Thornton & Cable, 2014: 27-31) suggest the site was occupied from the middle Umm an-Nar period (c. 2450 BC) to the Late Bronze Age period (c. 1600 BC), including the Umm an-Nar-Wadi Suq transition period of c. 2000 BC. Each wall feature is documented with detailed descriptions, photographs and illustrations. These are ordered by construction 'Type', following the same criteria applied to the walls identified at the contemporary domestic sites (see *Part II*, Chapter 3).

In 2013 the American-Japanese Bat Archaeological Project (AJBAP) began the first of five planned seasons aimed at investigating a series of stone structures visible on the so-called 'Settlement Slope'. The site is located roughly 1 km to the northwest of the modern village of Bat and is formed of a gentle slope running from a low hill to a wadi bank. A series of possible 3rd millennium BC domestic structures were originally identified on the other side of the slope by Karen Frifelt during her work in the region in the 1970's (Frifelt, 1976; 2002). However, the test trench she opened to the southeast of tower 1156 contained only ephemeral stone

remains badly affected by erosion. With this in mind, AJBAP director Dr Chris Thornton decided to focus the recent excavation on a flatter area of the slope located to the immediate west of the tower feature (*fig. 33*. This author was a member of the excavation team during both 2013 and 2014 seasons.

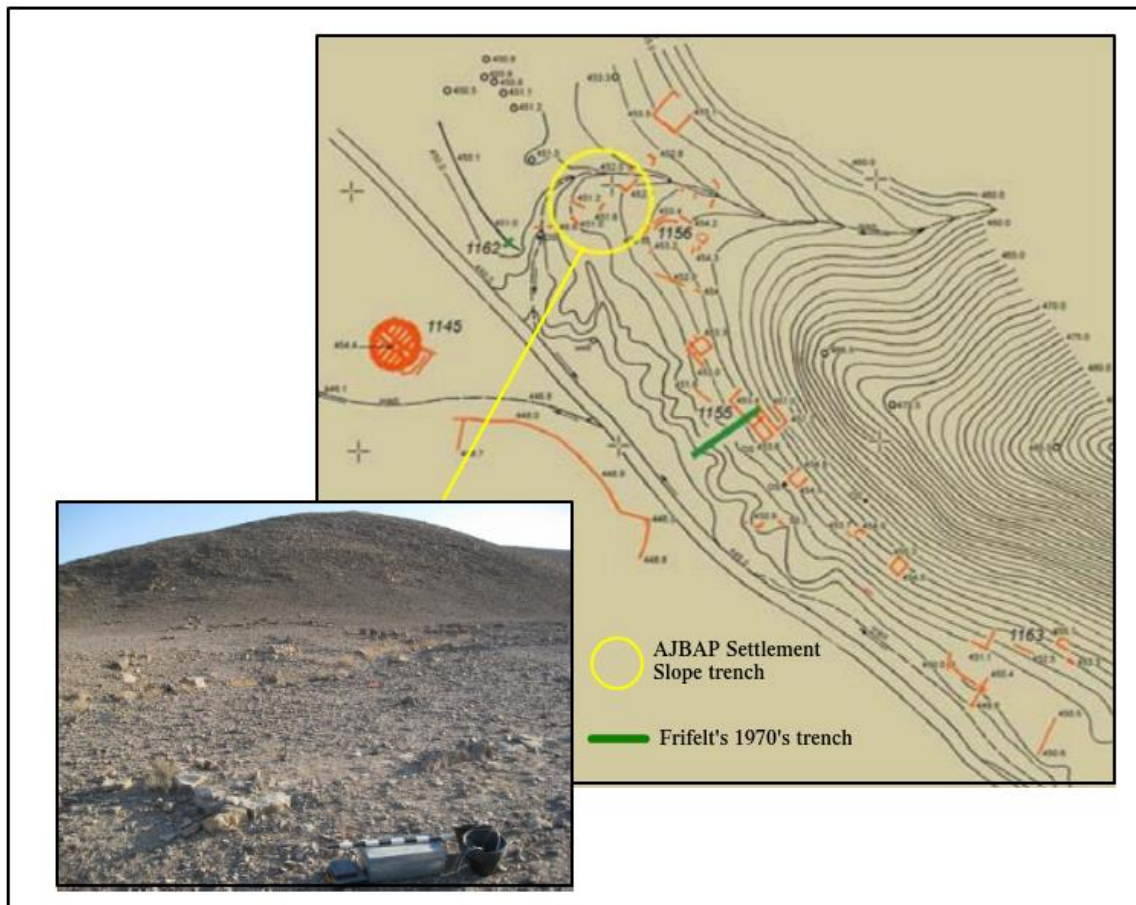


fig. 33 - Location of the AJBAP 'Settlement Slope' excavation and Frifelt's 1970's trench (after Frifelt, 1985)

Methodology

A grid of 5 x 5 metre trenches was laid out over the intended excavation area. The trenches used a continuation of the 'SS' numbering system employed during the 2010 American excavations at Tower 1156 - SS0902-0905, SS0977-0981 etc. The initial grid established in 2013 was subsequently extended east and upslope in 2014, creating 400m² of horizontal exposure (*fig. 34*). The AJBAP excavations used a non-standard method of numbering and recording archaeological contexts. In the system used here a 'Lot Number' was allocated to any stratigraphic unit, structural or occupational feature and artefact in the same way that a context number would normally be given. 'Lot Numbers' were assigned to the trenches in the order in which they were excavated - eg. the first trench opened was SS0977 and was allocated Lot series 131101-99, trench SS0902 was 131201-99 etc. The walls at the Settlement Slope were allocated a 401-99 series, in the order in which they were discovered. In order to establish their relative dates, the elevation of the lowest course of each wall was recorded against the site's datum, located at the surface of the northeast corner of Trench SS0905 (see *fig. 34*).

The research at the Settlement Slope involved open excavation, without the use of baulks, as the primary concern was determining a horizontal plan of the rectilinear structures. The excavation of the structures involved the removal of the deflated surface level - which included small rocks, aeolian silt deposits and ceramic scatter - in order to reach the tops of the walls. This was followed by the removal of c. 10 cm of soil in order to delineate the walls.

Finally, beneath the rock fall, the rooms were excavated to reveal *in situ* features, such as surfaces and hearths.

It is important to highlight, however, the difficulty experienced in identifying the different stratigraphic layers from within the rooms. The depth of the sequence, from the original middle Umm an-Nar construction to the Late Bronze Age occupation, was often only c. 20 cm or less. The lack of soil on the rocky slope may explain the shallow deposits at the site: floor surfaces from the previous periods of occupation appear to have been repeatedly cleaned out and re-used, meaning it was rare to simply cut a section and observe individual phases. This was also experienced at the nearby round tower sites, where the habitual cleanliness of the architectural units impaired any ability to conduct standard stratigraphic excavation (Ghazal & Thornton, 2014: 2). The identification of different wall 'Types' present at the site and their physical association with each other was therefore a primary means of establishing an occupation sequence for the Settlement Slope.

During the final week of excavation in 2014, a collection of linear and curved stone walls were discovered in the northeastern corner of the site (Trenches 755, 756, 830 and 831). These have not been included in this section. This is due to their poor state of preservation on the edge of the wadi bank and the fact that they had been cut through by at least one Wadi Suq cist tomb. The decision was also made based upon an uncertainty as to the nature of their relationship with the Late Hafit Tower structure (1156), located a few metres upslope.

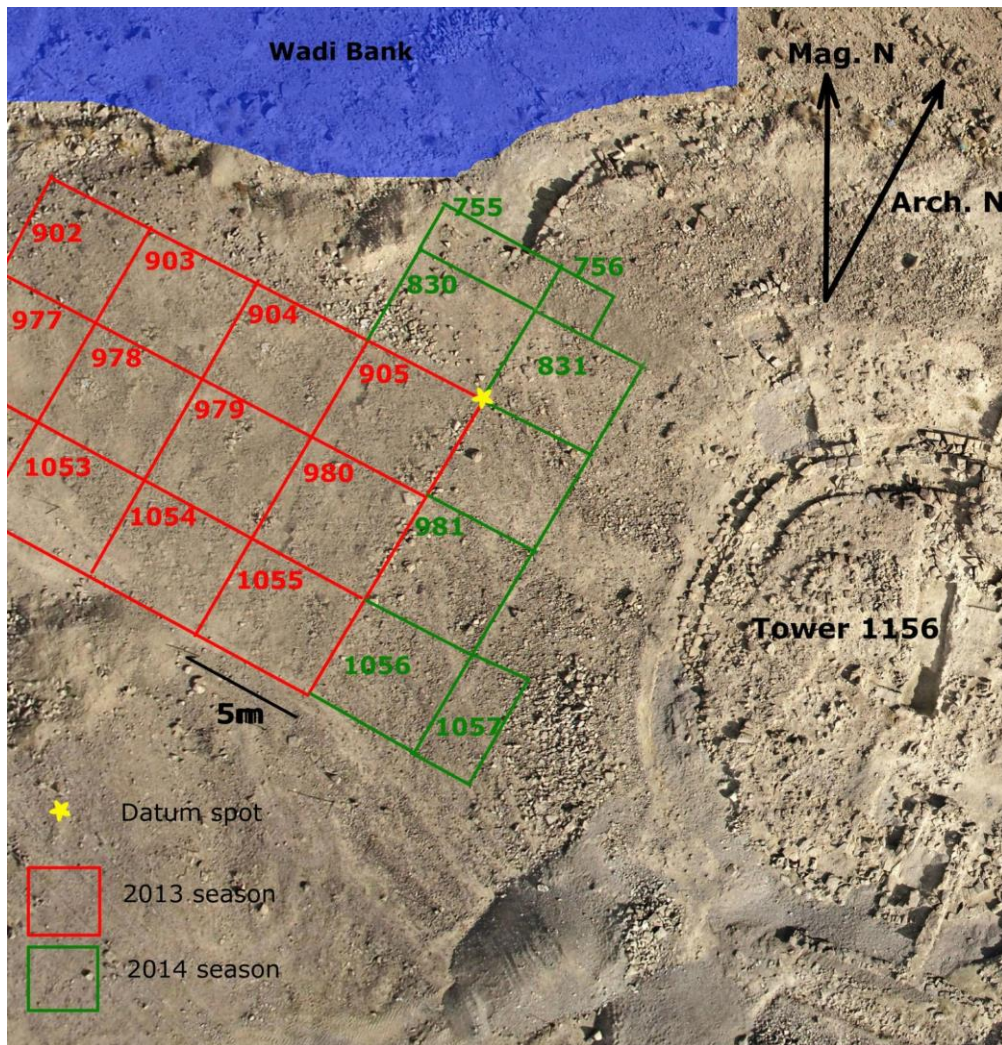


fig. 34 - Grid system used at the Settlement Slope excavation area

Terminology

The table, below (*fig. 35*), will briefly set out and define the architectural, archaeological and geological terms which will be used to describe the composition of the walls at the Settlement Slope:



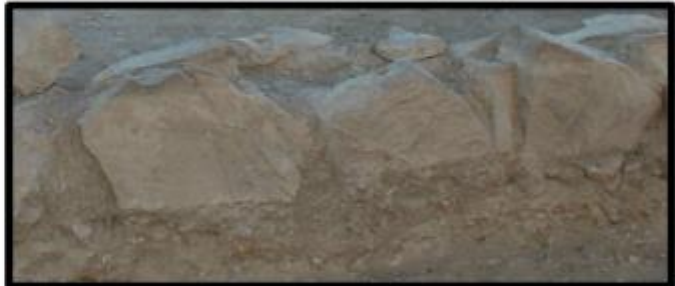
Stone Types	
Natural	Stones which have been broken apart through natural agencies
Dressed	Stones which have been cut by hand to create a shape (rectangle, square, triangle)
Stone Shape	
Rectangular	
Triangular	
Upright Slab	
Roundness	A degree of smoothing pebbles, cobbles and boulders due to the process of abrasion; the scale includes 'well-rounded' to 'very angular'

fig. 35 - Terminology used to describe the wall architecture

Stone Size	(Udden-Wentworth grain size)
<i>Natural Stone:</i>	
Medium Gravel	Small rock fragments, which measure 8-16 mm in diameter
Coarse/Very Coarse Gravel	Has a diameter of 16-32 mm/32-64 mm
Cobble	A rock fragment, somewhat rounded, larger than a pebble, has a diameter of 64-128 mm
Large Cobble	Has a diameter of 128-256 mm
Small Boulder	Has a diameter of 256 mm +
<i>Dressed Stone:</i>	
Small	Length/Height <200mm
Medium	Length/Height 200-500mm
Large	Length/Height >500 mm
Join Types	
Above	When a wall is created later and lies vertically above the other wall context
Below	When a wall is created earlier and lies vertically below the other wall context
Contemporary with	When two walls may be different contexts but were formed in the sequence at the same time
Abuts	An intersection of walls, where the stones of the two walls do not overl or intermix; the end of one wall is built up against the face of another
Bonds	When two walls are built at the same time and form a corner where the stones are bonded together

The Wall 'Types'

An important objective of the excavation was to determine whether different 'types' of wall construction were present at the Settlement Slope (*figs. 36, 37*). In order to identify these potential architectural types, a series of factors were looked at: the number of surviving courses, the width of the walls, the shapes and sizes of the individual stones used in their construction, whether they were dressed or natural rock, how they were laid down and the physical relationship between the walls. By applying these criteria to every wall excavated at the site, it was possible to categorise them into **five main types**.



fig. 36 - Aerial photograph of the walls at the Settlement Slope, after the 2013 season (provided by

Prof. Eric Fouache, Université Paris Ouest Nanterre la Défense, pers. comms.)

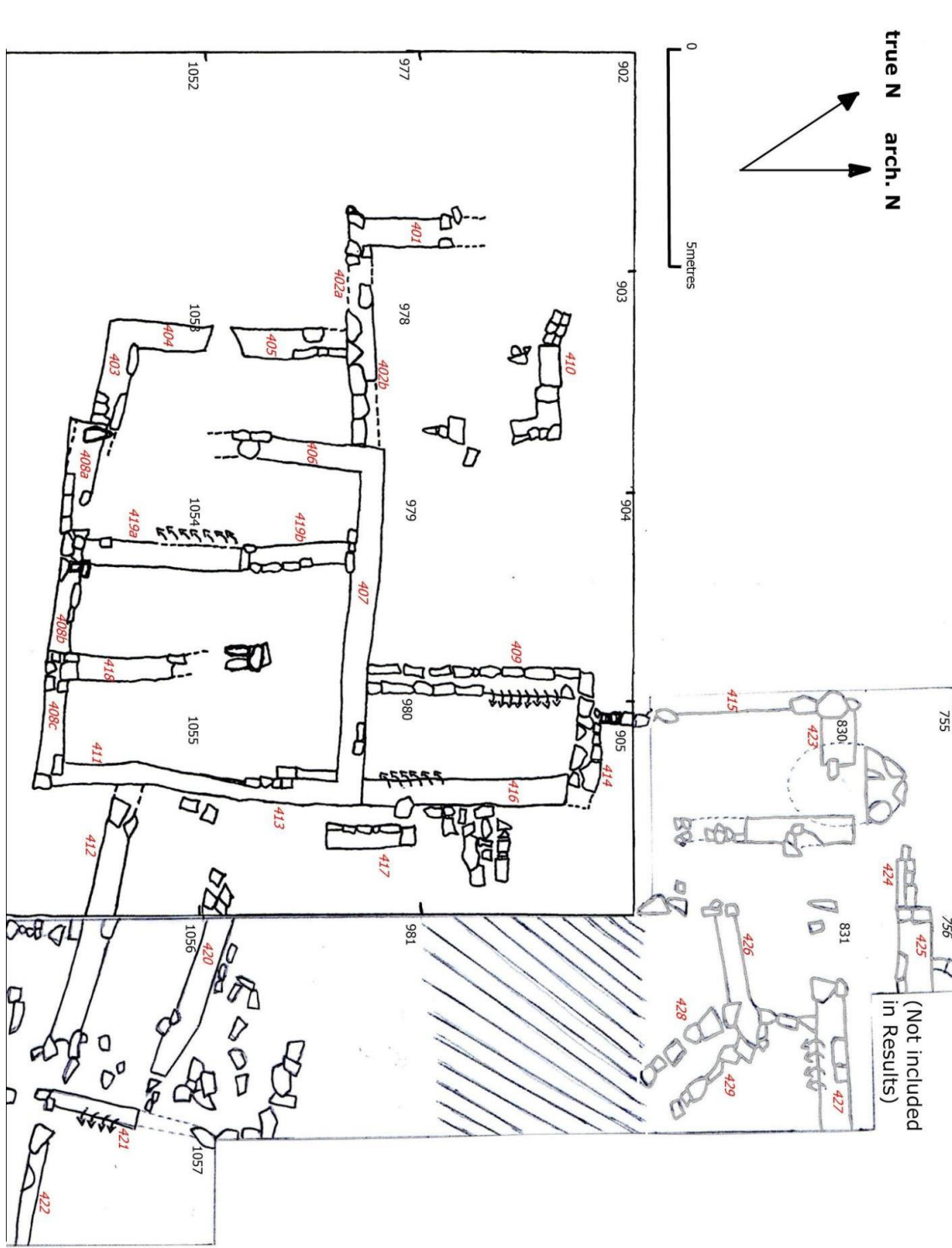


fig. 37 - The walls at the Settlement Slope, after the 2014 season

1.) Type 1a (406, 407, 408B, 408C, 411, 413A):

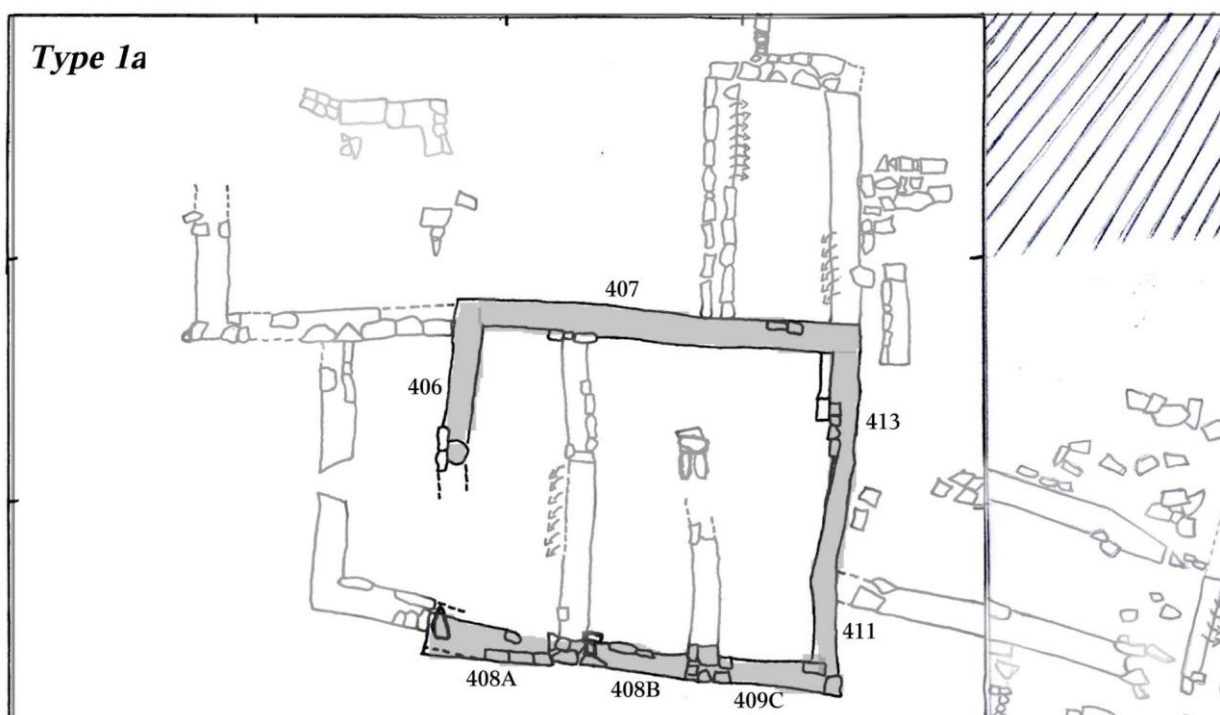


fig. 38 - Type 1a walls at the Settlement Slope (all plans, sketches and photographs are the work of the author of this dissertation)

Type 1a walls were carefully constructed using two parallel rows of medium-sized (c. 300 x 200 x 150 mm) stones (*fig. 39*). These were roughly rectangular, almost square, in shape, and consistently regular in size. The majority of the stones that formed the outer face appear to have been carefully worked into distinct rectangular blocks. These were observed to be larger than the stones chosen for the inner face, which was mostly natural material carefully selected due to its specific rectangular shapes. This contrast was perhaps applied in order to create a visual impact. The stones of this wall type were laid face down on a mud mortar either side of a fine, gravelly fill. These walls formed the best preserved examples at the site, typically 0.65 m wide and comprised of two or three surviving courses of stones - c. 45 cm in

total height. Furthermore, their bottom course often provided the deepest elevations at the site - c. 90-110 cm below the trench datum.

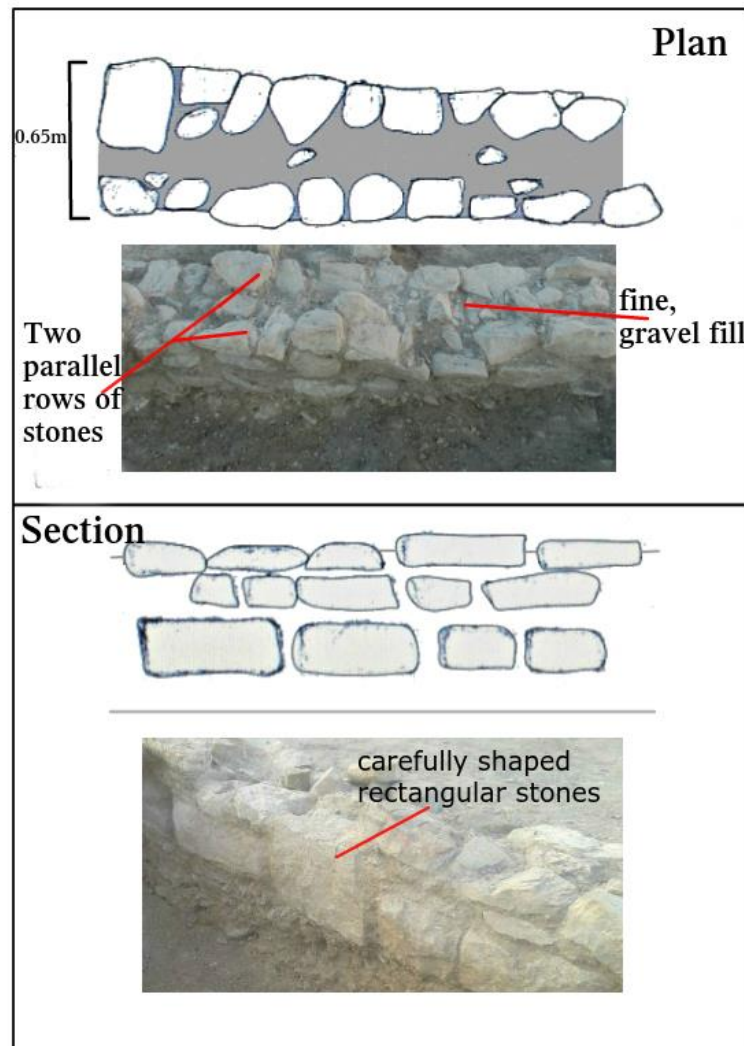


fig. 39 - Construction style of the Type 1a walls at the Settlement Slope

□ **406**

This wall forms a bonded corner with the perpendicular wall 407 at its northern end. Wall 406 is also abutted on its outer face by 402. The base of 402 was measured well above that of 406 and preserved to just a single course of large stones. A hearth was discovered associated with wall 406, on top of an apparent floor surface, close to its inner face. It is also worth noting that the southern half of wall 406, where it should form a corner with wall 408A, appears to have been destroyed and robbed out. This was possibly contemporary with a series of later metallurgical pits intrusively cut into the slope through walls 404/405.

□ **407**

Wall 407 is the best preserved architectural feature at the Settlement Slope site. It extends 10 metres across the site and forms the northern side of a substantial rectilinear structure. The inner face of the wall is formed of three courses of evenly shaped natural stones, while the outer face appears to be formed of two courses of slightly larger stones which appear to have been carefully cut in order to present a straight edge (*fig. 40*). This may be evidence of a deliberate attempt to create a high quality appearance to the outside of the house.

The ends of wall 407 are bonded with wall 406 in the west and wall 413 in the east, forming two corners. Wall 407 is also abutted by several later walls: 402 in the west, 409 and 416 in

the east, and 419B situated in the interior of the original room. These all exhibit base elevations measured above those of 407 and none display the same three courses of carefully constructed masonry as this wall. The abutting walls can therefore be regarded as extensions that postdate this original Type 1a structure.



fig. 40 - Outer and inner face of wall 407

□ 408B/408C

These walls delineate the southern wall of the original rectilinear structure. While the eastern part of wall 408B remains in its original Type 1a form, the western part of the wall has suffered a series of later alterations. These consist of large upturned slabs placed on top of and against the original wall as reinforcements. The additions appear to be consistent with the same Type 2 alterations made upon wall 408A. Wall 408C was arbitrarily given a new wall number during excavation, yet is a continuation of the original Type 1 walls - 408A, 408B - and represents the eastern end of this single feature. Wall 408C forms a corner bond with contemporary Type 1a wall 411 at its eastern end.

Wall 408B is abutted on its northern face by Type 1b wall 418, which served to establish an interior partitioning wall (*fig. 41*). Despite its base measured at a slightly shallower elevation compared with 408B, wall 418 displays a similar construction style to wall 408B. It can therefore be argued that it was added soon after the construction of the original structure.

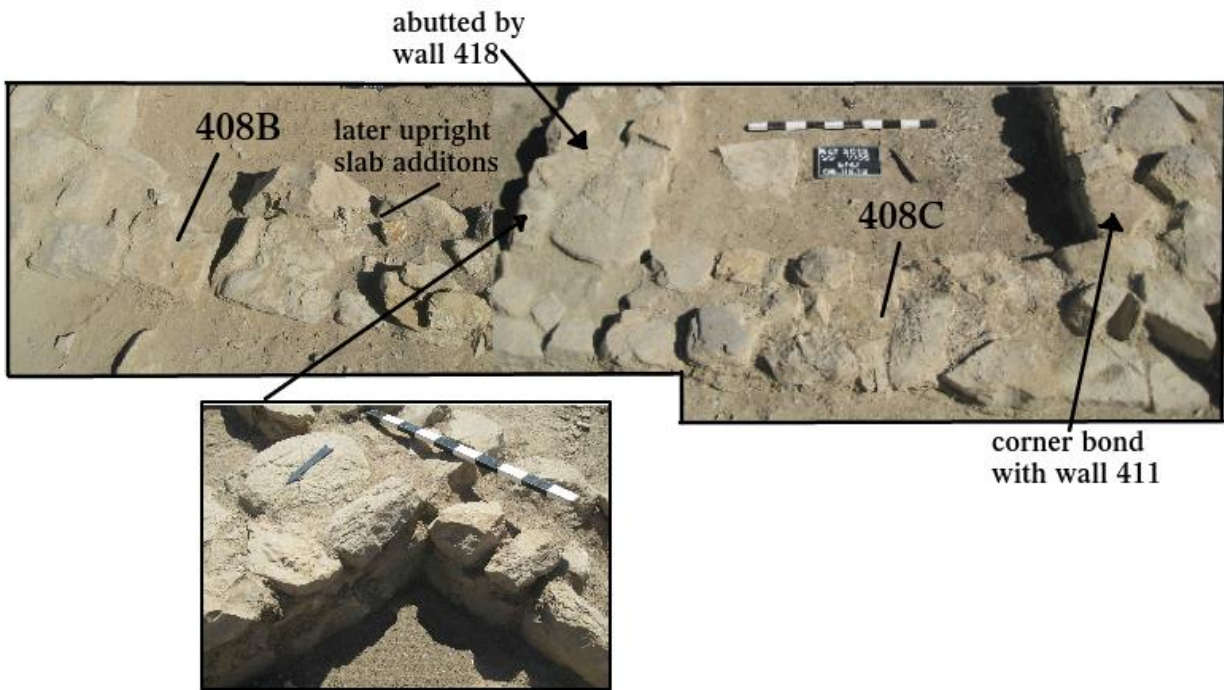


fig. 41 - Later additions to wall 408B/C

□ **411**

Wall 411 matches the construction style of walls 406, 407 and 408B/C. It is part of the southeastern portion of wall which formed the original rectilinear structure.

Significantly, the wall is affected by a change of alignment at its northern end (*fig. 42*). This part of the wall 411 is cut through by a later phase of different wall construction - labelled wall 413B - which is possibly associated with the new alignment of the later Type 3 eastern room extension, delineated by walls 412, 420 and 421.

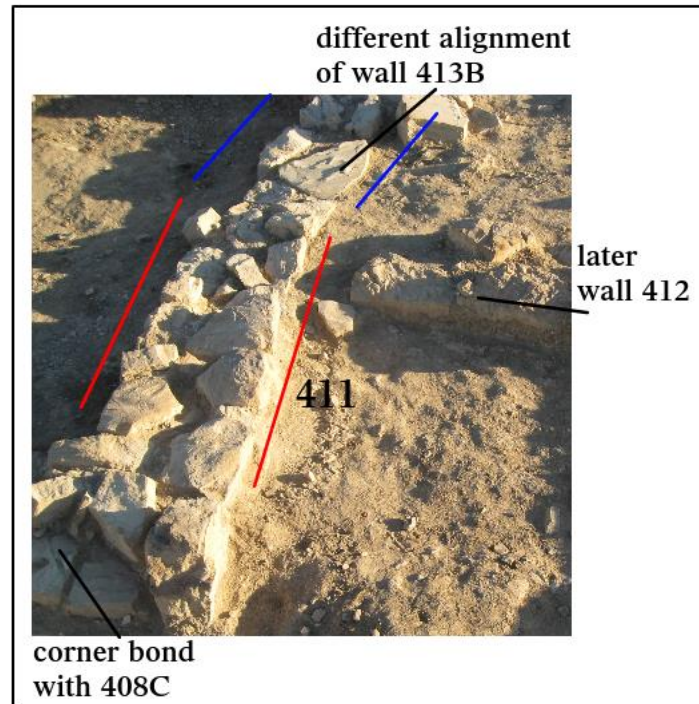


fig. 42 - The new alignment of a later addition to wall 411

□ **413A**

Wall 413A is a continuation of the original rectilinear structure and forms its northeastern corner. It runs north-south - via the later wall addition, 413B - and is the same feature as wall 411 in the southeastern corner. The wall is a typical Type 1a construction and, therefore, shares a comparable style with the other original walls: 406, 407, 408A/B/C and 411. It is roughly only c. 55 cm wide, however, which makes it thin relative to the other contemporary walls. However, this can be explained by the collapse of the inner face, which has been subsequently reinforced at a later stage with a single course of stone blocks (*fig. 43*). One of these has been well-cut into a neat rectangular shape, while the rest have been carefully

selected in order to fit closely together and are comparable to the uniform rectangular, medium-sized (300 mm in length) stones used in the Type 1a wall; the reinforcement, therefore, perhaps took place a short time after the initial construction phase.

The southern part of wall 413A was disturbed by a later phase of construction which added 413B at its southern end in a new and slightly altered alignment. The two walls exhibit different construction styles: 413B is formed of large, fairly angular flat stones, laid horizontally in two irregular rows. Furthermore, the base of wall 413B was recorded at a shallower elevation compared with 413A despite it being located further down the slope. The addition of 413B can be explained by a later phase associated with the construction of walls 412, 420 and 421.



fig. 43 - Reinforcement of the inner face of wall 413A

2. Type 1b (418, 419A):

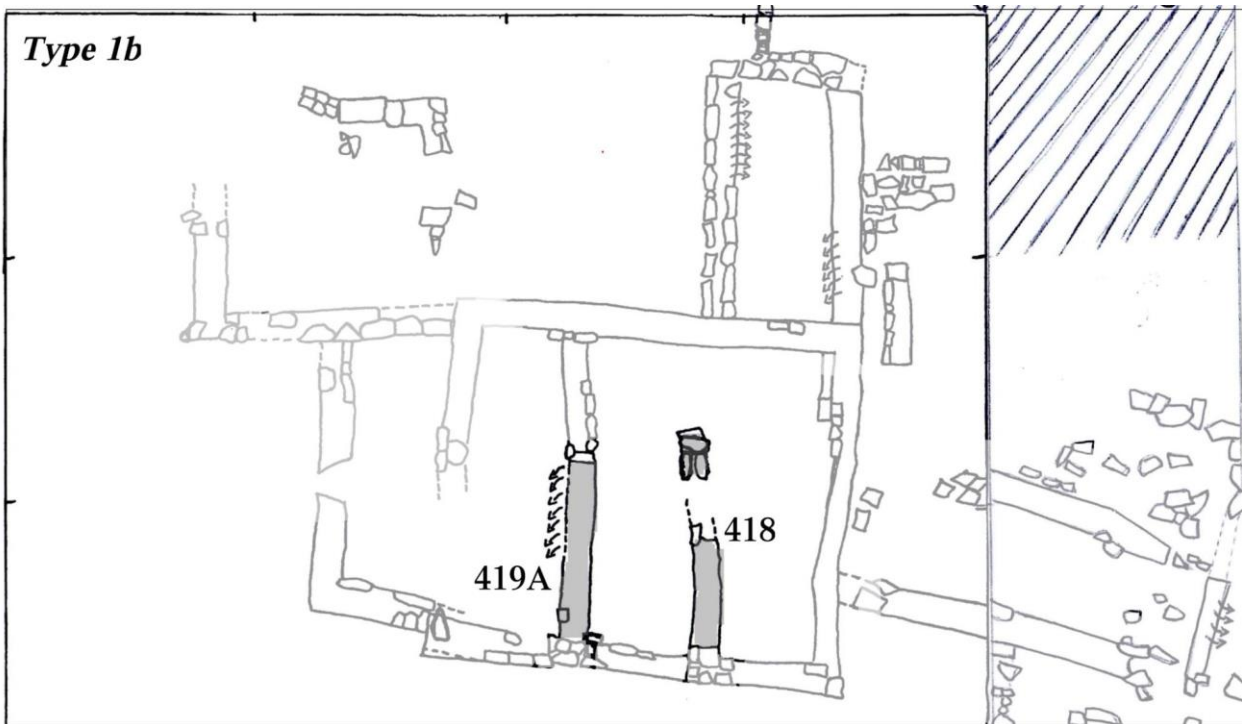


fig. 44 - Type 1b walls at the Settlement Slope

This sub-type consists of two wall features which share the construction styles of Type 1a walls, yet are observed in a layer stratigraphically above them: their bases were approximately 15 cm shallower those of the adjacent Type 1a walls 408A/B. They are considered to constitute two interior wall partitions designed to divide the original house into separate cells.

□ **418**

Wall 418 was constructed using the same method as the original Type 1a walls - 406, 407, 408, 411, 413A/B. It is preserved to two courses - up to 30 cm in height - and formed of medium-sized rectangular-shaped stones, carefully laid and closely fitted together. The southern end of the wall is visibly abutting up against wall 408B/C and therefore postdates the layout of the original rectilinear structure. However, the similarity in style between 418 and wall 408B/C implies that this feature was added shortly after the construction of the Type 1a wall.

Along with wall 419A, 418 likely served as a partitioning wall designed to delineate a series of interior cells. The remains of Type 1a/1b medium-sized, rectangular stones found inside the rooms are visibly aligned with wall 418 and suggest it perhaps extended further inside the interior than its current state of preservation suggests. Yet there is no evidence to indicate it continued the entire way to wall 407 on the opposite side. Rather, both walls 418 and 419A seem to have partially divided the original building's interior into a series of integrated communal living spaces.

□ 419A

Wall 419A is comparable in construction style and layout with wall 418. Both features include examples of the dressed medium-sized, rectangular stones characteristic in Type 1a walls and both extend across most of the interior, abutting the inner face of Type 1a wall, 408A/B/C (fig. 45). The base of wall 419A lies stratigraphically above a threshold associated with wall 408A.

The northern end of wall 419A is abutted by a later Type 2 wall, 419B. The stratigraphy of the two walls illustrate wall 419A preserved to a greater height with a deeper base elevation compared to 419B. Wall 419B can therefore be interpreted as an attempt, during a later occupation phase, to complete the partition of the interior space into two separate spaces.



fig. 45 - Wall 419A abutting inner face of 408A/B

3. Type 2 (408A, 409, 419B)

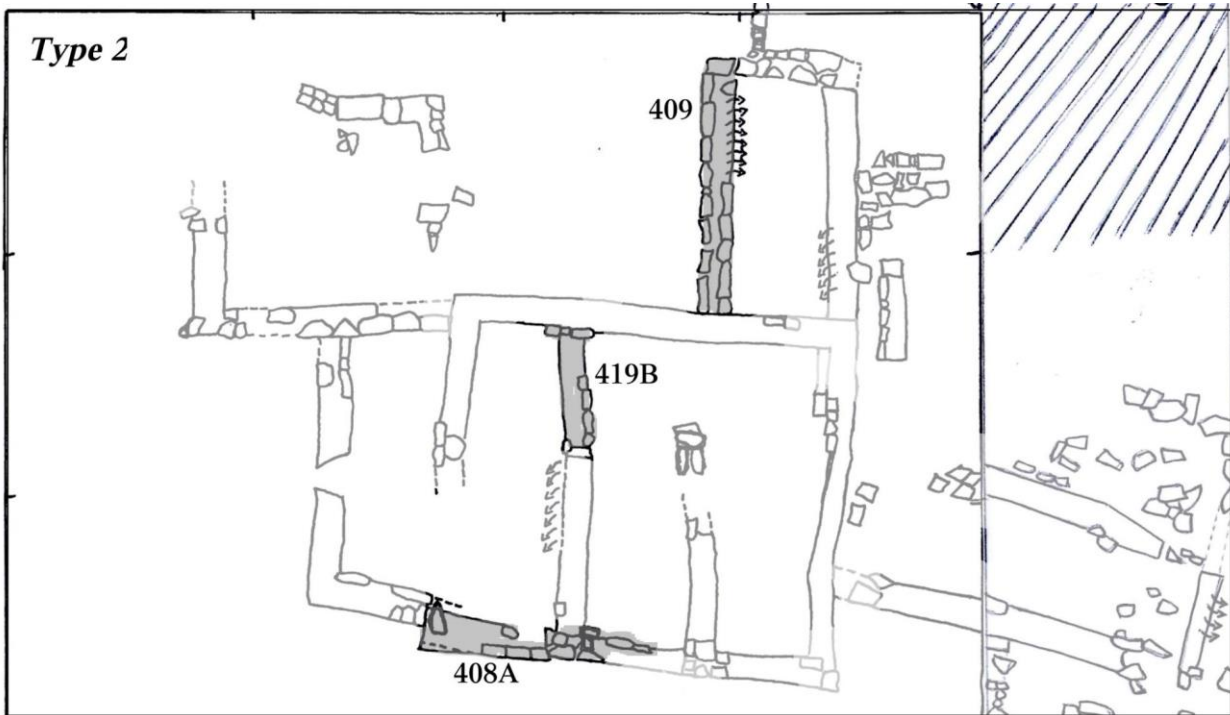


fig. 46 - Type 2 walls at the Settlement Slope

Type 2 walls are characterised by two parallel rows of large upturned flat slabs (*fig. 47*), typically measuring c. 300 x 150 x 500mm, which can be best described as sub-angular to angular. Unlike Type 1a, these appear to contain no examples of stones that have been deliberately shaped. Instead, the stones seem to have been chosen based upon their natural triangular shape. Their dimensions and profiles vary considerably from stone to stone. These were laid vertically on their ends either side of a coarse gravel fill. The Type 2 walls were preserved to just a single course, representative of 30-40 cm in height, and measure 50-65 cm in width. The base elevations were recorded at a shallower elevation when compared to the Type 1a walls: their bases were 60-80 cm below the datum and, therefore, approximately 30 cm above the bases of the Type 1a walls.

The precise composition of the missing upper courses of the walls is difficult to interpret. A course of stone may have been laid horizontally across the upright slabs in order to provide a platform for further courses. Although the significant amount of rock fall which surrounds these walls may support such a theory, the unconventional layout of the upright slabs certainly makes for a poor method of foundation. Conversely, it is possible the upper parts of these walls were comprised of layers of mud-brick or organic materials, neither of which have been preserved in the archaeological record. A final interpretation is that these walls may have been originally restricted to a single course intended to demarcate an open space or animal pen.

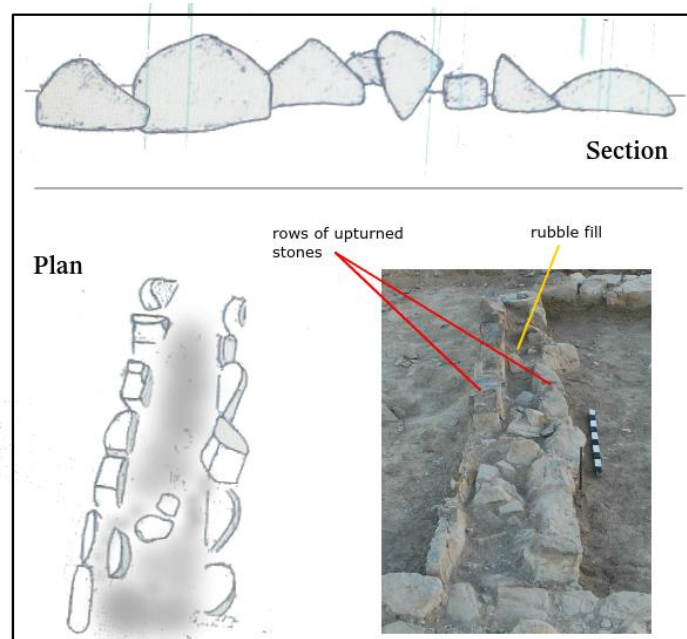


fig. 47 - The construction style of the Type 2 walls at the Settlement Slope

□ 408A

Wall 408A is formed of at least two phases of wall construction (*fig. 48*). The earliest phase is represented by two large stones that appear to have been deliberately worked into rectangular shapes and were laid face down, creating what appears to be a threshold. This was likely a feature contemporary with the original Type 1a walls and may have acted as the main entrance into the rectilinear structure. The tops of the threshold stones were recorded at 100 cm below the trench datum, which is consistent with the recorded depth of the original surface level; these stones can be interpreted, therefore, as having been sunk into the floor in order to create a threshold feature.

There is then evidence of a later wall built directly on top of this early feature; its construction contains a single course of Type 2 upturned slabs designed to deliberately block the original doorway. The base elevation of this wall lies above the Type 1a walls 408A and 408B. The upturned slabs abut against the inner faces of the earlier Type 1a wall 408B and the Type 1b partition wall 419A.

The Type 2 element of wall 408A has then itself been subject to a series of subsequent alterations. The western end of wall 408A has been cut through by the new alignment of the later Type 5 wall, 403.

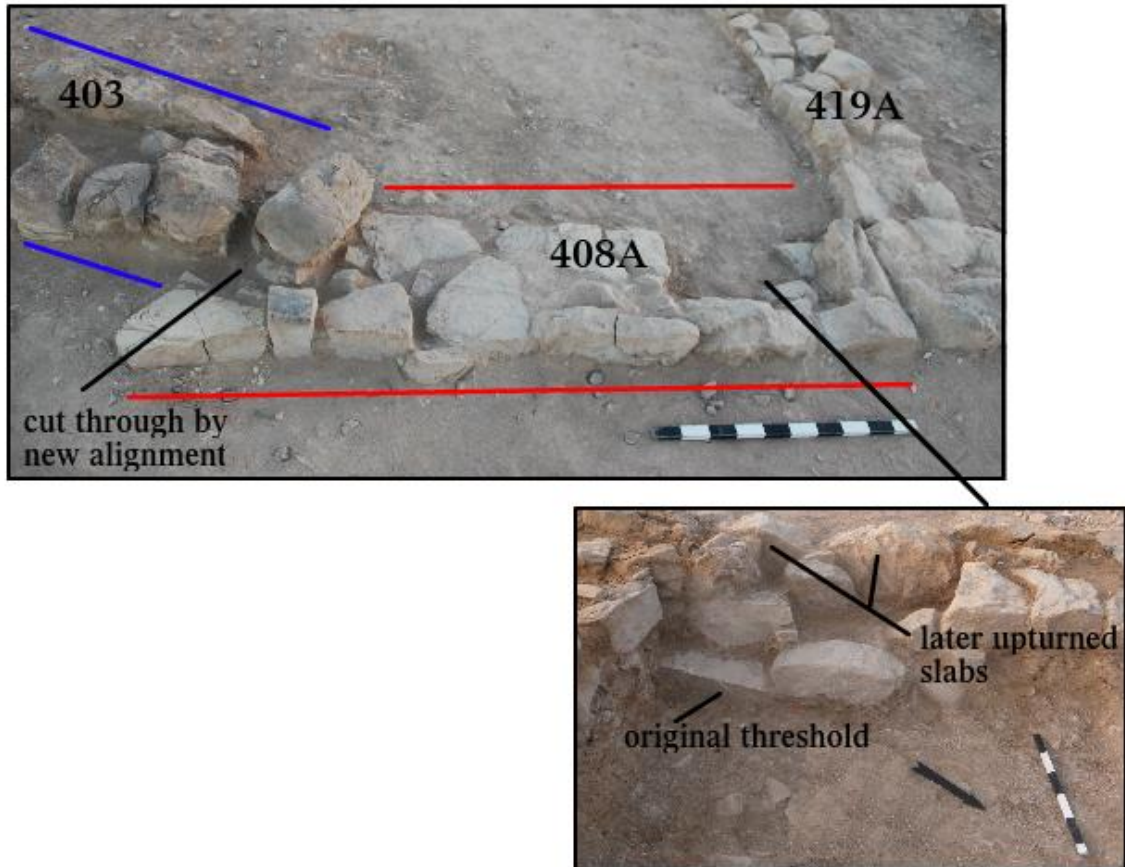


fig. 48 - Construction phases of wall 408A

□ 409

This Type 2 wall forms the western side to a new rectangular room extension - or enclosure - added to the north-east of the original rectilinear structure (*fig. 49*). It is clear that the southern end of wall 409 abuts the outer face of Type 1a wall, 407. The base elevations for wall 409 average at c. 65cm below datum, which is approximately 20 cm above the base of wall 407. This wall was therefore likely constructed during a later phase. The large amount of rock fall discovered within the new room appears to have belonged to adjacent walls 414 and

416, as it is centered around the eastern half of the room. Conversely, there was very little rock fall situated around wall 409, suggesting that this feature was formed of a single course of stones. The upper part of the wall may have been formed of palm fronds and other organic material. Interestingly, there may have been no upper courses as wall 409 perhaps formed an enclosure for an open plan animal pen.

Wall 409 is itself abutted by Type 4 wall, 414, at its northern end, at a badly preserved corner. Wall 414 seems to represent a later phase of alterations made to the Type 2 walls that formed this room extension.

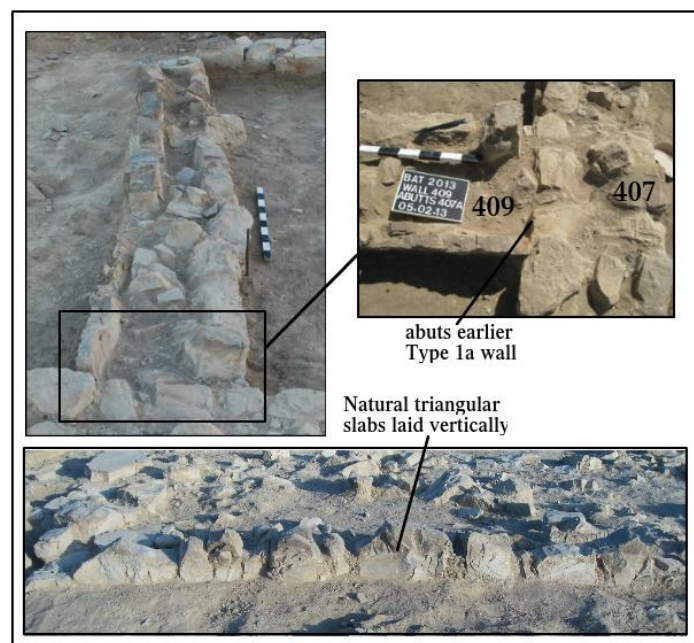


fig. 49 - Upturned stones of wall 409

□ **419B**

The size and shape of the slabs used in the composition of wall 419B are directly comparable to those associated with wall 409 and parts of 408A. It abuts the southern face of wall 407 via three upright stones. The wall base of 419B was observed at an elevation of -0.83 metres below the trench datum, which is c. 20 cm above the original Type 1a surface. The base of its single course was also measured at 15 cm above the base elevation of Type 1b wall 419A, which it abuts at its southern end (*fig. 50*). This wall, based on stratigraphy and its physical relationship with both walls, appears to postdate the Type 1a/1b features. It can be regarded as a later addition to the rectilinear structure, likely contemporary with the other Type 2 walls, and which resulted in a further partitioning of the interior space in order to create new, separate cells.

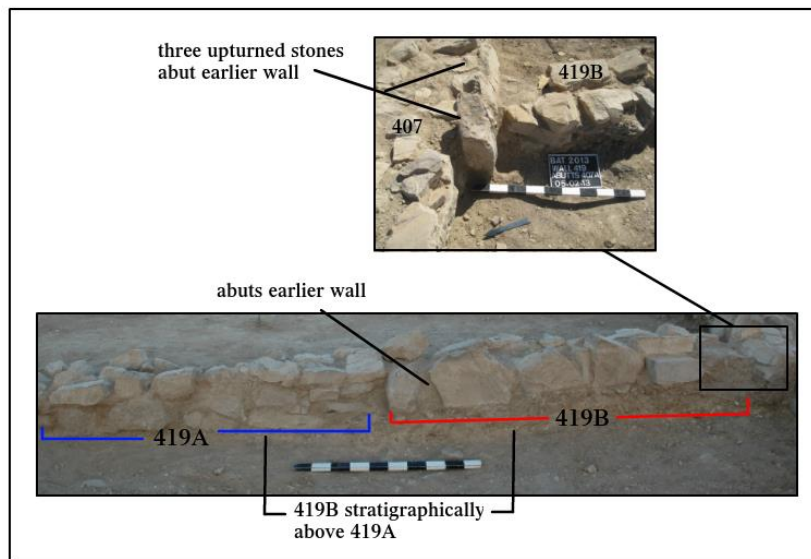


fig. 50 - Wall 419B stratigraphically above the earlier walls on either side

4. Type 3 (401, 402, 410, 413B, 412, 420, 421):

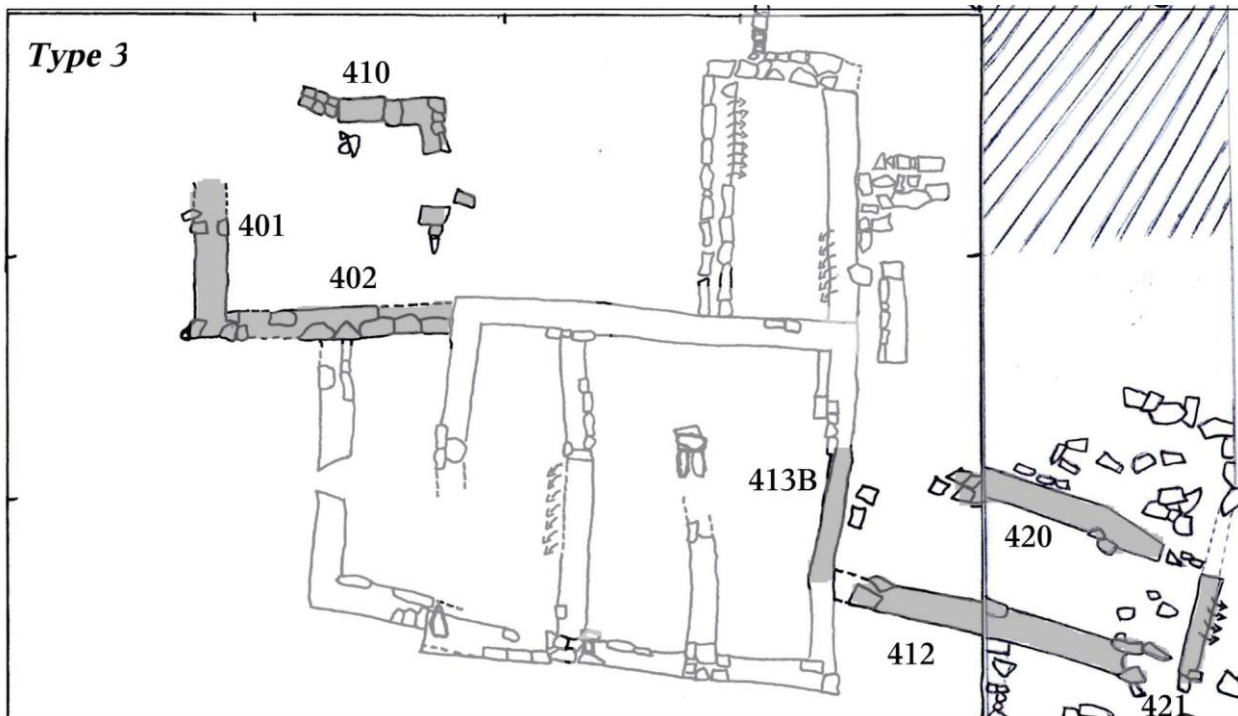


fig. 51 - Type 3 walls at the Settlement Slope

Type 3 walls form two room extensions, to the southeast and northwest. These are constructed from large (often > 500 mm, in length) stones that are noticeably longer than the stones used in the Type 1 walls (c. 300 mm in length). While some of the linear, rectangular blocks display worked inner and outer faces (*fig. 52*), the majority are undressed natural stones that have been carefully selected based on their rectangular shape. These were laid face down on a mud mortar in two rows either side of a fine gravel fill, 70-75 cm wide, and preserved to two to three courses, 15-25 cm in height. The Type 3 walls represent well-made and substantial stone foundations. When direct physical associations were available, the Type 3 base elevations were typically measured c. 30 cm above the Type 1 wall bases. The walls that form the southeastern room extension (412, 413B, 420, 421) were well preserved. While, in contrast, the north western room extension (401, 402, 410) was in a poor state of

preservation; most likely a result of being located further downslope and closer to the wadi bank than the other walls. It is also important to note that stratigraphic relationships with the Type 2 and Type 4 walls could not be established as no direct physical associations between these wall types were available.

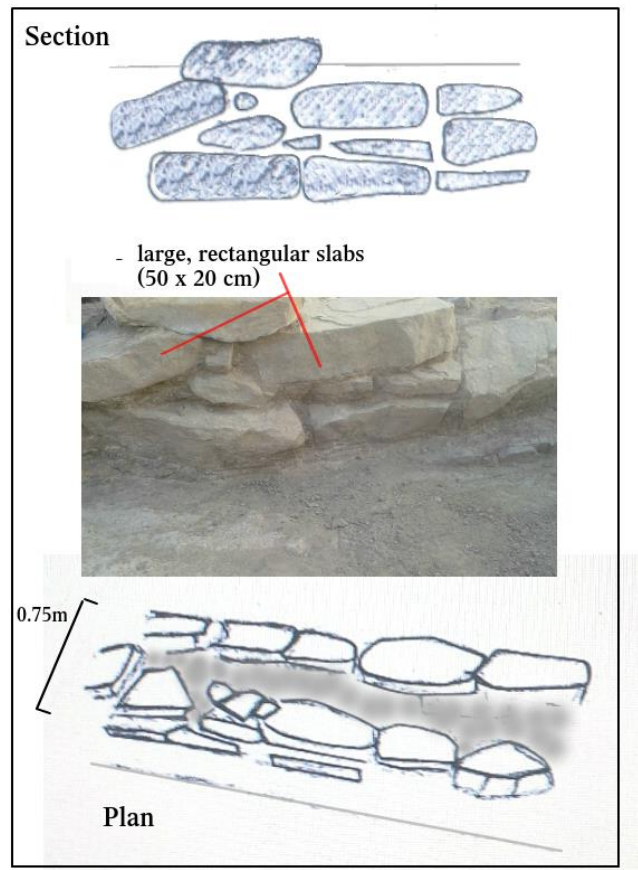


fig. 52 - Construction style of the Type 3 walls at the Settlement Slope

□ **401**

This wall may have formed the western side of a square room extension formed by walls 401, 410 and 402. Wall 401 contains only a single, surviving course that is not well preserved and its relationship with the surrounding architecture is therefore difficult to interpret; the

northern end of the wall has been completely destroyed, cut through by the wadi bed. The wall also appears to have been deliberately deconstructed and the stones re-used in the construction of a later Wadi Suq cist burial located close by.

□ **402**

The western end of the wall, where it forms a badly preserved corner bond with wall 401, is in a poor condition and is a single row of large, rectangular stones. At its eastern end, it abuts the outer face of a corner associated with the original rectilinear structure formed by walls 406 and 407. The southern face of wall 402 is itself abutted by the shallow base of later wall 405. Interestingly, both walls, 401 and 402, appear to have been constructed upon a possible 20 cm-deep foundation layer of loose soil containing stone rubble and coarse gravel (*fig. 53*).

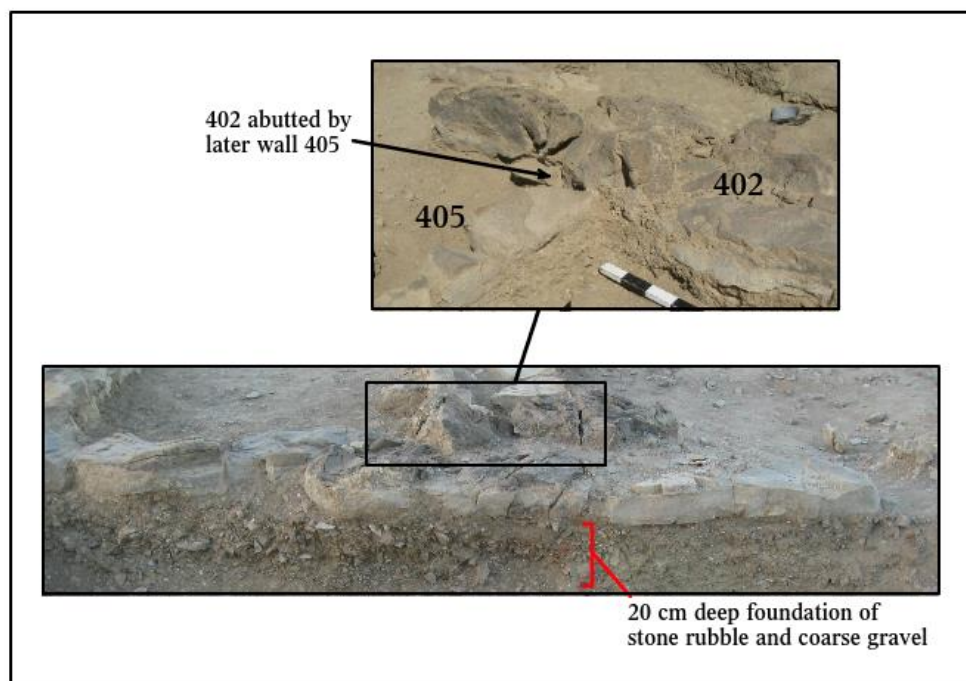


fig. 53 - Wall 402, built on a possible layer of deposited rubble

□ **410**

This wall matches that of walls 401 and 402 in construction style, consisting of large rectangular stones, some of which have been carefully cut in order to present a neat outer face. Wall 410 is therefore considered to have formed the northern side of a room extension added to the northwest of the original rectilinear structure. Wall 410 does contrast with these contemporary walls in that it is preserved to just a single course. Yet, this can be explained by its exposed location on the slope immediately adjacent to the wadi bed. Furthermore, the intrusive construction of the later Wadi Suq cist burial likely resulted in its destruction (*fig. 54*).



fig. 54 - Wall 410 and the intrusive Wadi Suq cist burial

□ **412**

This is a well preserved wall feature, running eight metres across two trenches - SS1055 and SS1056. It is formed of two parallel rows of large rectangular stones laid face down. Wall 412 is preserved to two courses - although the lower course has slipped south downslope slightly, creating a somewhat slanted appearance. Although many of the individual stones are undressed and appear to have been selected based upon their rectangular appearance, the inner face on some of the stones seem to have been carefully cut in order to present a well delineated edge with minimal gaps visible in between the blocks.

The western end of wall 412 is badly preserved, but appears to have joined the eastern face of wall 413B. The two walls are both perpendicular to each other and represent a different alignment compared to that associated with the original rectilinear structure.

The eastern end of the wall lies on top of a dark layer that contains large burnt rocks and ashy patches. This was measured at c. 10-15 cm below the base elevation of wall 412 (*fig. 55*) and can, therefore, perhaps be associated with the occupation of the original Type 1a building. A section drawing taken of wall 412 revealed a sequence of possible occupation phases (*fig 56*). The bottom layer is formed of compact sand with rocky rubble inclusions and may have represented the original ground surface. This layer contained evidence of pitting and also included a burnt clay feature, which may have belonged to an oven or furnace. A later phase of wall construction is illustrated by the presence of an approximately 10 cm-thick foundation

layer of light-brown, loosely packed clay that contained no inclusions and which appears to have been used to level the pitting. This was subsequently followed by the laying of the stone slabs of the wall itself. The walls appear to make use of a number of natural burnt rocks - large cobbles that were measured at up to 256 mm in diameter - and incorporates them into the foundation layer.

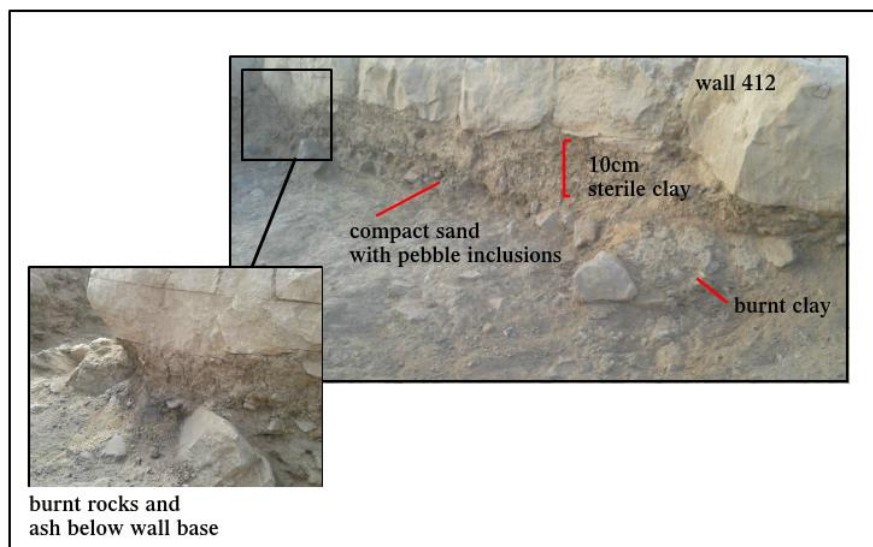


fig. 55 - The layers and features below the base of wall 412

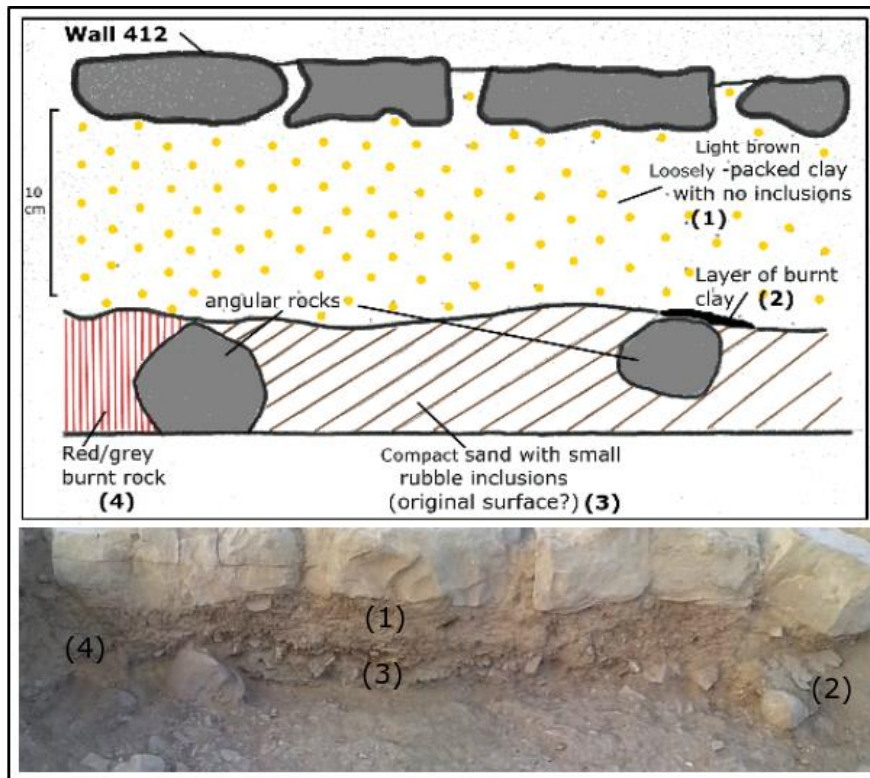


fig. 56 - Section showing the layers below wall 412

A possible threshold was discovered where the corner with wall 421 should have been located (fig. 57). This entrance, however, lacked the deep threshold stones seen with the example at wall 408A. It may have been that the Type 3 stones in this part of the wall have been robbed out during a later phase. If this was indeed a threshold, it appears to have been blocked up during a later occupation phase, as the gap in the wall was found to contain a mixture of small and medium sized, loose stones.

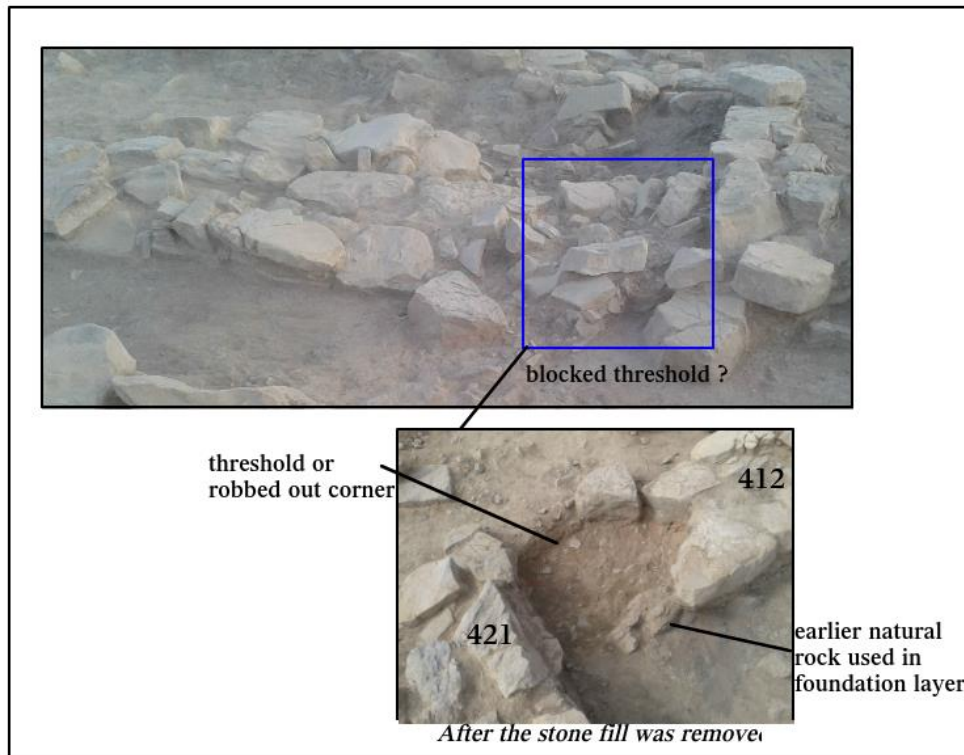


fig. 57 - Blocked threshold of wall 412

□ **413B**

The construction of this wall contrasts with the Type 1a walls, 413A and 411, situated either side of it, as it includes oversized, undressed flat rectangular stones. These characteristics can instead be more favourably compared with the Type 3 stones. It matches the styles displayed by walls 412 and 420, which run perpendicular to 413B, and follows their distinct alignment. The base elevation of wall 413B matches the elevations of 412 and 420 at their western end, at c. 85 cm below the datum. The corners between these walls have not been preserved. Yet, based on construction type and matching base elevations, the construction of wall 413B appears to form the western side of a room extension associated with walls 412, 420 and 421.

It appears that parts of the Type 1a wall 413A were altered from their initial state and realigned in order to accommodate 412 and the later room extension.

□ 420

The typology of wall 420 consists of three well preserved courses of large flat stones chosen for their uniform rectangular shapes and which subsequently fit closely together. Similar to wall 412, the inner sides of many of these stones appear to have been worked in order to create a precise face (*fig. 58*). This wall matches the construction style of other Type 3 walls: 412 to the south and 421 to the east. These three walls therefore can be identified as contemporary features forming a rectangular room extension which has been added onto the eastern side of the original Type 1a wall. The eastern end of wall 420, where it forms a corner with 421, is badly damaged. The whole wall also appears to be leaning at an angle and sliding downslope. The interior space demarcated by these walls contained a substantial amount of rockfall, indicative of features that were originally formed of more than the three surviving courses of stone.

The hard-packed foundation levels of both walls, 412 and 420, appear to have been supplanted on top of an earlier layer of ash and charcoal. This layer is likely to be contemporary with the hearths and fire pits commonly discovered in areas immediately outside the rectilinear structure, contemporary with the initial occupation of the site.



fig. 58 - The three closely-fitted surviving courses of wall 420

□ **421**

This wall forms the eastern end to the southeastern room extension. It is preserved to two courses but, based upon the surrounding rockfall, was originally formed of more courses of stone. It is the same construction type, and stratigraphically on the same level, as 412 and 420 and therefore appears to be contemporary with these walls. Unfortunately, neither of the original bonded corners have been preserved. The corner with 420 has collapsed down the slope, while the corner with 412 appears to have been the location for the original threshold into the room and was subsequently blocked during a later occupation phase.

A section drawing was taken of the wall and the layers immediately below its base (*fig 59*). A layer measured c. 10 cm directly below the base of wall 421 displayed evidence of burning, including a layer of ash, red/black burnt stone and charcoal cut into an inclusion-free compact

surface. This mirrors the situation below both walls, 412 and 420. This layer perhaps represents evidence of burning activities contemporary with the occupation phase associated with the initial Type 1a structure. The Type 3 walls were subsequently added during a later construction phase, illustrated by a 10 cm-thick foundation layer of mostly sterile loose light-brown clay.

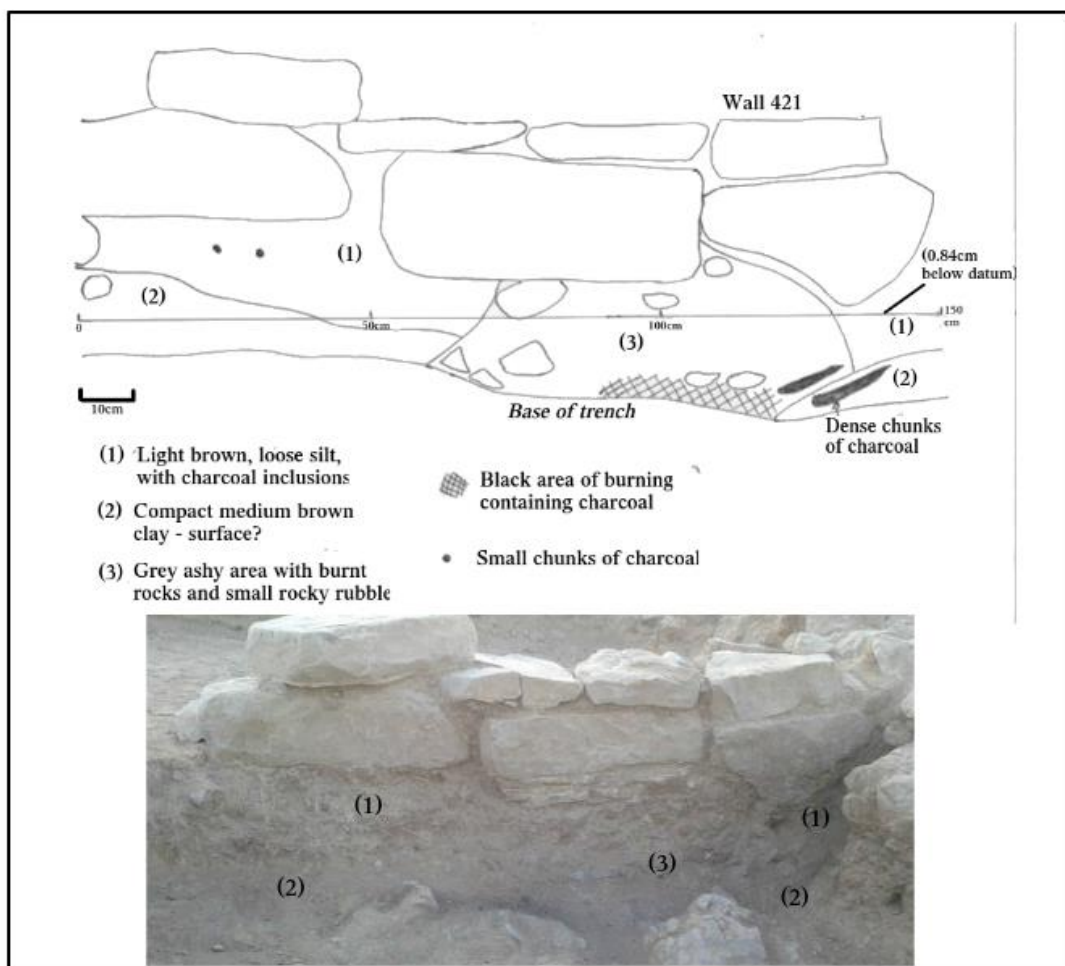


fig. 59 - Section of wall 421 and the layers beneath its base

5. Type 4 (416):

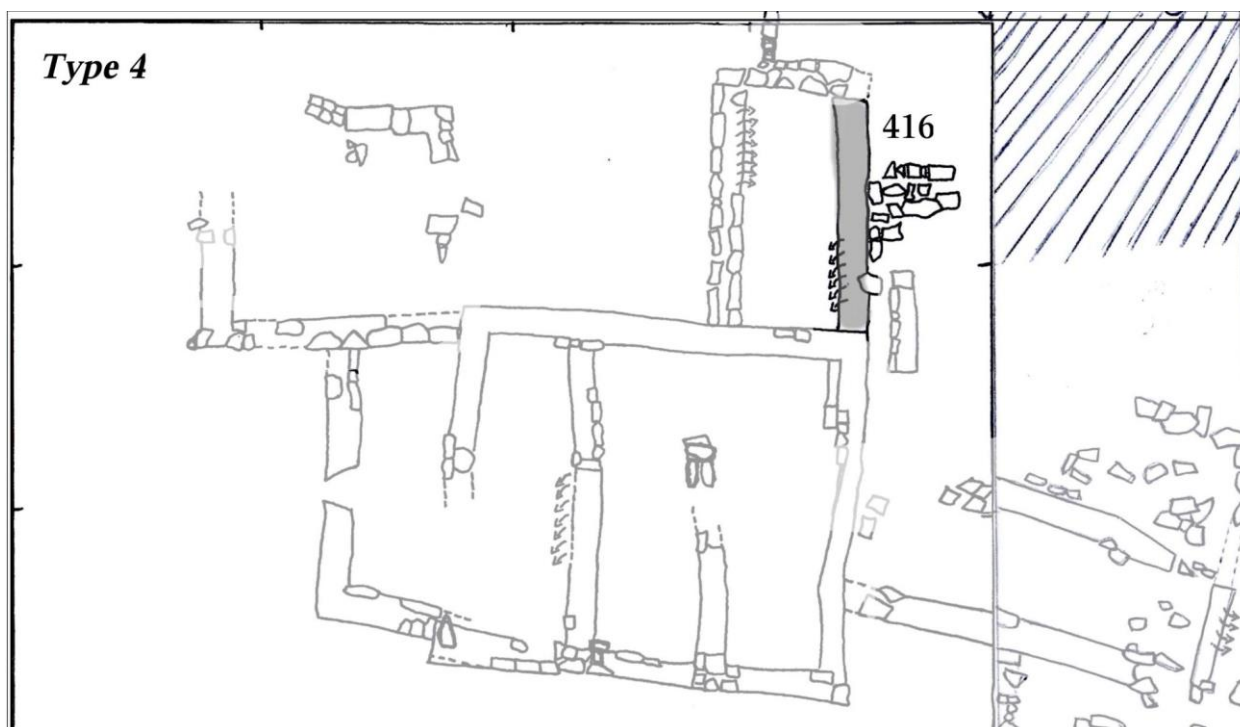


fig. 60 - Type 4 walls at the Settlement Slope

□ 416

This type consists of just one wall example. It is represented by medium-sized undressed stones, the majority of which were found to measure between 200 and 500 mm in length. They appear to have been chosen for their natural triangular and square shapes. These are fitted closely together, without mortar, into two parallel rows, 70 cm wide (*fig. 61*). The Type 4 wall is preserved to two courses of stones, at an average height of 25 cm, yet large collections of rockfall, distributed close by, suggests more courses were originally present. This wall appears to postdate the original walls at the site; its southern end abuts against 407 and its base elevation was measured 20 cm above the Type 1a example. Its stratigraphic

relationship with the Type 3 walls, however, is difficult to establish as there are no physical associations.

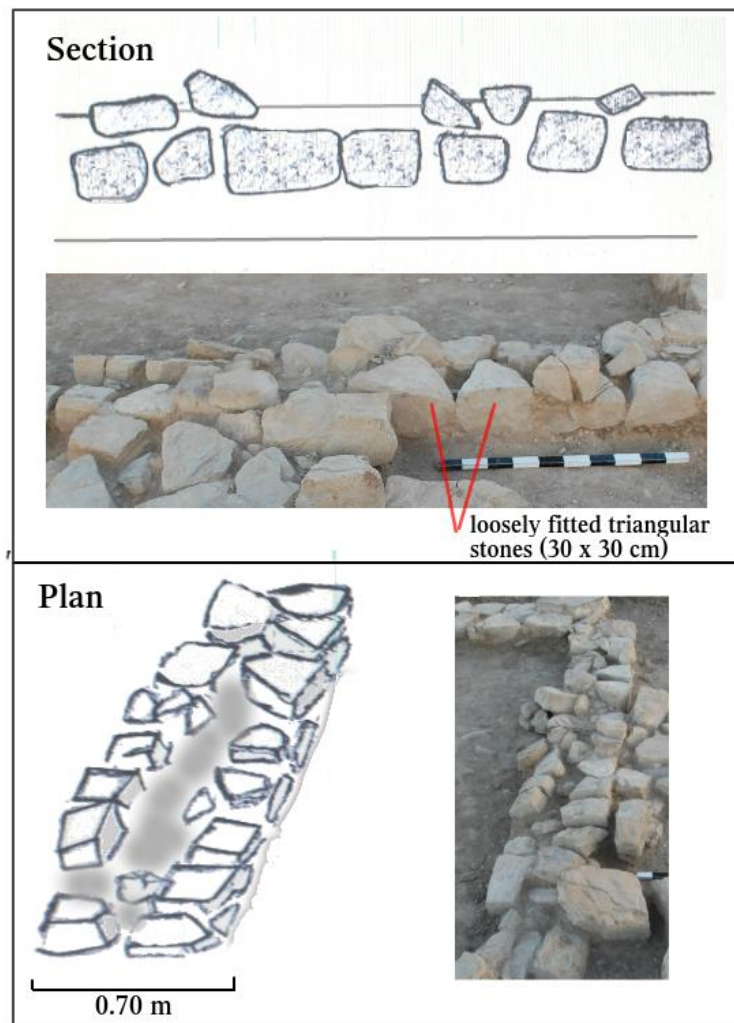


fig. 61 - Construction style of the Type 4 walls at the Settlement Slope

6. Type 5 (403, 404, 405, 414):

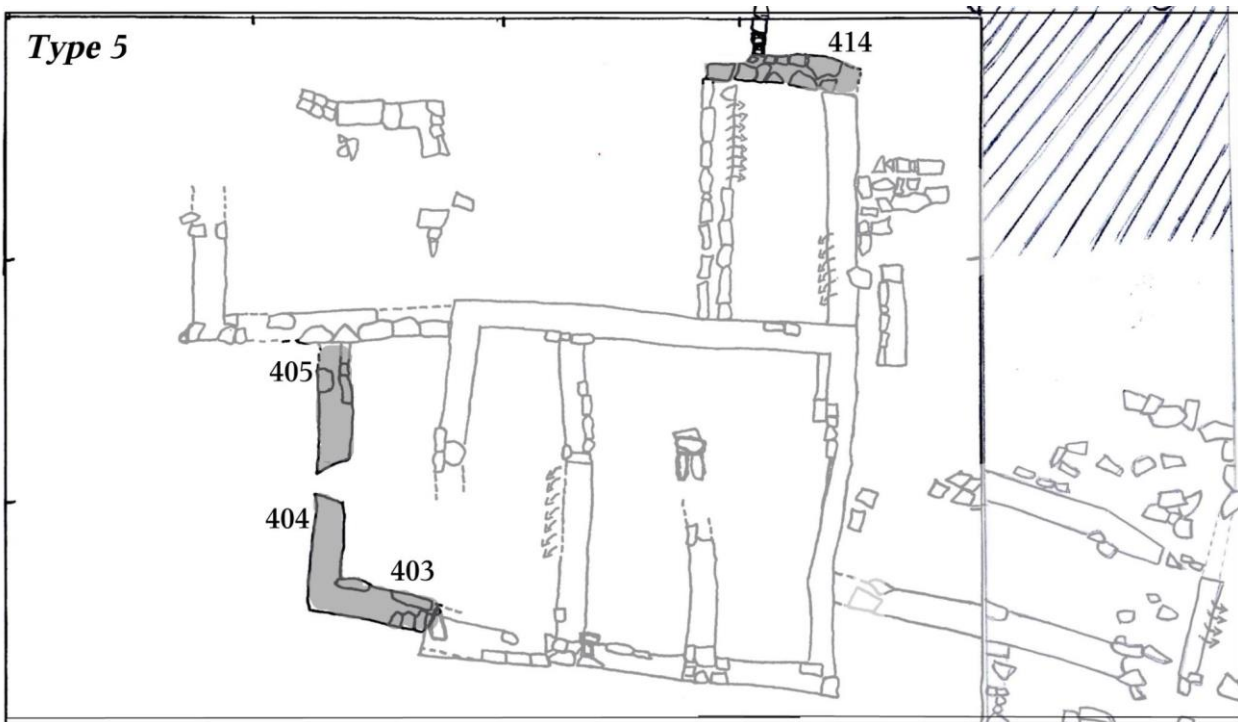


fig. 62 - Type 5 walls at the Settlement Slope

Type 5 is represented by three connecting walls in the southwest and a single-coursed feature associated with the northeastern extension. These walls were constructed using an unorthodox combination of natural undressed material and recycled large flat slabs that display signs of once having been cut. The Type 5 stones include a variety of sizes and were laid down in multiple arrangements (*fig. 63*). The walls include natural angular boulders, with lengths extending from small-sized rocks, 250mm, to substantial examples measuring up to 800 mm. These are typically laid in a vertical position and can measure up to 500 mm in height. The material can also include large (> 500 mm in length) stones, laid face down, which were likely robbed from the nearby tower, 1156. There were also small natural cobbles mixed in with the larger material. These walls did not appear to display either an inner or outer face.

Despite the substantial size of the wall material - the walls were typically 70 cm wide - they are relatively shallow features compared to the adjacent walls; the base elevations were measured on average at 25 cm above the wall bases of other types. They were also preserved to just a single course, 10-15 cm in height. The absence of rockfall surrounding these Type 5 walls suggests that they may have originally been characterised by a single course. It can be argued that these features resembled an ephemeral boundary marker from a late occupation phase rather than representing secure wall foundations.

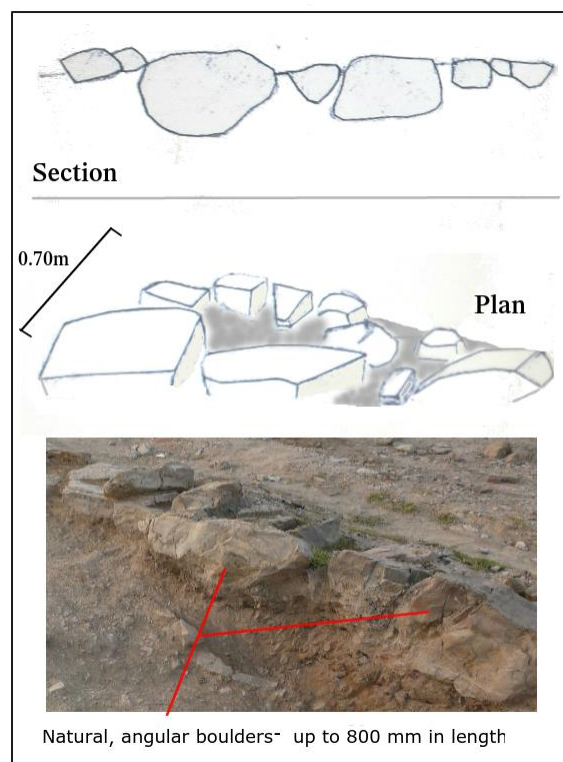


fig. 63 - Construction style of the Type 5 walls at the Settlement Slope

□ **403**

Wall 403 was constructed using an usual style that included an inner row of natural upturned boulders combined with an outer row of smaller cobbles. At its western end, wall 403 forms a corner bond with 404 and, together, are thought to form the southwest corner of an extension feature. At its eastern end, 403 cuts through the Type 2 wall, 408A, with a new alignment. The base elevation for wall 403 - 95 cm below trench datum - was measured well above the wall base of 408A - 115 cm.

A semicircle of small, natural angular rocks was discovered 40 cm below the base of wall 403 (*fig. 64*). These were found in association with a number of copper crucible fragments and small copper globules. They may, therefore, be contemporary with the areas of burning found in other areas immediately outside of the original Type 1a rectilinear structure; for example, the layer of ash and burnt rocks observed below Type 3 wall, 412. The significant depth of elevation associated with these rocks is perhaps evidence of the natural slope being levelled out with stone rubble and coarse gravel in order to facilitate the construction of the northwest room extension.

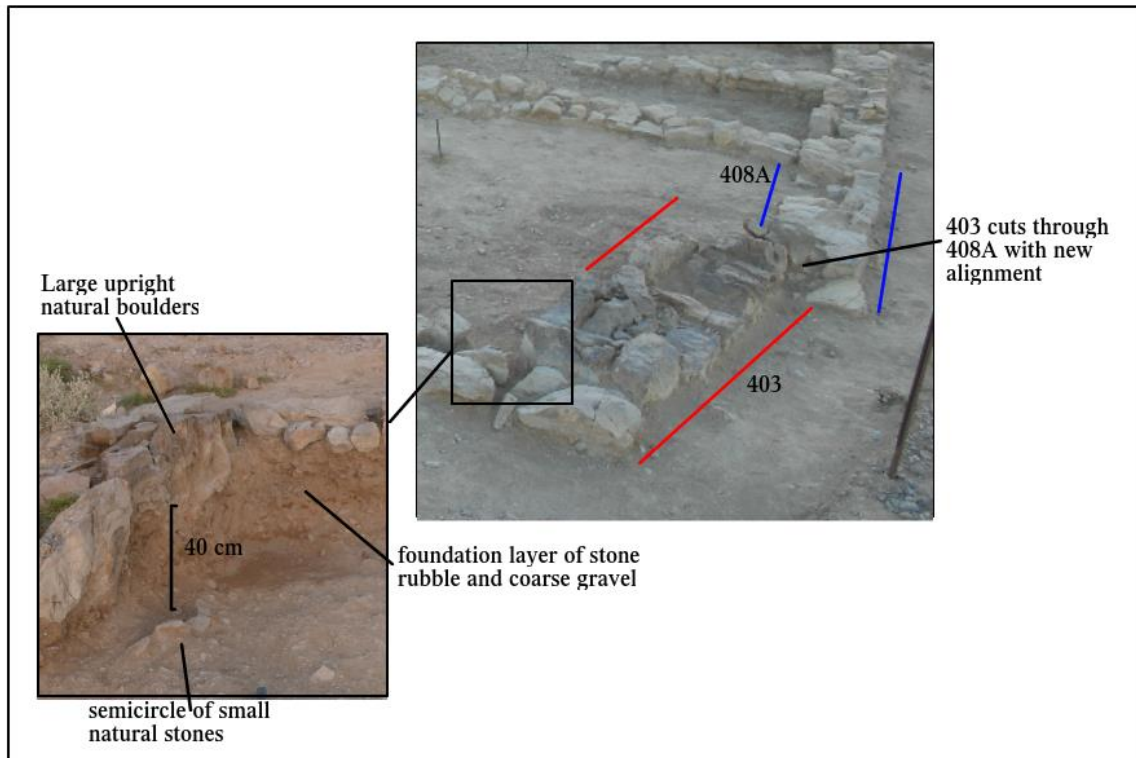


fig. 64 - The large boulders of wall 403 and the stones discovered beneath its base

□ **404/405**

This wall is formed from an unorthodox combination of large slabs laid face down and smaller cobbles, preserved as a single course. Both 404 and 403 share a bonded corner and comparable base elevations; therefore, 404 is regarded as contemporary with wall 403. These Type 5 walls were constructed on top of the same 20-40 cm deep foundation layer of loose soil, stone rubble and coarse gravel inclusions which was laid down in this part of the site in order to facilitate the building of the northwestern Type 3 room extension.

Walls 404 and 405 can be considered the same feature, forming the western side to an extension. A later phase of metallurgical activity conducted in the area was characterised by a series of intrusive pits being dug through the middle of wall 404/405 and consequently cut the wall into two parts (*fig. 65*).

The northern end of wall 404/405 abuts against the outer face of wall 402. The elevation of the base of 405 was also measured 10 cm above that of 402, suggesting construction of the south-western extension, represented by the Type 5 walls, postdates the Type 3 north-western room extension.

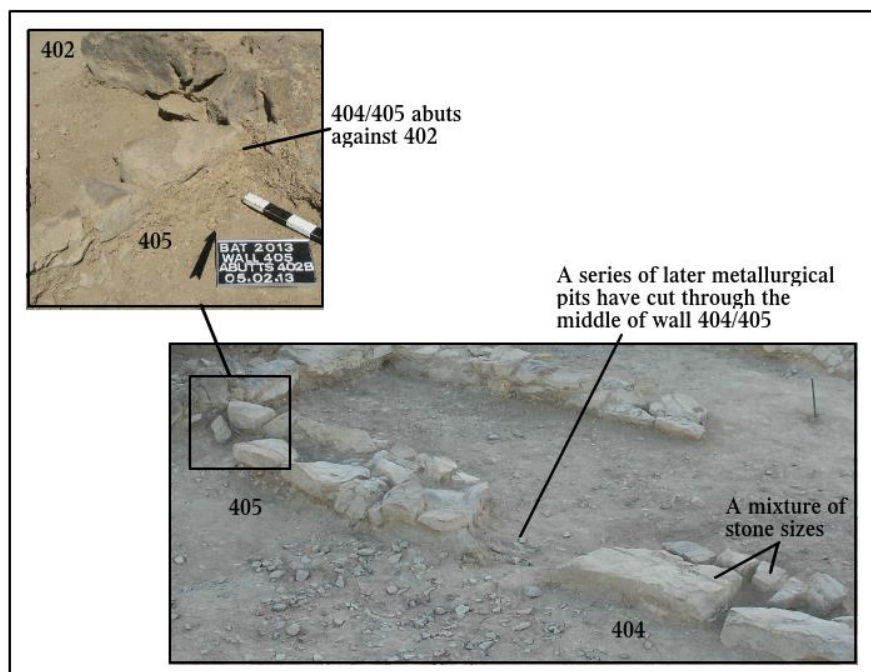


fig. 65 - The pitting that destroyed part of wall 404/405

□ **414**

This wall is situated in a different part of the site than the other Type 5 examples. Yet the composition of 414 consists of a similar single course of large flat rectangular slabs. The material used in wall 414 is often greater than 500 mm in length - one stone was measured at 750 mm in length. The stones are fitted loosely together without mortar, which results in clear gaps visible in between the material.

The corner bond with 416 is unfortunately not well preserved; thus, the exact relationship between the two walls is difficult to interpret. However, the large size and flat shape of the individual stones used in wall 414 do not match those used in 416. It is suggested, therefore, that these two walls are not contemporary features. Rather, the base elevation of 414 was measured at 17 cm above that of 416, and the oversized slabs of 414 seem to abut against the deeper stones of 416. This would indicate a construction date for this Type 5 wall which postdates the Type 4 wall.

The western end of wall 414 is preserved and its flat slabs appear to cut through the upturned stones of wall 409 (*fig. 66*). The base elevation of 414 was measured at 20 cm above that of 409. The construction of the Type 5 wall, therefore, also appears to postdate that of the Type 2 wall.

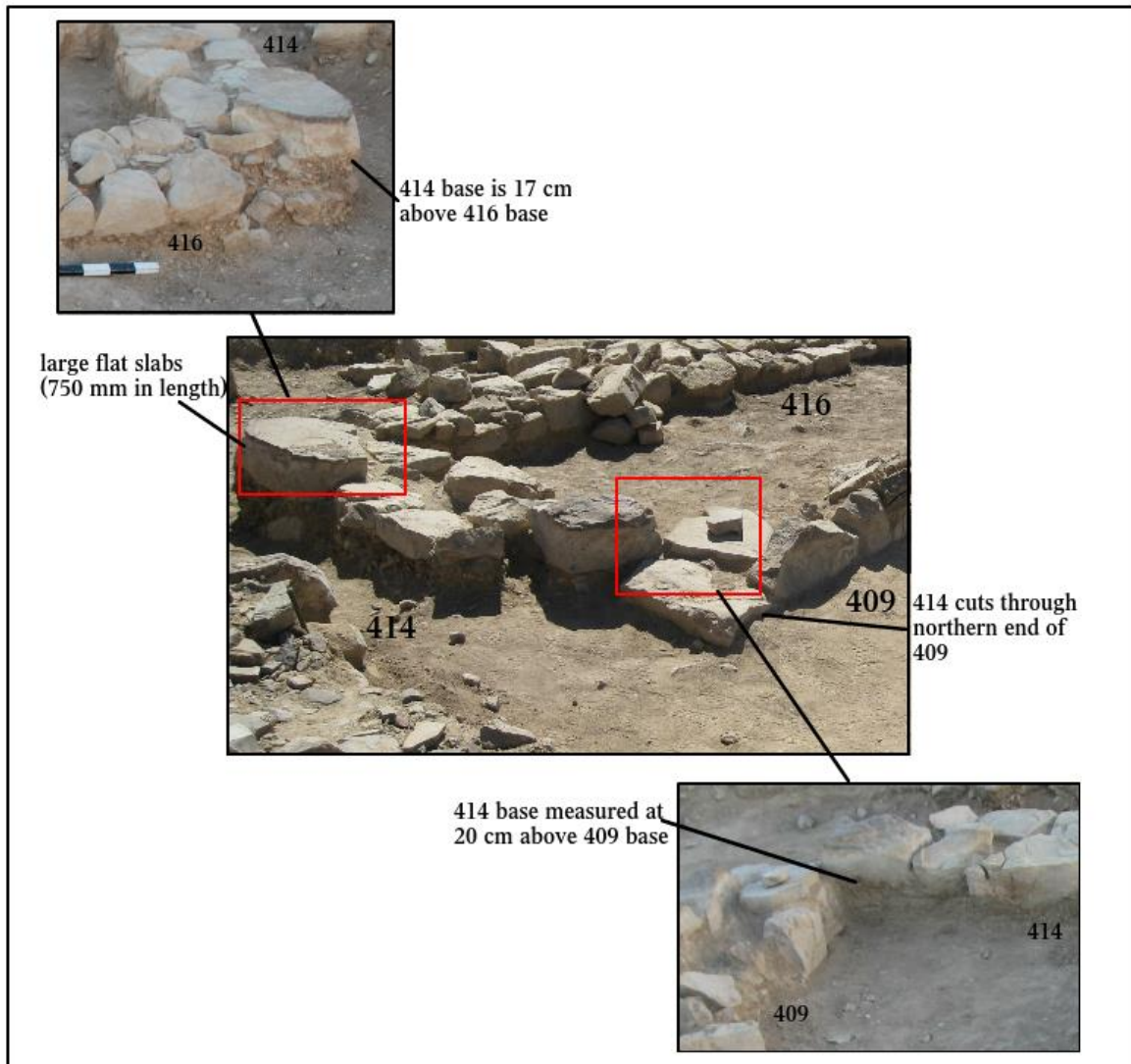


fig. 66 - Stratigraphic associations of wall 414

Part II: The Umm an-Nar and Wadi Suq Domestic Sites

Introduction

As discussed in the 'Introduction' chapter, in comparison with 3rd and 2nd millennium BC funerary sites, there is limited archaeological data for 'domestic' settlement sites (*fig. 67*) - namely, those that display architectural evidence of house units and/or domestic occupation - for both the Umm an-Nar (c. 2700-2000 BC) and the Wadi Suq (c. 2000-1600 BC) periods. It can be argued that the non-funerary sites have traditionally been overlooked in favour of sites that include the more visible collective tombs or monumental round towers. This section will cite published excavation reports and collate any architectural data related to domestic occupation. In most cases, this involves aboveground wall features that delineate stone or mud-brick house units, but it may also include the remains of perishable *barasti* housing or non-permanent signs of occupation, such as hearths or pits. An analysis of the domestic structures discovered at the Umm an-Nar and Wadi Suq domestic sites allows for a tentative grouping based on factors such as the materials used in their construction, their construction techniques and their dimensions. These are the same criteria that were applied to the walls already identified at the Settlement Slope site. The following catalogue will therefore aim to provide an architectural context for the principal domestic structures discovered at the Settlement Slope, presented in the previous section (*Part I*, Chapter 3) and evaluated later in the *Analysis & Discussion* (*Part III*, Chapter 3).

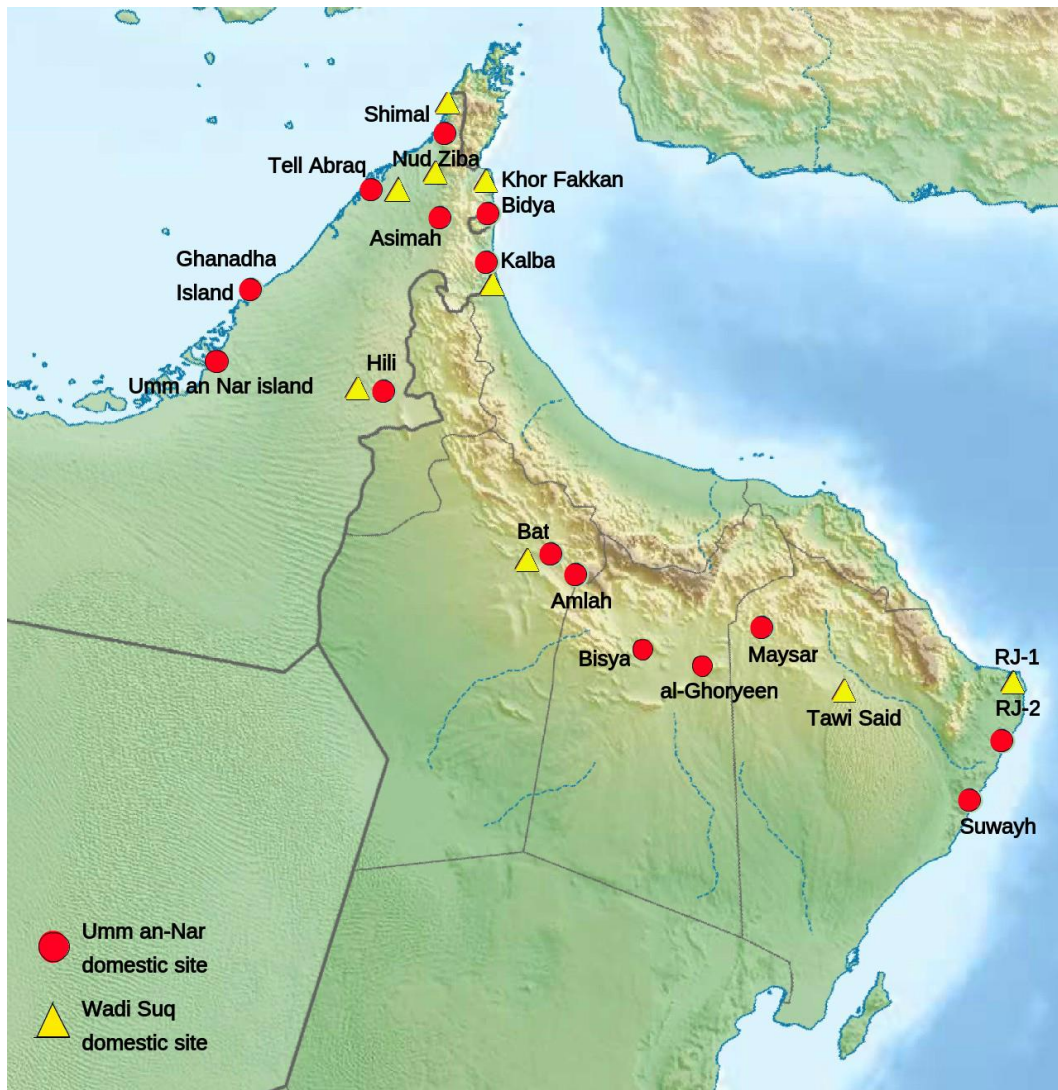


fig. 67 - Umm an-Nar and Wadi Suq domestic sites referenced in this chapter

The Domestic Sites

This section will describe the published Umm an-Nar and Wadi Suq sites that are known to contain evidence of domestic structures. These will be presented in a rough chronological order based upon the date of their primary occupation phases, starting with the earliest sites. This section will look to emphasise the wall construction techniques, the structures' room plans, the modes of subsistence and the levels of occupation intensity.

- *Hili 8*

Hili 8 is located within the inland oasis of Al-Ain, in the Emirate of Abu Dhabi, UAE (zone 5). The excavation of the site was carried out under the direction of Serge Cleuziou over eight seasons, from 1977 to 1984. At its zenith, during the late 3rd millennium BC, the site of Hili 8 was one of the principal regional centres located within the Western Oasis Belt (Cleuziou, 1989: 82-83). Hili 8 is highly significant as it is one of the few domestic sites to successfully outline different occupational subphases for a 3rd millennium BC sequence (Cleuziou, 1989: 63); furthermore, it is currently the only ceramic typology available for the Umm an-Nar culture (Ghazal & Thornton, 2014: 14). Establishing a sequence of phases for the Settlement Slope site (see Chapter 5) will therefore rely heavily upon Cleuziou's ceramic typology.

Hili was predominantly an Umm an-Nar period domestic site - although it has occupation phases in both the preceding Hafit (c. 3200 - 2700 BC) and succeeding Wadi Suq (c. 2000 - 1600 BC) periods. The sequence at Hili 8 has been divided into three major periods and subdivided into several phases (Cleuziou, 1989: 63) (*fig. 68*).

Hili 8 Sub Phases	Period	Structures	Figure
Period I a-c	Hafit	Tower III; Buildings V and VI	fig. 4
Period II a-c1	Early Umm an-Nar	Tower IV; Building II	fig. 5
Period II c2-e	Middle Umm an-Nar	extensions to Building II	fig. 6
Period II f-g	Late Umm an-Nar	Tower I	fig. 7
Period III	Wadi Suq	extensions to Tower I	fig. 8

fig. 68 - Sequence of structures at Hili 8 (after Cleuziou, 1989: 63-72)

Period I:

The earliest phase of construction at Hili 8 was termed '**Period I**'. Two C¹⁴ samples and a small collection of distinctive Mesopotamian pottery have allowed this first architectural phase to be dated in the Hafit Period, c. 3100 - 2700 BC (Cleuziou, 1989: 75). The Period was subdivided into three phases **Ia-c** centered around the construction of a primary round tower feature, named Building III, and a series of later structural additions.

Phases Ia-c (fig. 69): Round tower III was a square feature built of flat mud bricks, with six inner compartments and a central well. C¹⁴ samples were retrieved from two hearths found within the compartments and thought to be have been used during the construction process (Cleuziou, 1989: 64). Using the OxCal calibration method (<https://c14.arch.ox.ac.uk/oxcal>), both samples yielded the same calibrated date range of 3000-2800 BC. A few structures were discovered built against this early round tower: an addition, named Building V, was added to

the round tower's north east corner, while Building VI was found on the southeast corner. Both were built from the same types of mud-bricks as the original round tower and both contained three inner compartments separated by a single row of mud bricks. A collection of small painted jars was excavated from within these Period I layers; these were diagnostic Mesopotamian examples, with comparable types found in the Jemdet Nasr cemetery at Ur, dated to c. 3100-2900 BC (Cleuziou, 1989: 75). This reinforces the existence of an initial construction phase at Hili 8 contemporary with the early 3rd millennium BC Hafit horizon.

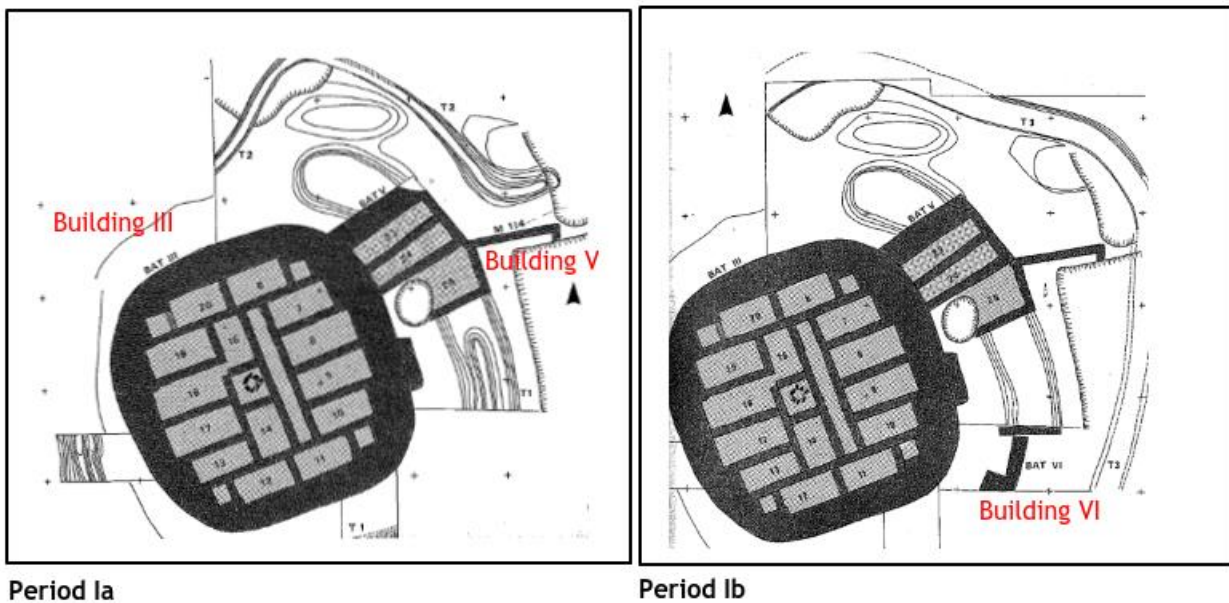


fig. 69 - Hili 8 during Periods Ia-b (after Cleuziou, 1989: pl. 11, 12)

Period II:

The occupation of the site during the Umm an-Nar period (c. 2700 - 2000 BC) is represented by 'Period II': the sub-phases **Ila-c¹** cover the Early Umm an-Nar, **Ilc²-e** the Middle Umm an-Nar and **IIf-g** the Late Umm an-Nar period. This sequence was dated using a collection of C¹⁴ dates and pottery comparisons with other sites. The Period II settlement at Hili 8 is

characterised by the building of two Umm an-Nar round tower features (Building IV and Building I) and the construction, enlargement and continual refurbishment of an adjacent rectangular structure (Building II).

Phases IIa-c¹ (fig. 70): The Early Umm an-Nar phases are associated with the building of a round tower feature labelled Building IV. Its construction was based upon the 're-shaping' of the earlier square round tower III (Cleuziou, 1989: 67). A large U-shaped ditch, which may have been filled with excess water from the nearby fields, surrounded the structure (Cleuziou, 1989: 69).

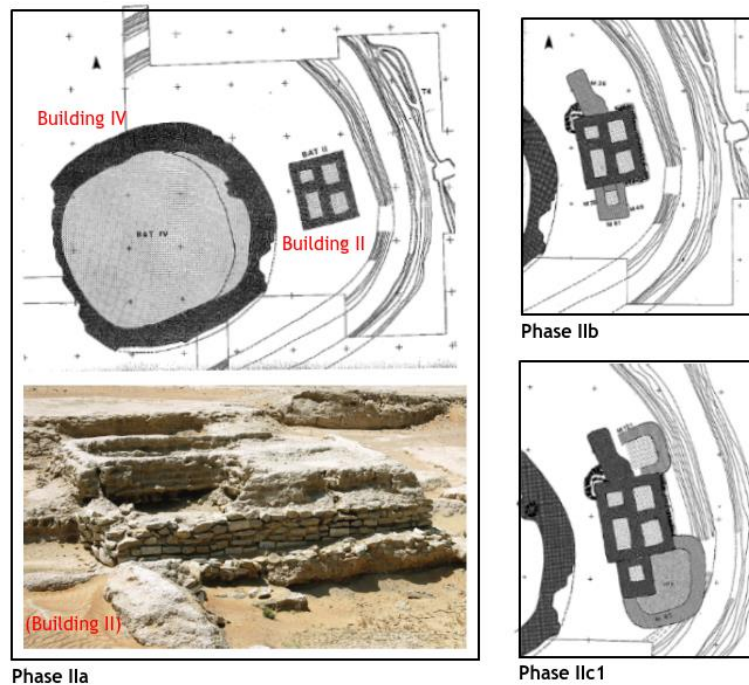


fig. 70 - Hili 8 during Periods IIa-c¹ (after Cleuziou, 1989: pl. 13-15)

A rectangular structure, measuring 5.5 x 6.5 metres, labelled Building II, was built to the east of round tower IV during these phases. The lower parts of the walls (up to 1.25 metres) were

composed of stones mortared with mud, with mud-brick forming the upper part. The stone base was 'well-built' (Cleuziou, 1989: 68). This structure was divided into four compartments which were then subsequently filled from the beginning to create a solid platform (Cleuziou, 1989: 68).

A small, square extension (2.6 x 2.6 metres) was later added to the southern side of Building II during phase IIb (Cleuziou, 1989: 69). The purpose of this extension has yet to be discovered. Further walls were added to this growing complex of structures in phase IIc¹; the walls to the south and to the north were both built with stone bases, 0.6 metres high. They have since been interpreted as terraces that adjoined Building II on either side. A floor surface was discovered enclosed within this area, yielding several pottery sherds embedded in its surface; this should, therefore, be considered a domestic space (Cleuziou, 1989: 69). The discovery of distinctive pottery types typically found in Early Umm an-Nar funerary contexts mean that these sub-phases are designated an Early Umm an-Nar date.

Phases IIc²-e (fig. 71): The subsequent Middle Umm an-Nar phases are characterised by the construction of a large extension to the north of Building II. This wall (two metres wide) ran for 6.5 metres north before running four metres west and was probably another occupational terrace area to support an expanding population at Hili 8 (Cleuziou, 1989: 70). In *Phase IIe* there is another large extension running east off Building II, over the former Period I ditch. This was another large terraced area that seems to have been devoted to craft activities, such as copper working.

A series of kilns, constructed from large flat paving slabs (Cleuziou, 1979: fig. 20), were discovered in this terraced activity area; they provided a calibrated date range of 2400 – 2200 BC (Cleuziou, 1989: 71). The types of pottery belonging to phase IIc² are characterised by great amounts of sandy tempered ‘domestic’ ware decorated with applique ridges and wavy, meandering lines on the neck (Cleuziou, 1989: 76-77). In phases IIId and IIe the pottery is typically decorated with distinct geometric spiral and ladder motifs (*ibid*). These can also be found at contemporary Middle Umm an-Nar domestic sites at Bat, Maysar, Tell Abraç and Asimah. These sub-phases, therefore, can be placed with reasonable accuracy in the Middle Umm an-Nar period based on radiocarbon dates and diagnostic pottery types.

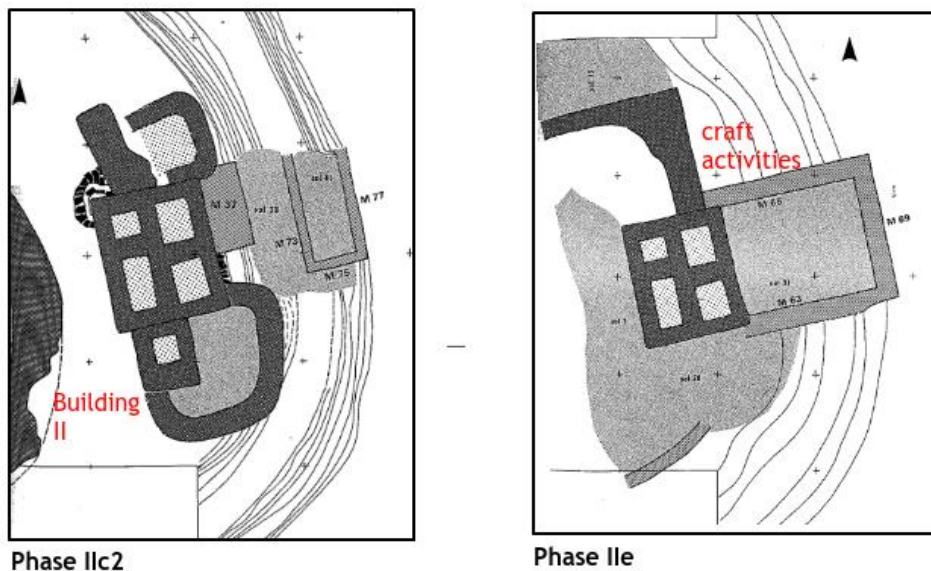
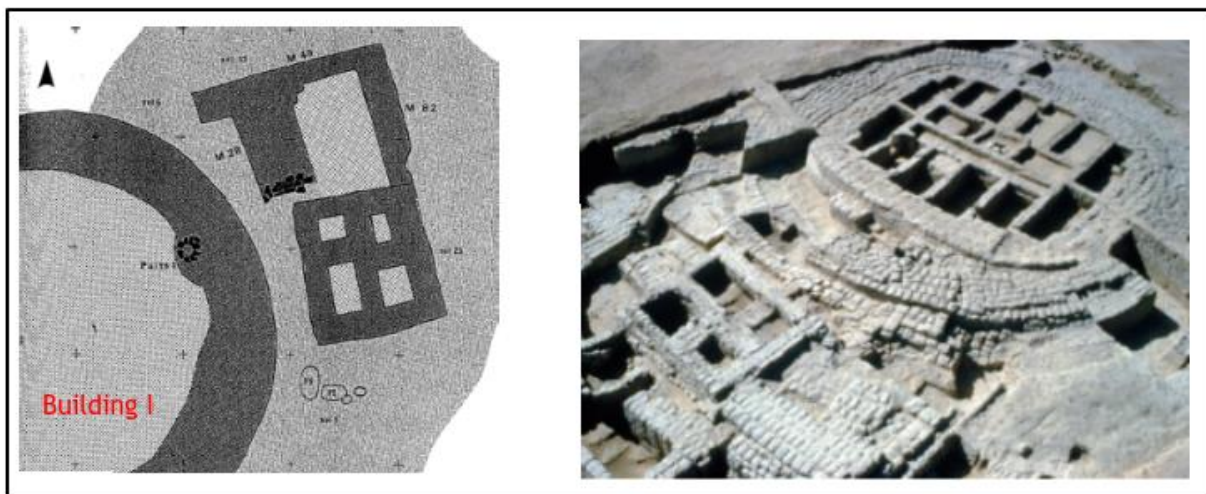


fig. 71 - Hili 8 during Periods IIc²-e (after Cleuziou, 1989: pl. 17-18)

Phases II f-g (fig. 72): During the Late Umm an-Nar phases, the building efforts move away from the domestic features located outside the Early Umm an-Nar round tower (IV) and instead focus on the construction of a new round tower, named Building I, built above the

ruins of round tower IV and much of Building II. Three steps of a stairway were discovered immediately east of round tower I, though their precise function is unknown (Cleuziou, 1989: 71). These sub-phases are dated to the very end of the 3rd millennium BC based on C¹⁴ dates (*ibid*). Associated deposits also yielded pottery types which are clearly distinctive of this period (Cleuziou, 1989: 77).



Phase II f

fig. 72 - Hili 8 during Periods II f-g (after Cleuziou, 1989: pl. 21-22)

Period III:

The artefacts and architecture discovered in layers post-dating Phase II f were markedly different to those that typified the Umm an-Nar culture. Such was the level of discontinuity, Phase II h was re-named 'Period III' (c. 2000 BC). Significantly, the Wadi Suq structures found inside and around the Umm an-Nar round tower were the first domestic remains identified for this period (Righetti, 2010: 283)

The Wadi Suq sherds found at the bottom of the filling demonstrated Building I remained in use in Period III (Cleuziou, 1989: 71). Yet, new architectural features were also discovered abutting its facade (*fig. 73*). A Wadi Suq stone boundary wall enclosed a large area of 25-30 m² (Carter, 1997: 57) at the foot of the Umm an-Nar round tower (Cleuziou, 1981: 280, *fig. 2*). This was built in the 'double-wall' technique later recognised as a feature of Wadi Suq domestic and funerary architecture (Righetti, 2010: 283): two faces of vertically set slabs, 0.8 metres wide, with a filling of smaller stones in between. The composition of the upper courses are unknown, but are thought to have involved horizontal slabs with layers of mud-brick or perishable organic materials (Cleuziou, 1989: 72). An associated ash-covered floor was discovered within the enclosure, containing several hearths, kilns and a small quadrangular fireplace, dated by C¹⁴ to 2000-1900 BC (Cleuziou, 1979: 23).

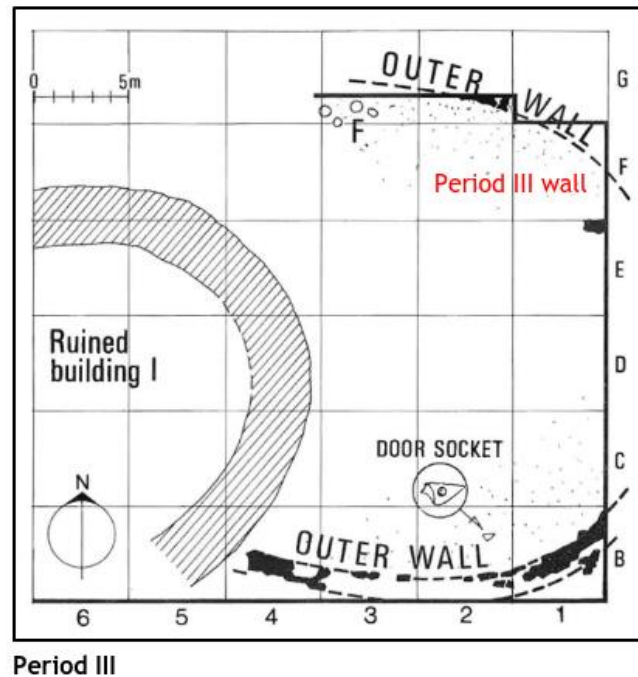


fig. 73 - Hili 8 during Period III (after Cleuziou, 1981: 280, fig. 2)

From the absolute dates and the re-occupation of the Umm an-Nar round tower, it appears that there was a short transition period between the two cultures. Rather than a sudden abandonment of the site, the Period III architecture may have represented a continuing tradition of occupation at Hili 8, after c. 2000 BC (Cleuziou, 1979; Potts, 1990). The absence of stone or mud-brick domestic structures, however, suggests that the scale and functionality of the site was likely to have been significantly reduced during the Wadi Suq period.

- *Umm an-Nar Island*

This site is located on a small island southeast of Abu Dhabi island (zone 1). In 1959 a Danish team examined a newly discovered settlement, making it the first archaeological site to be excavated in the UAE. The excavation revealed a previously unknown 3rd millennium BC culture - which was subsequently named after the island. The site represents an Umm an-Nar settlement occupied throughout the second half of the 3rd millennium BC. Yet, unusually for a large coastal site of this period, there is no evidence that it continued to be inhabited in the Wadi Suq period.

A number of domestic structures were concentrated together in a 'House Complex' and were divided into three distinct occupational phases (0, I, II). Frifelt later allocated dates to the occupation phases based upon a comparable study of the diagnostic pottery types; the

occupation spans the middle centuries of the 3rd millennium BC, c. 2800 - 2200 BC (Frifelt, 1995: 92).

The House Complex:

A series of well-preserved rooms were identified at the House Complex (*fig. 74*), representing two main occupation phases:

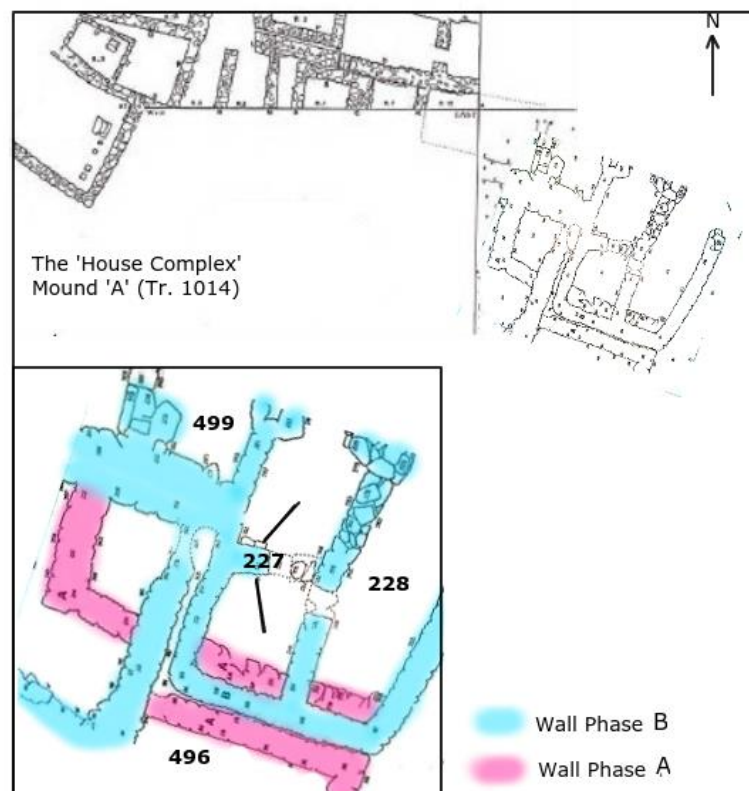


fig. 74 - The House Complex and its associated rooms (after al-Tikriti, 2011: 92, fig. 7)

Room 227: this was one of the best preserved domestic structures excavated at the House Complex (Frifelt, 1995: 92). Its interior was divided into two square cells, measuring roughly

2 x 2 metres each. A north-south wall bisects these cells and contains a space for a door situated in its centre. The walls of this room are preserved up to 10-12 courses. An earlier wall is located running parallel and partly beneath the west wall of room 227. In order to distinguish between these two phases of construction, the earlier wall was termed Phase 'A' - which correlates to occupation phase I - and the later walls that form room 227 were labelled Phase 'B' - relating to occupation phase II.

The architecture of the house units consists of walls built from unworked stone. The construction of the walls typically includes two parallel rows of dressed stones, laid horizontally, with a core of smaller stones in between (*fig. 75*). This style can be attested at other contemporary domestic Umm an-Nar sites, such as Asimah (Vogt, 1994) and Bat (Thornton, 2014).

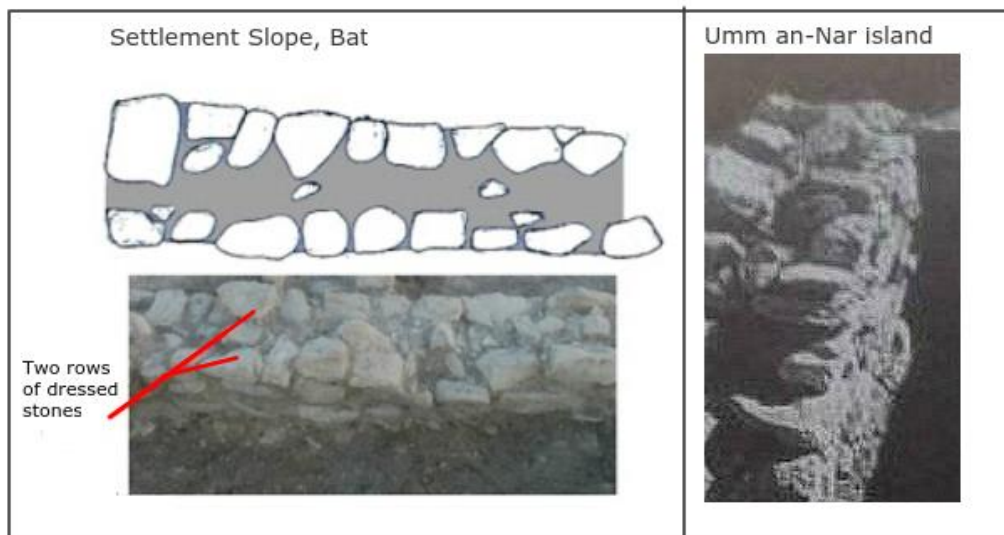


fig. 75 - Comparable wall construction styles between the Settlement Slope and Umm an-Nar island (after Frifelt, 1995)

Room 228: this area is adjacent to 227 and is connected by a door 0.80 metres in width, including two surviving courses of a door-frame. As with 227, the walls defining this room are of a later phase (B). In the western part of the room, however, the Phase B wall was constructed directly on top of the earlier Phase A wall, of which only 1-2 courses remain. The earlier wall A was itself constructed on top of a bottom layer which contained a strong admixture of charcoal and no structural remains.

Room 496: the area to the immediate west of 'Room 227/228' is contemporary with the original construction Phase A. Between 496 and 227/228 is a narrow gap of only a few centimetres (*fig. 76*). However, when one considers that the four preserved courses of the wall of 496 are in fact contemporary with the preceding wall A in house 227/228, the gap would have in reality been roughly 0.80 metres wide; enough, therefore, to create a narrow, but passable, lane in between the structures.

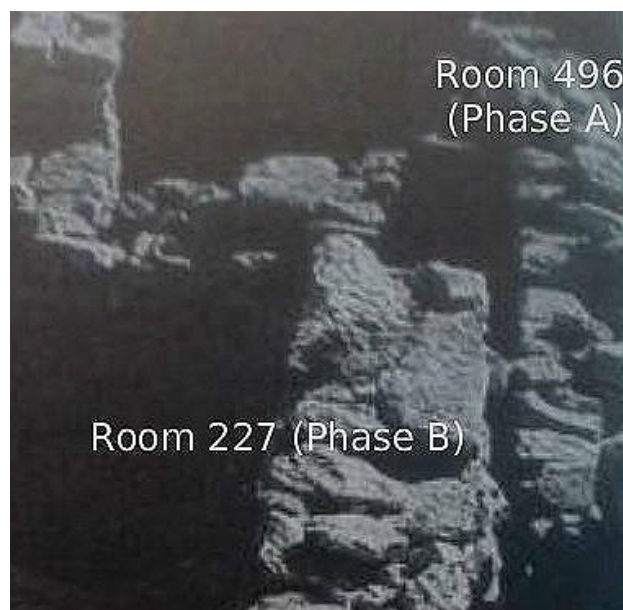


fig. 76 - Narrow gap discovered between the walls of rooms 227 and 496 (after Frifelt, 1995)

The Occupation Sequence:

The domestic structures found on Umm an-Nar island belong to an occupation sequence comprised of three distinct phases (*fig. 77*). This was established by comparing the ceramics with the pottery sequences at Hili 8 and contemporary foreign sites (Frifelt, 1995).

Occupation Phase	Wall Phase	Hili 8 sub-phase	Date
0	- (no structures)	Period IIa-b	c. 2800-2600 BC
I	A	Period IIc1	c. 2600-2500 BC
II	B	Period II d-e	c. 2400-2200 BC

fig. 77 - the occupation sequence at Umm an-Nar Island (after Frifelt, 1995: 41)

The earliest period of occupation at the site was Phase 0. An aceramic cultural layer which contained no trace of stone walls, it displayed signs of occupation through the deposition of charcoal and areas of pits and post holes. Mesopotamian ceramic parallels ranging from Early Dynastic I to Early Dynastic IIIA are quoted (Frifelt, 1995: 41). This phase was identified as being contemporary with Phases IIa and IIb at Hili 8, c. 2700 - 2600 BC.

The first period of construction was Phase I which is represented by 'Wall Phase A'. The walls belonging to this phase were more carefully and skillfully built when compared to those associated with the later phase. This phase is characterized by new pottery types, including black-coated Indus jars and orange sandy ware with meandering ridges pierced to form lugs.

The pottery of Phase I is coherent with Phase IIc¹ at Hili 8, c. 2600 - 2500 BC (Cleuziou, 2002: 212).

The later phase of wall construction was Phase II, represented by 'Wall Phase B'. The walls from this phase are represented by a series of 'inferior' house structures built on top of earlier features. These stone walls were markedly inferior when compared with the Phase A walls (Frifelt, 1995: 41). This phase is characterized by the appearance of suspension vessels with lattice decorations and orange sandy ware with painted spiral motifs. The pottery assemblage suggests that this phase may be placed alongside Hili 8 Phases II d and II e, c. 2400 - 2200 BC.

The small finds discovered at the 'House Complex' on Umm an-Nar island reinforce its status as an important coastal site during the Umm an-Nar period. It perhaps utilised its prominent location on the Gulf coast to trade copper utensils - chisels, knives, pins and needles (Frifelt, 1975: 365) - and available food resources - turtles, sea-cow, oryx and camel (*ibid*) - in exchange for foreign goods, which include textile and buffware ceramics originating from Mesopotamia and Baluchistan (al-Tikriti, 2011: 98). However, unlike the contemporary coastal Umm an-Nar sites at Tell Abraq and Kalba, Umm an-Nar island displays no sign of having being occupied in the Wadi Suq period. This was perhaps a consequence of the collapse of long distance trade networks with Mesopotamia and the Indus during the 2nd millennium BC.

- *Ghanadha Island*

The site is situated in the coastal region of the Emirate Abu Dhabi (zone 1). It is located 65 km northeast of Umm an-Nar island. The island is now mostly covered with sand dunes and has a coastline of low, flat *sabkhas* and mangrove trees. It was first surveyed by a team led by al-Tikriti in 1982 and was excavated over the course of the next three seasons.

Evidence for domestic occupation is best represented by two sites, Ghanadha 1 and 3. Site 1, originally identified during the 1982 survey, was formed of a 100 metre-long oval-shaped mound. Over the course of the three seasons, 16 trenches (5 x 5 metres) were excavated across the northern half of the mound (al-Tikriti, 1985: 11). The discovery of archaeological features may indicate an area of domestic habitation, dated by pottery finds to the second half of the 3rd millennium BC. A collection of fireplaces was found sunk c. 50 cm into a sterile layer of sand containing small baked stones and shells. These were associated with the remains of a stone wall built from dressed limestone slabs. It is thought that this may have acted as a wind shelter. The ceramics discovered at Ghanadha 1 include a number of jar rims decorated with chevrons, while two body sherds represent suspension vessels (al Tikriti, 1985: 13). These examples are well attested at the site at Umm an-Nar island (Frifelt, 1991: fig. 237, KC. 1014). Over fifty stone net-sinkers, with holes drilled into their centre, were 'identical' to those excavated at Umm an-Nar island (Frifelt, 1995; al Tikriti, 1985: 13).

In the second season, excavation was transferred to Ghanadha 3 - 500 metres south of Ghanadha 1 - where a rectangular stone structure was discovered and dated to the late 3rd millennium BC (al Tikriti, 1985: 15). The structure included thick walls constructed from flat slabs (*fig. 78*). Although there were no archaeological finds within the structure, a series of shallow fireplaces and stone-lined pits were located in its immediate vicinity (Carter, 2003: 126). These contained ashy deposits of bone and pottery and can perhaps be interpreted as evidence of domestic activities from this area; the stone structure may be a platform related to these activities. Al-Tikriti argues that the succession of individual, thin layers within the pits suggest that there was likely a period of continuous, low-intensity occupation at Ghanadha 1 (1985: 15).

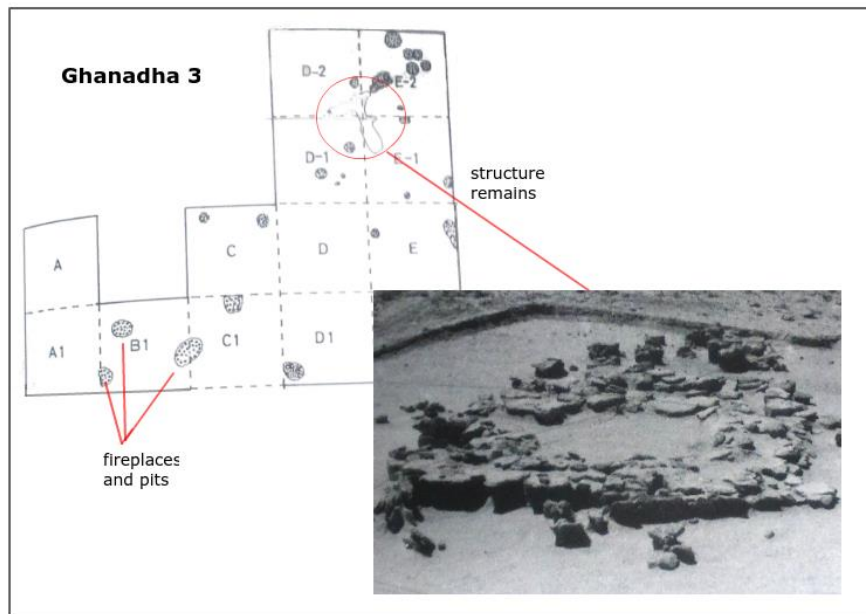


fig. 78 - Stone structure and surrounding features at Ghanadha 3 (after al-Tikriti, 1985: 15)

Compared with major Umm an-Nar coastal sites at Umm an-Nar island and Ra's al-Jinz, the lack of clear domestic architecture at Ghanadha 1 and 3 is slightly disappointing. Yet Umm an-Nar dwellings at Ghanadha might have consisted of palm-built *barasti* houses. The movement of wind-blown sand dunes and shallow archaeological deposits have prevented the identification of the post-holes that would corroborate the existence of a settlement. Al-Tikriti maintains that this site does contribute to our understanding of the nature of 3rd millennium settlement sites in this zone. The nearby site at Umm an-Nar island could possibly represent a 'nuclear site' to which Ghanadha acted as an associated 'satellite' site, occupied on a seasonal basis and concerned primarily with the collection and processing of food (al Tikriti, 1985: 16).

Similar 3rd millennium BC seasonal domestic sites seem likely to have existed at coastal sites Mowaihat, Abu Dhabi airport and al-Sufouh. These are comparable to Ghanadha, in that occupational evidence is provided by hearths, pits and sherd scatter, and the lack of aboveground architecture. Phillips argues, therefore, that these too perhaps represented seasonal 'satellite' sites associated with regional 'nuclear' centres at Umm an-Nar island and Tell Abraq (2007: 6). On the other hand, a 'hierarchy' of Umm an-Nar settlement sites from this region is not yet fully understood and requires further study.

- *al-Ghoryeen*

This domestic site is situated in the al-Sharqiyah region in the interior of northern Oman (zone 5). It encompasses an area of c. 15ha and incorporates a single Umm an-Nar round tower, a tomb field and over fifty domestic stone structures (Kennet & al-Jahwari, 2010). The site was part of a systematic archaeology survey carried out by Nasser al-Jahwari over two seasons in 2004 and 2005.

The site at al-Ghoryeen comprises clear architecture remains on the surface (Kennet & al-Jahwari, 2010: 210). Unfortunately, to date, the domestic structures have not been fully excavated and conclusions must be drawn based on the survey work only.

The occupation area is represented by a series of stone alignments that mark the layout of walls and buildings (Kennet & al-Jahwari, 2010: 207). These appear to form the basis for a substantial Umm an-Nar settlement (200 x 150 metres) containing over fifty individual houses and associated structures. The houses lie immediately to the southwest of a classic Umm an-Nar round tower which measures approximately 25 metres in diameter. The round tower was situated in the centre of the site and therefore is thought to have represented the focal point of the village. A similar layout is exhibited at Maysar-25, where traces of domestic structures were grouped around a central round tower (Weisgerber, 1981: 174-263). Although our understanding of the individual house units at al-Ghoryeen is limited, from the available plans the general layout of the structures can be determined (*fig. 79*). Although they amount to a

variety of shapes and sizes (Kennet & al-Jahwari, 2010: 207), the majority of the houses are rectangular, multi-celled and grouped together in close proximity, resulting in a series of well-integrated domestic units. The site is dated to the second half of the 3rd millennium BC, based on the dense collection of Umm an-Nar pottery sherds distributed within the structures themselves. The pottery is typically well-made, fine and painted with distinctive Umm an-Nar motifs (al-Jahwari, 2008: 166).

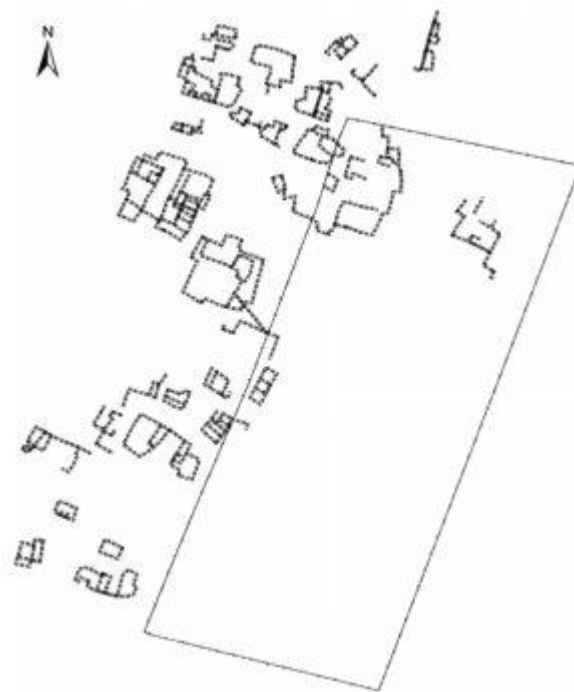


fig. 79 - Domestic structures visible at al-Ghoryeen (after Kennet & al-Jahwari, 2010: 208, fig. 9)

The site has yet to be fully excavated and will undoubtedly provide an excellent opportunity to study domestic spatial organisation during the Umm an-Nar period. Conversely, survey

work carried out throughout the Wadi Andam area failed to discover any Wadi Suq villages. In this zone, the coherent, well-integrated agricultural villages of the Umm an-Nar period disappear and appear to be replaced by small, sporadic and perishable structures implicative of a semi-nomadic population (al-Jahwari, 2008: 173). Significant change seemingly occurred in the nature of settlement organisation in this region in c. 2000 BC.

- *Bisya*

The site is located in the Dakhiliyah region of north-eastern Oman (zone 5). It is situated on a flat area of land characterised by small hills and rocky outcrops. Four raised mounds exhibited circular limestone structures. Based on the pottery found, these were dated to the second half of the 3rd millennium BC. Limited research conducted at this site means that the function of the structures has yet to be fully determined. It is thought that they perhaps represented monumental boundary markers for an area of settlement (Orchard, 2000: 167).

A mound called Karn Karhat Lahivid possibly contains evidence of 3rd millennium BC domestic housing (Orchard, 2000: 172). The slopes of the eastern half of the outcrop are covered with the dense remains of what appear to be domestic units. There was a collection of silt-filled limestone masonry, interpreted as house platforms (*ibid*). A large amount of domestic 3rd millennium BC pottery was recovered in association with the residential units. The

construction of the walls and layouts of the rooms, however, remain unknown. After just one preliminary season of investigation very little can be concluded.

- *Ra's al-Jinz (RJ-2)*

The excavations at RJ-2 were led by Serge Cleuziou and Maurizio Tosi during 1985-1995 and 2006-present. The Umm an-Nar settlement site at RJ-2 is located 11km south of modern day Ra's al-Hadd, in the coastal Ja'alan region of eastern Oman (zone 6). Similar to Sharjah coastal zone 2, this area is represented by a mosaic of terrestrial and marine environments (*fig. 80*). These often combine to provide a broad spectrum of natural resources available for subsistence and exchange (Azzara, 2009: 1).

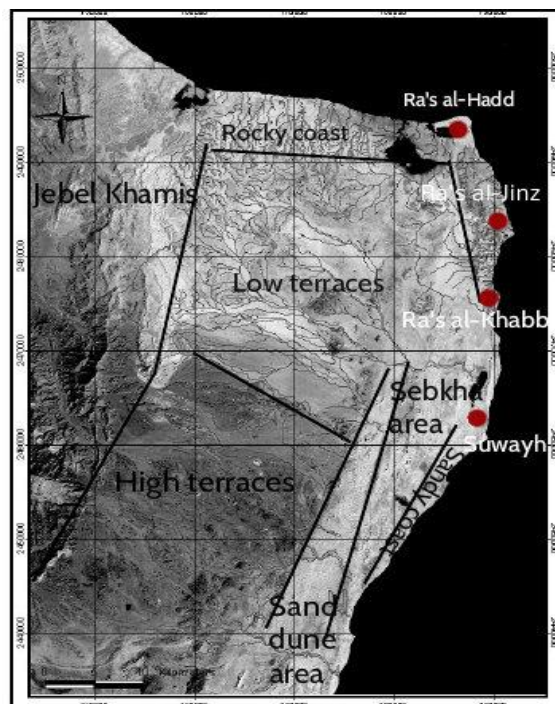


fig. 80 - Geographic landscapes of the Ja'alan region (after Giraud, 2009: 111, fig. 2)

The domestic site at RJ-2 is dated by C¹⁴ and pottery to the Middle to Late Umm an-Nar period. It was represented by four phases of occupation extending from the 4th millennium BC (Period I) to the end of the 3rd millennium BC (Period IV). The primary occupation level, however, comes from Period III, which radiocarbon dates place in the period c. 2300-2100 BC - 3760+/-100 BP, cal. BC 2180 (Cleuziou, 2002: 215). Not only is RJ-2 one of the few excavated Umm an-Nar settlements with clearly defined and well-preserved domestic structures, but each internal compound space can be unambiguously identified. Three separate construction phases were identified in Period III (*fig. 81*):



fig. 81 - Construction phases of the 'Northern Compound', RJ-2 (after Azzara, 2009: fig.3)

Phase 1: this represents the construction of the first domestic structures in the Northern Compound. Unlike the stone walls of domestic structures associated with settlements at Bat and Maysar, the Umm an-Nar houses at RJ-2 were made of c. 8 cm-thick courses of adobe mud-brick, often interspaced with thick layers of sandy clay (Cleuziou & Tosi, 2000: 29).

Building VII at RJ-2 involved a simple arrangement of rectangular cells - each approximately measuring 5 x 3 metres - arranged around a central core (Room 5). This is thought to have acted as a main entranceway to the building. It had three doorways leading to the rooms adjacent to it: to the north of Room 5, a doorway led to two small cells (Rooms 7 and 8) which were identified as storage spaces due to their relatively small size and the discovery of a locally manufactured seal found on the floor (Cleuziou & Tosi, 2000: 60); to the west, a doorway led to two larger areas (Rooms 4 and 6) which were interpreted as rooms for storing raw materials, based on the remains of 50 slabs of bitumen found in a 60 cm-deep pit; to the south, a doorway led to two relatively segregated rooms (Rooms 1 and 2) viewed as being reserved for private purposes, based on the discovery of personal items such as a 'symbolic' seal recycled from the lid of a chlorite vessel (Cleuziou & Tosi, 2000: 60). In the courtyard, the presence of clay ovens and several fireplaces (Azzara, 2009: 10) suggest that this open area was where the many processes of daily life occurred.

Phase 2: The next construction phase was characterised by the addition of two later extensions to the south and north of Building VII - Buildings VIII & IX. It appears that the resident community sought to deliberately create a more complex structure, involving a greater number of connecting passageways and integrated spaces (Azzara, 2009: 11). The southern L-shaped dwelling was originally partitioned into two rooms, with later sub-partitioning occurring in Phase 3. The northern extension (Building IX) was built around a well-integrated 'core' space of its own (Room 11) (Cleuziou & Tosi, 2000: 35-36). A doorway led to Room 9, which contained the unfinished remains of tools and slag-encrusted copper crucible

fragments. This room is therefore thought to have acted as a workshop area (Azzara, 2009: 11).

Phase 3: This period involved the symmetrical addition of more multi-celled extensions - Buildings VI and X - to the south and north of the complex, respectively. These new rooms are noticeably smaller in size (c. 3 x 2 metres) compared to those added in Phase 1. Building X in the northern extension, contained five rooms, all of which were filled with ashy layers and contained large fireplaces dug into the floors (Cleuziou & Tosi, 2000: 36). Their central positioning and substantial dimensions suggest they may be related to the fireplaces in the courtyard, Room 11, and the workshop, Room 9. Combined with the intervening passageways, these spaces seem to have represented a complex processing activity area (Azzara, 2009: 11).

The site at RJ-2 may have represented a regional power centre in the Ja'alan region during the Middle and Late Umm an-Nar periods. The extensive population that is thought to have inhabited the site is represented by the 150-plus individuals buried in Tomb 1, at the nearby site of RJ-1 (Monchablon et al. 2003: 41). Successive generations continually added to and extended the existing structures, invariably creating a complex system of integrated domestic spaces and architecture. The identification of the three construction phases means that RJ-2 is characterised by an evolution from mononuclear, independent dwellings to the integrated complex domestic architecture that we associate with the Umm an-Nar culture (Azzara, 2009: 9). This situation can be contrasted with the nearby Wadi Suq site at RJ-1, where the small,

isolated house units attest to a possible breakdown of the complex, egalitarian Umm an-Nar culture after 2000 BC (Monchablon et al. 2003).

- *Tell Abraq*

Tell Abraq is a prehistoric mound located on the coast of the Emirate of Umm al-Qaiwain (zone 1). It was excavated over five seasons in 1989-93 and 1997-98 by Dan Potts and Anne-Marie Mortensen, as well as the recent work carried out by Peter Magee in 2015-2016. Tell Abraq is not a classic tell, as it is not an accumulation of collapsed mud-brick houses built on top each other; rather, it is a core comprised of a 3rd millennium BC round tower structure 'surrounded by the soil buildup of nearly two thousand years of human occupation' (Potts, 2000: 37). The site is significant as it provides us with a rare continuity of habitation, spanning both Umm an-Nar and Wadi Suq periods.

Tell Abraq consists of a massive circular Late Umm an-Nar round tower structure, thought to measure approximately 40 metres in diameter (Potts, 1991: 22). The centre of the round tower consisted of an open courtyard area thought to have been reserved for daily domestic activities; two ovens and a fireplace contained burnt date stones and broken pottery, large curved grinding platforms and hammer stones (Potts, 2000: 70). As well as a domestic function, the round tower can also be regarded as a symbol of power, possibly representing one of the strongholds of the 32 'lords' of the cities of Magan (Potts, 1993: 118). The exact

role played by these ancient rulers, however, in an egalitarian, kinship-based society has yet to be fully established.

Although the round tower displays some evidence of domestic activities, the structure itself is not considered the primary residential space that accommodated the population. The areas surrounding the round tower contain post-holes, ashy patches and small fireplaces with deposits of fish bones, shells and carbonised date stones. It is possible that the population may have lived in palm-frond *barasti* within these surrounding spaces (*fig. 82*) (Potts, 2000: 23). Comparisons can be made with a contemporary Umm an-Nar site at Kalba, where mud-brick pavements surrounding the round tower constituted a living surface for *barasti* structures (Eddisford & Phillips, 2009: 106).

A calibrated radiocarbon date of 2290-2020 BC (3730+/-85 BP) was retrieved from burnt reeds found in the central fireplace (Potts, 2000: 48). This provides a Late Umm an-Nar date for the initial occupation phases at the site. Furthermore, an Umm an-Nar jar sherd decorated with distinct geometric spiral and ladder motifs (Potts, 1990: *fig. 56. 2*) is comparable with pottery retrieved from Phase IIe layers - c. 2200 BC - at Hili 8 (Cleuziou, 1989: 77) and the Settlement Slope pottery at Bat (*fig. 83*).

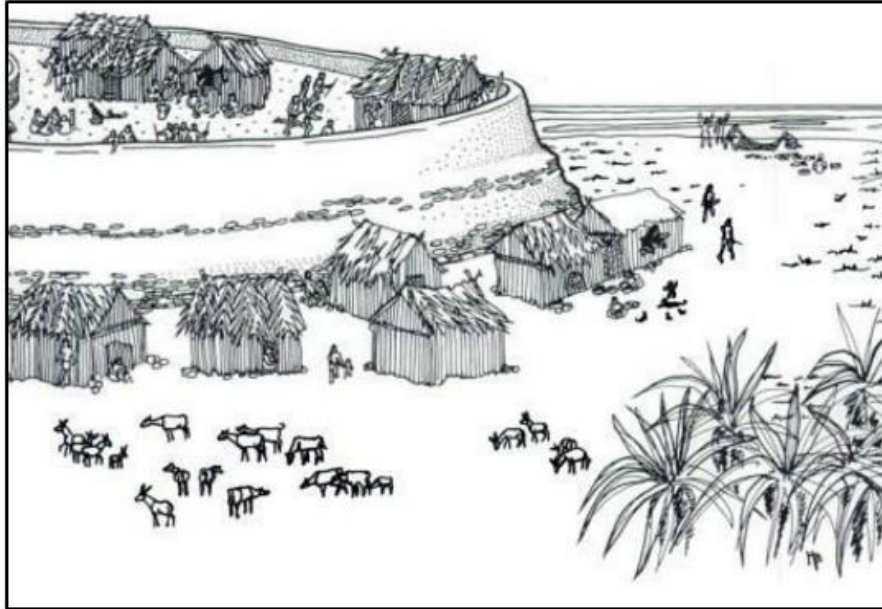


fig. 82 - Artist impression of the barasti houses at Tell Abraq (after Potts, 2000: 33)



fig. 83 - Comparable decorations on Umm an-Nar domestic ware found at Bat (left) and Tell Abraq (right) (after Potts, 1990: fig. 56. 2)

Significantly, the Umm an-Nar round tower structure remained occupied during the 2nd millennium BC. This countered many widely held perceptions regarding extensive cultural transformations happening during this period (Potts, 1993: 118). A habitation area extending south from the centre of the mound, discovered in 2016, included densely scattered post-

holes (*fig. 84*) and was discovered in association with a series of floors (www.facebook.com/bmcexcavationsinsharjah). These exterior areas were enclosed by a substantial two metre-thick curving stone wall constructed on top of the earlier 3rd millennium round tower. The wall was a mud-brick construction with an outer facing of large irregular stone blocks (Potts, 1991: 36). The wall and associated post-holes are evidence of a probable sedentary population at Tell Abraç during the Wadi Suq

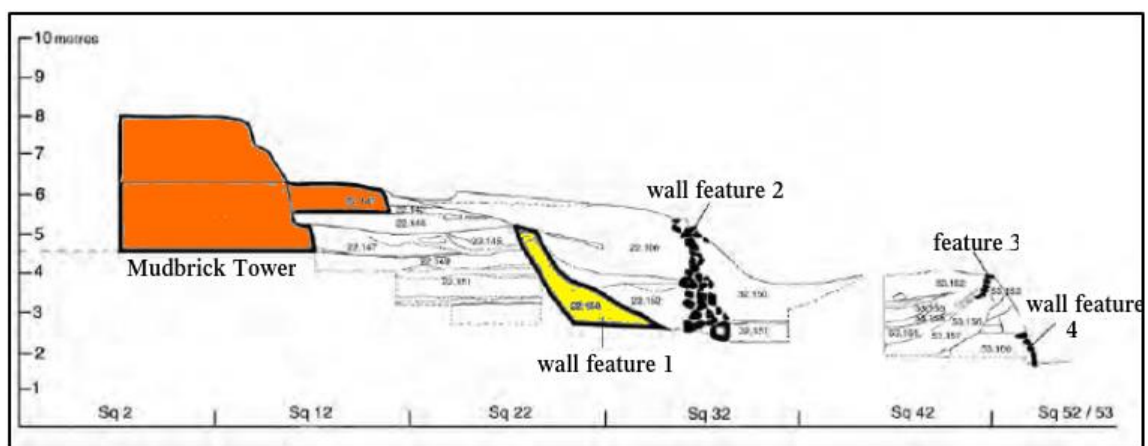


fig. 84 - Wadi Suq occupation area; the enclosing wall (right) and post holes (left) (after Potts, 1991: 37, fig. 58; www.facebook.com/bmcexcavationsinsharjah)

- *Kalba (K4)*

Kalba is located on the eastern coast of the UAE, in the Emirate of Sharjah (zone 2). Discovered by Carl Phillips in 1993, it is a multi-period settlement site (Eddisford & Phillips, 2009: 102). As with the Ja’alan region, the environment of this coastal zone could provide Umm an-Nar and Wadi Suq communities with the potential for several complementary economic activities, including foraging for marine molluscs, fishing and hunting marine mammals (Eddisford & Phillips, 2009: 99).

Phase 1 strata, discovered within a long trench (*fig. 85*) (Eddisford & Phillips, 2009: 103, fig. 6a/b), was designated an Umm an-Nar date. This was based on the discovery of large mudbrick walls and a series of small compartments containing sandy layers of burnt soil and bone representative of an Umm an-Nar round tower. The structure was 20 metres in diameter and was associated with an exterior terrace and a series of platform features (Eddisford & Phillips, 2009: 102).



Evidence of domestic occupation was discovered in the areas surrounding the mud-brick round tower. A surface was created immediately against the exterior of the structure by depositing sand and gravel against the base of the round tower and then sealed with a mud-brick pavement (Eddisford & Phillips, 2009: 106). A retaining wall (feature 2) composed of rounded wadi boulders and packed mud was built to create a terraced living area (*fig. 86*) (Eddisford & Phillips, 2009: 103, fig. 6/b). The discovery of numerous local sandy pottery wares comparable to the domestic ware found at Hili from period IIc² (Cleuziou, 1989: 76) and the identification of imported Mesopotamian wares dating to the end of the Akkadian/Ur III period (2009: 106, fig. 12/4) (Eddisford & Phillips, 2009: 108) attest to Kalba being occupied from c. 2300 BC.

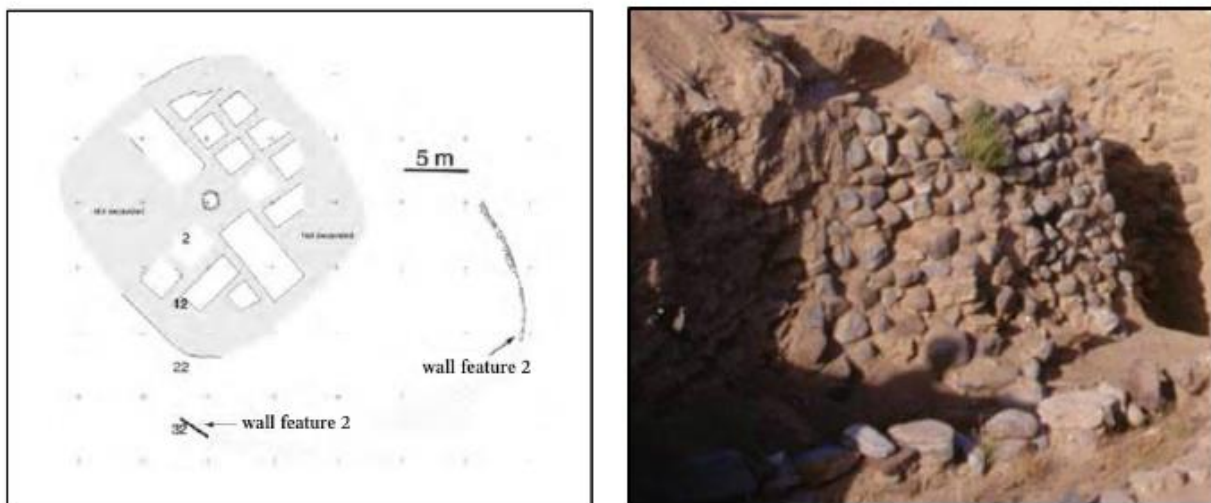


fig. 86 - Exterior 'feature 2' wall at Kalba (after Eddisford & Phillips, 2009: fig. 7)

Phases 2a and 2b represent two consecutive Wadi Suq layers. The contexts rest directly on top of the earlier Umm an-Nar mudbrick structure, indicating a continuity of use. These contexts include hard-packed surfaces comprised of shelly lenses and layers of burning

(Carter, 1997: 32). Most phase 2a/b deposits, however, were located outside the round tower, within the same platformed terraced areas occupied by the previous Umm an-Nar inhabitants. Immediately outside the round tower wall a burnt layer was detected, possibly representing a collection of hearths. Further downslope, in layers situated above the Umm an-Nar ditch features (Eddisford & Phillips, 2009: 107), contexts were discovered containing large quantities of broken vessels; these were subsequently dated to the Early Wadi Suq period (Carter, 1997: 133).

- *Suwayh (SWY-3)*

The site is situated roughly 70 km south of Ra's al-Jinz within the coastal plains of zone 6. SWY-3 was discovered in 1988 during a survey carried out by the Joint Hadd Project. The first excavation season was conducted by Sophie Mery in 1996/97. It was aimed at uncovering a single stone building, subsequently dated to the Late Umm an-Nar period.

A collection of small hearths were found behind a double line of boulders, thought to have acted as a wind shelter (Mery, 1998: 215). A similar phenomenon can be witnessed at RJ-2 (Cleuziou, Tosi, 1988: 27, fig. 25). The majority of the pottery sherds discovered at SWY-3 belong to the sandy tradition of local domestic wares exclusive to this region and predominant during Period IV at RJ-2 (c. 2150 - 2000 BC). An excavated grooved-rim sherd from a small bowl can also be compared with examples found at Hili 8 during Phase II

(Cleuziou, 1989: pl. 30, nos. 5-8) and within the house units at Maysar-1; both of which are dated to the end of the 3rd millennium BC.

There was a single domestic structure excavated during the season at SWY-3, labelled Building 1 (*fig. 87*). It measured 5.1 x 5 metres and was composed of two rectangular parallel rooms: room 1 is 4.1 x 2.1 metres, room 2 is 4.5 x 1.8 metres.

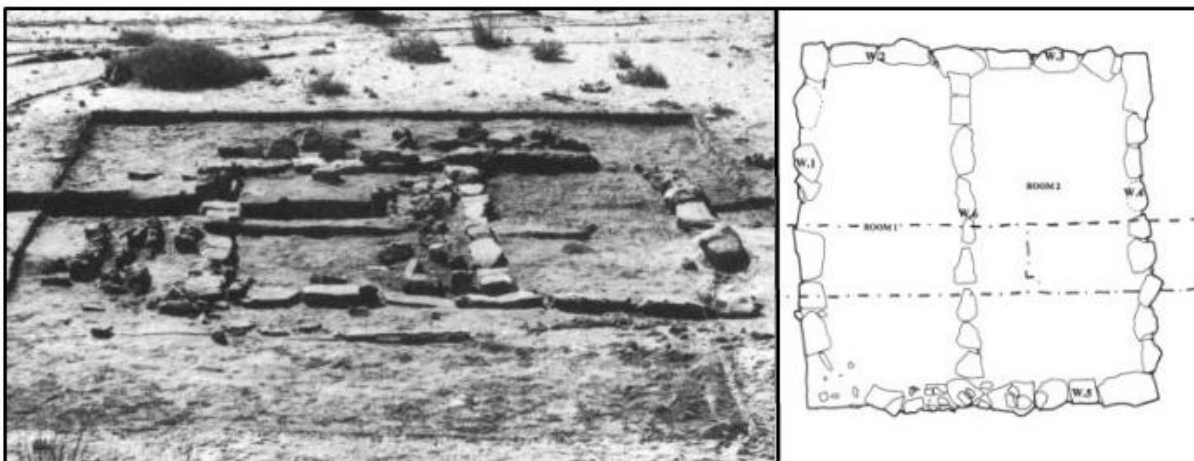


fig. 87 - Stone-walled rectangular Building 1 at SWY-3 (Mery, 1998: figs. 2, 3)

The walls of the structure were 1.8 metres thick and formed of three to four courses of roughly dressed sandstone boulders (c. 30 x 40 cm) sourced from a nearby outcrop (Mery, 1998: 218). There were no foundations beneath the walls and excavators were unable to identify an entrance-way; these can be explained by the poor state of preservation in parts of the building. Fragments of mud-brick, which would have formed the upper courses, were recovered around the walls, as were pieces of clay mortar. The techniques of construction appear to match that of Building IV at RJ-2, dated to the end of the site's occupation sequence,

c. 2200 - 2000 BC (1998: 219). In both instances, the walls were composed of single rows of locally sourced boulders. A comparable layout can also be drawn with Building AS-99 at Asimah (Vogt, 1994: 153); namely, two parallel rectangular rooms separated by a dividing wall. At Asimah, however, the walls were double-faced and there was a central interior doorway present. There was no preserved floor surface associated with Building 1, yet a 10 cm-thick layer of occupation debris was excavated outside the residential unit. This included a collection of hammer stones, copper hooks and a few post holes (Mery, 1998: 220). The single stone unit, Building 1, therefore, may have been surrounded by *barasti* structures.

- *Maysar (M1)*

Maysar is located in the interior of Oman, in the western foothills of the al-Hajar mountains (zone 4), close to the Samad al-Shan oasis. It was excavated by the German Mining Museum, directed by Vogt and Weisgerber, in 1979 and 1980. The site consists of a collection of Umm an-Nar stone house units that date to the end of the 3rd millennium BC.

The initial occupation phase at Maysar was characterised by sophisticated mining and smelting activities located in the surrounding hilly area (Hauptmann & Weisgerber, 1981: 131). The area was covered with over 35 fireplaces, grouped together in close proximity within a widely distributed stratigraphic layer of grey ash. This phase, however, antedated any evidence of domestic architecture. The layout can be compared with the pits, post-holes

and fireplaces found at Asimah North (Vogt, 1994: 156, fig. 67) and Shimal (Vogt, 1996: 119). In the third quarter of the 3rd millennium BC, Maysar appears to have functioned as an industrial, pre-architectural activity area.

The primary occupation phase was defined by a series of well-built square houses (*fig. 88*). The foundations were constructed from large boulders with the upper parts of the walls finished in mud-brick. House 4 was a substantial structure, with foundation walls 28 metres long and 1.4 metres thick, which Weisgerber interpreted as a massive building complex (1983: 271). The majority of the houses, however, were comparably small and composed of a single square or rectangular room, measuring roughly 5 x 7 metres (Potts, 2012: 499). A few of the houses contained L-shaped courtyards, possibly designed as communal activity areas between the residential units (Weisgerber, 2007: 252). Apart from House 4, the walls were usually 0.6 metres thick and constructed in the typical Umm an-Nar fashion of two rows of dressed stones with a fine gravel fill (*fig. 89*). At Maysar, this fill often contained slag-encrusted furnace ceramics used as inclusions; examples of which were dated by thermoluminescence to 3540 \pm 260 BP (Yule & Wagner, 2008: 2). Calibrated radiocarbon dates from House 1 were returned with date ranges of 2317-2137 BC (3780 \pm 60 BP) and 1950-1920 BC (3560 \pm 70 BP) (Weisgerber, 1981: 251, table 2). This indicates that Maysar-1 was occupied primarily during the end of the 3rd millennium BC, with groups perhaps remaining at the site until the early 2nd millennium BC.

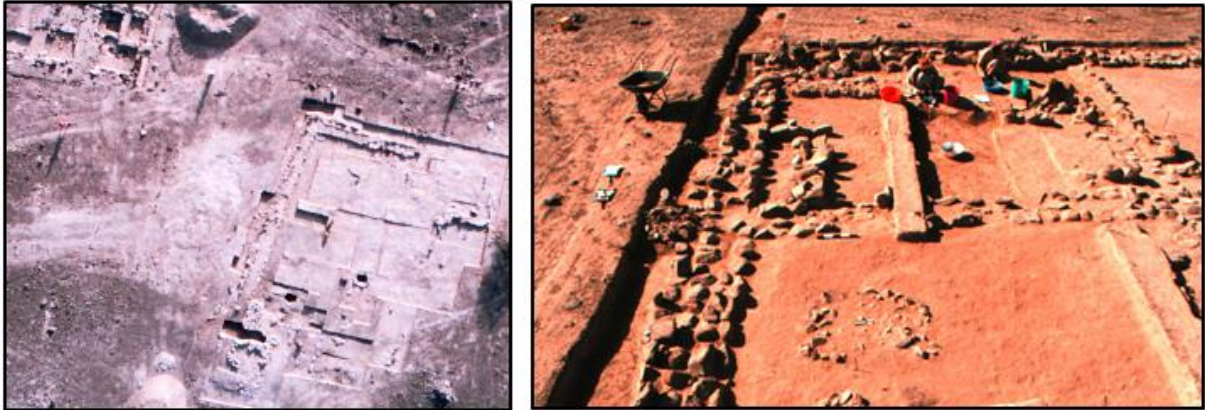


fig. 88 (left) - Maysar-1, the late 3rd millennium BC square stone houses (after Google Images)

fig. 89 (right) - House 6; a classic Umm an-Nar wall construction style (after Google Images)

The house units contained mauls, hammer stones and copper ingots within their interior deposits (Crawford, 1998: 136). A clay furnace was excavated in House 1 (Hauptmann & Weisgerber, 1981: 137, fig. 2), along with a large number of slag-encrusted furnace ceramics removed from a floor surface (Yule & Wagner, 2008: 2). This unit can possibly be characterised as a specialised space created for the preparation of copper (*fig. 90*).



fig. 90 - Copper-working space in House 1, with clay furnace located inside (after Hauptmann & Weisgerber, 1981: 137, fig. 2)

- *Bidya 2*

Bidya is within the Emirate of Fujairah, on the northern coast of the Gulf of Oman (zone 2). It was discovered in 1987 by Wasim al-Tikriti and excavated in 1988. It is situated 250 metres southeast of a distinctive 30m-long Wadi Suq collective tomb (Bidya 1).

The primary structure at Bidya 2 is a circular Umm an-Nar round tower (*fig. 91*), measuring 26 metres in diameter (al Tikriti, 1989a: 107). The site can be dated to the end of the 3rd millennium BC by Umm an-Nar ceramic sherds and can be regarded as contemporary with Tell Abraq, Kalba, Hili 8 (Phase IIf) and Asimah.

At Bidya 2, evidence for occupation occurs immediately outside the round tower structure. This corresponds with the mud-brick pavement and stone-wall terracing discovered on the exterior of the round tower at Kalba (Eddisford & Phillips, 2009: 106). A floor surface was identified at Bidya, along with fireplaces and dense collections of Umm an-Nar sherds, in the space between the round tower's ring-wall and outer stone wall (al Tikriti, 1989a: 108). The foundation of a stone wall was also identified, running at right angles between the two ring-walls. Associated with the wall was a feature that possibly supported stone steps. This corresponds with the step features found east of Building II at Hili 8 (Phase IIf).



fig. 91 - Round tower structure at Bidya 2, with domestic features in between the two ring walls

(bottom of photograph) (after al-Tikriti, 1989a)

The site at Bidya 2 has yet to be fully excavated, however one can expect elements of domestic occupation to be evident in areas surrounding the round tower. The presence of the large round tower feature suggests that Bidya was a highly populated site and an important local centre at the end of the 3rd millennium BC. It can be regarded as existing within an integrated network of coastal zone 2 Umm an-Nar settlements; with the round tower sites - Bidya, Tell Abraq and Kalba - at the top of a possible regional settlement hierarchy (Deadman, 2012: 87). The collective Wadi Suq tomb nearby illustrates that large sedentary populations continued to occupy the domestic sites of these northern coastal zones in the 2nd millennium BC.

- *Asimah*

Asimah is situated within the mountainous interior of Ra's al-Khaimah, in the northern UAE (zone 2). The site was excavated by Burkhard Vogt during a single season in 1987/88. It consists of a late 3rd millennium BC Umm an-Nar settlement site, including a well-preserved stone-walled domestic structure (AS-99) and a coherent area of complex domestic installations (AS North) (Vogt, 1994: 157). There is also a contemporary Umm an-Nar cemetery of standing stones and subterranean graves (Alignment 'A'). The site is significant in illustrating an 'enigmatic' (Vogt, 1994: 159) Late Umm an-Nar domestic site, which seems to represent a short-lived, semi-sedentary camp site.

The single domestic structure at Asimah (AS-99) is rectangular in plan, measuring 8.9 x 6.5 metres (*fig. 92*) (Vogt, 1994: 153, *fig. 65*). The interior space consists of two parallel rooms separated by a dividing wall and a central doorway. The walls of the structure are 0.85 metres wide, up to five courses high and were built from two faces of different sized quartzite stones sourced from the surrounding outcrop. The space between the faces is filled with gravel. The two rooms measure 7.3 x 2 metres; the interior doorway is 0.6 metres wide with a threshold 20 cm above the ground. Only two stratigraphic layers were detected at the structure: the upper one is the debris layer associated with the occupation of the building, which consists of a packed gravel floor with collapsed wall rubble on top. The finds from this context include small copper droplets, grinding stones and a handful of Late Umm an-Nar potsherds. The lower level is 10 cm below the floor of the building. It was composed of two fireplaces which

clearly antedate the construction of the building. According to Vogt, the lack of any internal stratification 'suggests that there was no extended use for the building' (1994: 153).



fig. 92 - Domestic structure (AS-99) at Asimah (after Vogt, 1994: 153, fig. 65)

On the opposite side of the wadi bed, north of building AS-99, lies another area of Umm an-Nar occupation, termed AS-North (Vogt, 1994: 157). Although this failed to yield any architectural remains, a substantial amount of Umm an-Nar pottery was discovered - 2400 potsherds - of which, unusually, 19.2% represented imported Indus Harappan-ware (Vogt, 1996: 124). Furthermore, a large proportion of the features were connected with heating, cooking or storage. Collections of burnt pottery sherds were found in Late Umm an-Nar pits, fireplaces and *tandoor* ovens (Vogt, 1994: 156, fig. 67). The most significant feature was that of a pentagonal pit lined with vertical slabs. This design is attested at contemporary camp site habitats, such as Ghanadha 2 and 3 (al-Tikriti, 1985). A small number of isolated post holes suggests the presence of tents or shacks. Stratigraphy was singularly lacking, just as at AS-99. However, two separate levels of associated fireplaces and pits discovered in Test Trench 11 (Vogt, 1994: 158, fig. 68) indicate that there was a short period of successive growth at the

site. The finds included grinding stones, animal bones, flint tools and a large number of local and imported storage jar sherds.

The layout of pits, post-holes and fireplaces discovered at Asimah North is similar to that found at pre-architectural Umm an-Nar domestic sites at Maysar-1 (Vogt, 1996: 123), Shimal (Vogt & Franke-Vogt, 1987), Ghanadha 1 (al-Tikriti, 1985: 12) and parts of RJ-2 (Constantini & Audisio, 2001: 144). The absence of permanent stone domestic architecture present at the sites suggests these were residential or storage sites with low levels of settlement intensity and were perhaps occupied on a seasonal basis.

- *Nud Ziba*

Nud Ziba is located to the west of the modern village of Khatt, in the Emirate of Ras al-Khaimah (zone 2). The mound has never been properly excavated due to its position on private farmland. Yet, when part of the upper tell was bulldozed, the exposed section was investigated by Derek Kennet and Christian Velde in 1994.

Unfortunately, it was not possible to cut the section back or clean it, making it difficult to offer precise interpretations (Kennet & Velde, 1995: 83). Nevertheless, the principal developments were identified and recorded. These included an eight metre long mud-brick platform, on top

of which stood seven mud-brick walls, each roughly one metre thick (*fig. 93*). These created a series of internal rooms, typically measuring two metres in width (*ibid.*). C¹⁴ samples were acquired from the remains of carbonized material retrieved from burnt floor surfaces, providing a calibrated radiocarbon date of 2035-1920 BC (Kennet & Velde, 1995: 85). This Umm an-Nar Wadi Suq transitional date makes the structure at Nud Ziba roughly contemporary with some of the round towers discovered at Hili 8, Bat and Maysar.

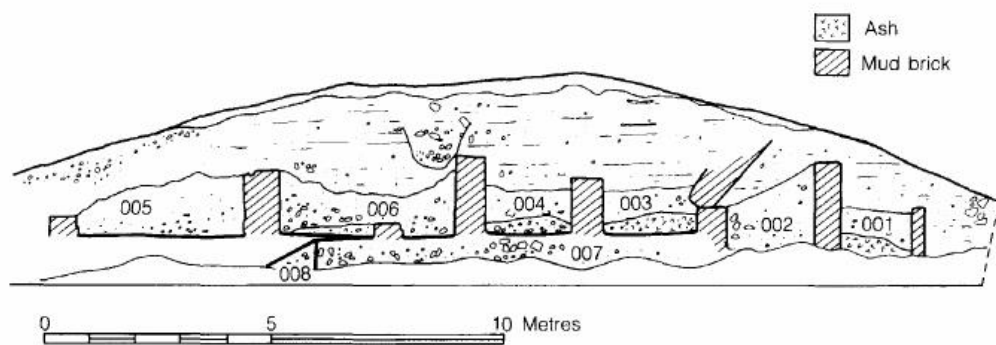


fig. 93 - Section showing the mud-brick platform (007) and cells (001-006) (after, Kennet and Velde, 1995: fig. 5)

The deposits from within the ashy floors revealed a large collection of pottery sherds indicative of a transitional style. The assemblage included Wadi Suq-style storage jars which were painted with distinctive Umm an-Nar decorative motifs (Kennet & Velde, 1995: 94). The discovery of four post-Harappan vessels and one sac-shaped, round-bottomed jar from Bahrain (Kennet & Velde, 1995: 95, fig. 14), highlights how Nud Ziba utilised long-distance trade networks; the settlements in zone 2 do not appear to have existed in isolation, even after the collapse of the Umm an-Nar culture in c. 2000 BC.

- *Tawi Said*

Tawi Said can be found within the Sharqiyah region in northeastern Oman (zone 5). It was the first non-funerary Wadi Suq site to be explicitly identified in southeast Arabia, discovered in 1976 by de Cardi (Carter, 1997: 56). The excavation of the site exposed a series of mud-brick walls that measured one metre in width. A series of platforms appeared to link the structures (de Cardi et al. 1979: fig. 10). The preservation of the architecture, however, extended down only 15cm. This was due to heavy deflation caused by wind and water. Though it may be that these walls were simply ephemeral in nature and the site was temporary and seasonal in function (Gregoricka, 2013: 355). Although no pottery was found in direct association with the walls, sandy coarse ware sherds and undecorated storage vessels collected from the surface can roughly date the occupation of the site to the Early Wadi Suq, based on counterparts at Kalba 4 (Carter, 1997: 56).

- *Ra's al-Jinz (RJ-1)*

RJ-1 is a coastal site situated on top of a flat mesa located in the centre of the Ra's al-Jinz embayment (zone 6). The Umm an-Nar settlement at RJ-2 is situated at the foot of the mesa to the west (*fig. 94*). First discovered in 1981 by Prof. P. M. Costa, RJ-1 was originally thought to be a Neolithic settlement formed of circular stone structures. Excavations carried out from

1999 to 2003 determined that RJ-1 was in fact a multi-period site with phases dating from the Late Neolithic through to the Wadi Suq. The site became one of the few known Wadi Suq villages discovered in southeast Arabia.

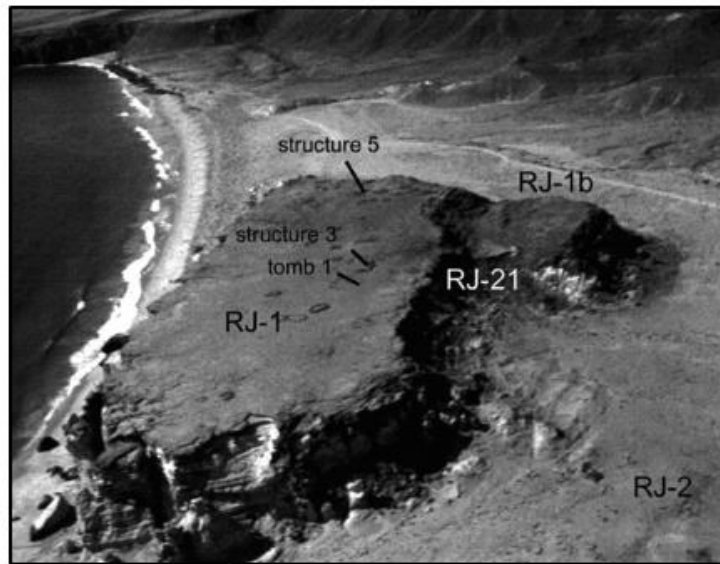


fig. 94 - The mesa at Ra's al-Jinz and its associated sites (after Monchablon et al. 2003: fig. 2)

Despite heavy deflation, four phases of habitation at the site were identified (Monchablon et al. 2003: 35, fig. 5). Phase III is contemporaneous with the Umm an-Nar site at RJ-2, dated to the second half of the 3rd millennium BC. A number of large shallow pits were excavated from this layer; these contained ashes, burnt stones and a significant number of yellowfin tuna bones. The pits were interpreted as forming an area dedicated to fish processing used by the population of RJ-2, situated at the base of the mesa (*ibid*). Phase IV is associated with the site's main period of occupation and is dated to the early 2nd millennium BC. It is represented by a collection of small Wadi Suq domestic structures scattered loosely across the mesa (*fig. 95*).

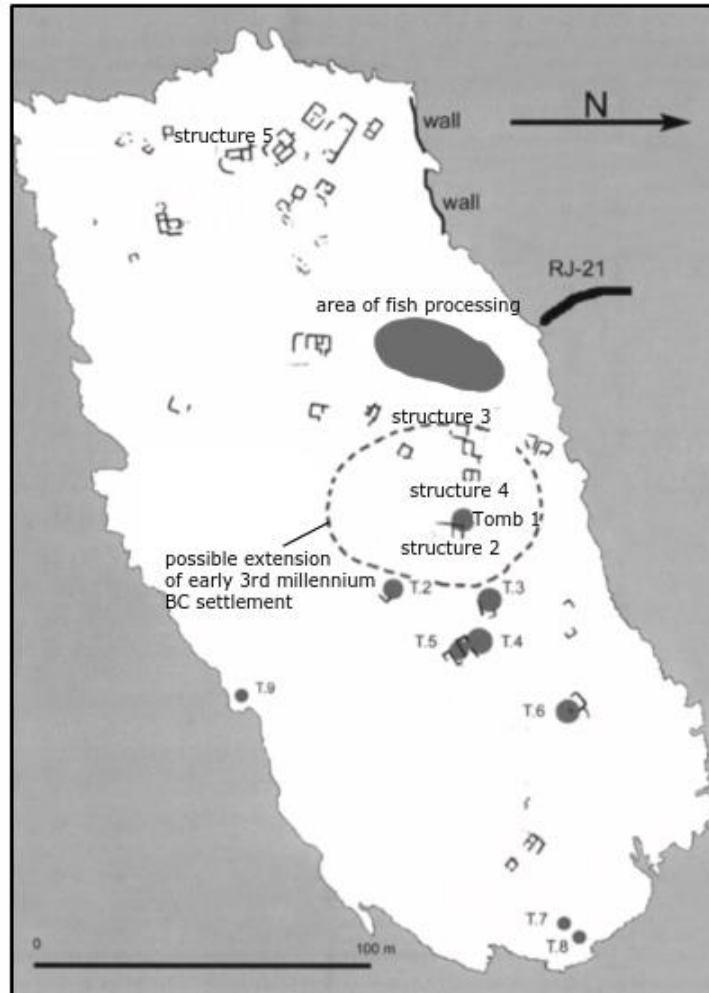


fig. 95 - Wadi Suq house units at RJ-1 (after Monchablon et al. 2003: fig. 11)

The first house to be excavated in 1987 was Structure 5. It was composed of two perpendicular rectangular rooms (Rooms 2 and 3) (fig. 96) (Biagi, 1989: 18). A semi-circular ‘courtyard’ area was situated to the south of the structure. Both rooms were of the same dimensions, roughly 3 x 2 metres, representing a significant reduction in the number and size of the rooms compared with the integrated compounds found at RJ-2. Room 2 is interpreted as a workshop devoted to the manufacture of *conus sp.* shell rings (Biagi, 1989: 18), with a fireplace located in the northern edge. C¹⁴ samples taken from a hearth south of Room 2 date the habitation of the room to (cal.) 1895-1692 BC (Biagi, 1989: 19). The courtyard area

contained a 'kitchen midden' composed of burnt pebbles and food refuse. The pottery finds include a black on red fine ware sherd with a scratched Harappan sign on its body (Biagi, 1988: 9, fig. 4.1). Structure 5 represents a house plan typical of RJ-1: two precisely orientated rectangular rooms of similar size connected to a courtyard space.

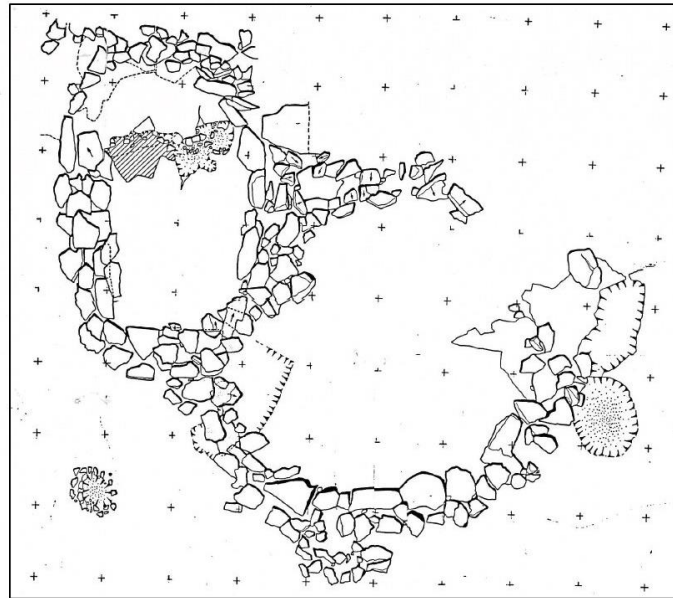


fig. 96 - Structure 5 at RJ-1 (after Biagi, 1989: 21, fig. 2)

The remains of further stone structures were discovered 150m east of Structure 5. Structure 3 was composed of a small rectangular room measuring 2.5 x 1.8 metres and orientated east-west (Monchablon et al. 2003: 34). The walls display evidence of refurbishments having occurring over a long period. It proved impossible, however, to accurately trace the sequence due to deflation. Just as with Structure 5, Structure 3 proved to be the site of several small workshops, such as for the manufacture of juvenile *conus sp.* into large beads. The pottery finds included distinct classic Wadi Suq red-slipped beakers with black painted chevrons (Monchablon et al. 2003: 33, fig. 3. 3).

Structure 2, located 15 metres east of Structure 3, revealed another small rectangular room, 2.2 x 3 metres. The western part of the structure was delineated where it joined with another courtyard space (Monchablon et al. 2003: 36). The courtyard itself proved to be the remains of an Umm an-Nar monumental round tomb (Tomb 1) dated to Period II at RJ-2 (Munoz, 2012: 462). The Early Wadi Suq inhabitants of RJ-1 appear to have used the inner walls of the tomb's southeast chamber to construct the north west corner of a new house, while the outer walls were left in place in order to mark a 'courtyard' area.

The Wadi Suq settlement site at RJ-1 displays elements of continuity retained from the Umm an-Nar site at RJ-2. For example, the manufacture of marine-based products (*conus sp.* beads) and the continued desire to inhabit the Ra's al Jinz area. However, the architecture significantly differs: the Wadi Suq units were built of small rectangular cells (2 x 3 metres or less) and none were larger than four rooms. This contrasts with the larger, tightly-packed, integrated mud-brick clusters of RJ-2 (Monchablon et al. 2003: 44). The abandonment of the Umm an-Nar compounds, in favour of the small, isolated units during the Wadi Suq period, is thought to be representative of a possible decrease in population size and settlement intensity experienced throughout many regions during this time.

- *Khor Fakkan*

Khor Fakkan is located in the Emirate of Sharjah (zone 2). The excavations carried out at the site began in 1995, led by Dr S. A. Jasim, and continued for two seasons. Intensive survey was conducted on the slopes of four Jebels (no. 1-4). Trenches laid across Jebel 2 and Jebel 3 exposed a series of stone house units thought to denote the presence of a substantial Late Wadi-Suq settlement.

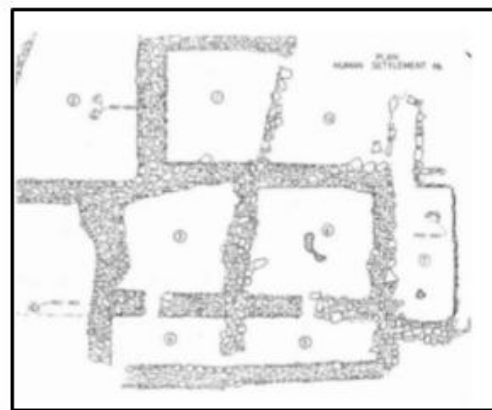


fig. 97 - House 6 at Khor Fakkan (after Jasim, 2000: 164, fig. 14)

The settlement at Khor Fakkan consists of twelve surviving house units (H2-13). They were built from locally available stone and were typically composed of 4-5 highly integrated rectangular or square adjacent rooms with their own internal constructions - such as stone basins or grinding stones (Jasim, 2000: 152). The floors were made from beaten soil (Jasim, 2000: 146) and included post-holes, reinforced with stone pieces, possibly intended to support a wooden roof (Jasim, 2000: 152). The walls were straight and 1 - 2 metres wide (Jasim, 2000: 147).

House 6:

H6 was the largest and most important structure, due to its complex interior layout (*fig. 97*). It consisted of eight adjacent rectangular and square rooms: Room 4 was identified as an antechamber for the house (4.5 x 2.5 metres), which opened out into Rooms 3 (4.5 x 4.5 metres) and 5 (5.5 x 2.5 metres). The latter was found to contain a small round stone basin and a large number of grinding stones, signifying food preparation was perhaps the primary function in this space. Room 6 was the large, square-shaped central area of the house (5 x 5 metres). Its function as a living space was reinforced by the discovery of a large round stone basin in the centre of the room; Jasim proposed this acted as a storage feature for liquids (2000: 147). Room 1 (4.5 x 2.5 metres) ran along the northern end of the house. It had an exterior entrance and, therefore, was relatively segregated from the other rooms in the house. This may be due to it having a specialised function; cooking is evident from the large number of stones bearing traces of burning and the level of burnt, black soil from a hearth (Jasim, 2000: 148).

The settlement at Khor Fakkan provided a substantial amount of domestic Wadi-Suq pottery. It was relatively plain, coarse and often undecorated (Jasim, 2000: 149). The pottery can be compared with Late Wadi Suq and Late Bronze Age types found at other sites (Jasim, 2000: 150): spouted jars, with painted decorations on the upper half of the body, were attested at Wadi Suq (Frifelt, 1979: fig. 20), Kalba (Carter, 1997: fig. 23. 1) and Shimal (de Cardi, 1985: fig. 10), while the footed goblets can be compared with examples found at Tell Abraç (Potts, 1990: fig. 84), Kalba (Carter, 1997: fig. 34) and Shimal (de Cardi, 1988: fig. 6).

This Late Wadi Suq/Late Bronze Age settlement is important in helping us understanding the nature of domestic architecture and sedentary life during this later period. It is the first site of its kind that provides us with comprehensive house plans for this period (Jasim, 2000: 152). The units at Khor Fakkan are highly integrated structures that demonstrate zone 2 continued to be densely populated with a relatively high degree of social complexity throughout the 2nd millennium BC.

- *Shimal*

Shimal was excavated during three seasons from 1985-87 led by Burkhard Vogt and Christian Velde. The 'Shimal' area is situated in an area of coastal plain north of Ra's al-Khaimah (zone 2). The most recent excavations focused on a series of large scale soundings opened in the settlement areas of SX and SY.

In order to investigate the surface features visible in area SX - namely a southern wall and a stone semi-circle - Trench K was laid out in the form of seven squares, measuring 5 x 5 metres (Vogt & Franke-Vogt, 1987: 73). The excavation uncovered a series of stone walls which appeared to follow the contour lines of the gravel slope. Vogt interpreted the majority of the stone walls as representing terracing of the steeper areas of SX. In contrast, two stone walls found in square 'K4' followed a different orientation and can possibly be viewed as belonging to domestic structures. These were constructed from two parallel rows of upright standing

slabs positioned roughly 0.3 metres apart (*fig. 98*). A close comparison can be made with the construction techniques used with the possible Early Wadi Suq walls discovered at the Settlement Slope (see *Part I*, Chapter 3). Yet, based on its construction on top of an early 2nd millennium BC tomb (Tomb 95), the domestic structures at Shimal SX are dated to the Late Bronze Age period, c. 1600-1250 BC (Gregoricka, 2011: 163).

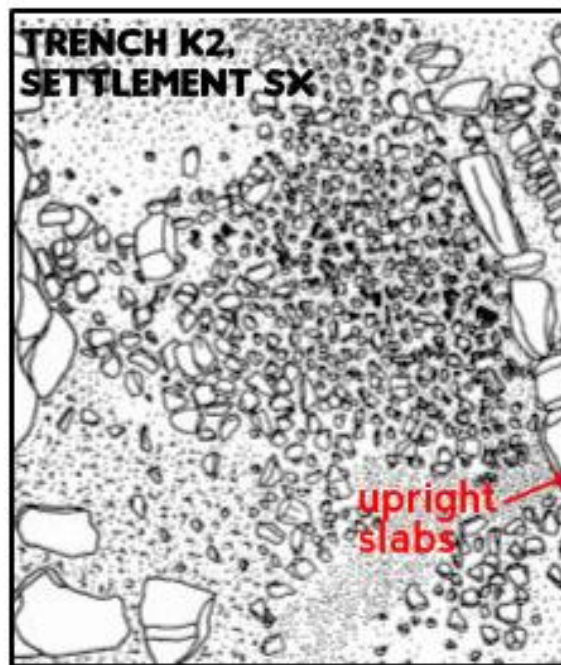


fig. 98 - Wadi Suq stone wall from Trench K4, Shimal SX (after Vogt & Franke-Vogt, 1987)

A floor surface was excavated in square 'K2'. The associated finds included lumps of mud containing reed impressions. Vogt proposes that the buildings in SX were composed of stone wall foundations, with mud-brick utilised for the upper parts (Vogt & Franke-Vogt, 1987: 75). It has also been suggested that domestic structures of the 2nd millennium BC may have also used dried vegetation in order to create thatched roofs (Potts, 1998; Blau, 2001).

The settlement at Shimal can perhaps attest to the continuity of settled life in zone 2, during the 2nd millennium BC: 'its location and general conditions permit a population of considerable size to exist' (Vogt & Franke-Vogt, 1987: 109).

Part III – Analysis & Discussion

Analysis

The architectural data provided in the catalogue of domestic sites in the previous section (*Part II*, Chapter 3) will now be used to identify provisional wall construction ‘types’ and trends in the layouts of the house plans. This information can then be used to help ascribe approximate dates to some of the wall types identified at the Settlement Slope (*Part I*, Chapter 3). Due to the relative paucity of domestic architecture from both the Umm an-Nar and Wadi Suq periods, however, the comparative analysis is limited to a small number of examples. Furthermore, dates for the construction phases of the walls and domestic structures at many of these sites are not always available or are often subject to frequent changes. These limitations mean, therefore, that the wall ‘types’ and house plans proposed in this section should be considered as a provisional set of results based on a restricted dataset and are intended to present only general architectural trends.

1. *The Wall Construction Types*

An analysis of the walls discovered at the Umm an-Nar and Wadi Suq domestic sites allows for a tentative grouping based on factors such as the materials used in their construction, their construction techniques and their dimensions. Adhering to the same criteria applied to the walls identified at the Settlement Slope site (*Part I*, Chapter 3),

three principal wall types can be identified: stone (Type 1), a combination of stone and mudbrick (Type 2), and mudbrick (Type 3). The stone walls are then themselves divided into three further sub-types (all plans and tables are the work of this author).

- Type 1A (*fig. 99*):

Type 1A is characterised by carefully constructed, coursed walls that are constructed from regularly-sized, dressed stones and often include a mud/clay mortar. These were laid horizontally in two parallel rows with a rubble infill consisting of pebbles, gravel and/or loam. The Type 1A walls appear consistent in their dimensions, measuring between 0.60 metres and 0.80 metres wide and display up to eight regular courses. Most parts of the wall are thought to have consisted of stone, with the upper courses possibly made from mud brick or organic materials. The foundations associated with this wall type are often representative of substantial house structures.

In addition to identification at three sites: Maysar-1, Umm an-Nar island and Asimah (As-99) (see *fig. 102*), this wall type can also be identified with the domestic structures discovered to radiate out from Kasr al-Khafaji (1146), one of the many tower features located in the Bat oasis. The walls of Structure 1 at Khafaji share an identical stylistic composition with those from the early phase at the Settlement Slope: the Type 1a/1b walls at the Settlement Slope site at Bat (see *Part I*, Chapter 3) can be placed in this category. The domestic structures at Khafaji were radiocarbon-dated to c. 2450-2250 BC. The Type 1a/1b walls from the Settlement Slope, therefore, having been

compared with the *Type 1A* walls from other domestic sites, can be regarded as an architectural feature of the Middle Umm an-Nar period.

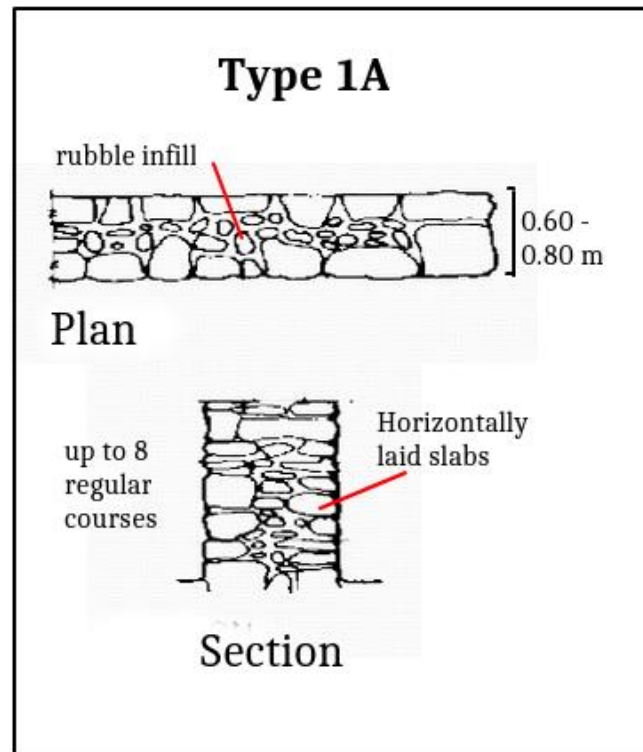


fig. 99 - Type 1A wall construction

- Type 1B (*fig. 100*):

Type 1B is also built from courses of stone. Yet, in contrast with Type 1A, these walls are characterised by a single row of irregularly-sized and shaped stones, often undressed natural boulders. As with Type 1A, these features likely supported multiple stone courses - up to three or four - with mud bricks or organic materials forming the upper courses. The walls can either be drystone or mud mortared. This type were,

unsurprisingly a lot narrower than the Type 1A features, with the single row being approximately 0.40 metres wide.

The Type 1B walls are attested at four of the sites referred to above: at RJ-2 (building IV), RJ-1 and SWY-3 these walls are representative of simple stone houses (see *fig. 102*). At Ghanadha Island, however, the single row of large boulders may have formed part of a circular platform and is itself not directly associated with a stone domestic structure.

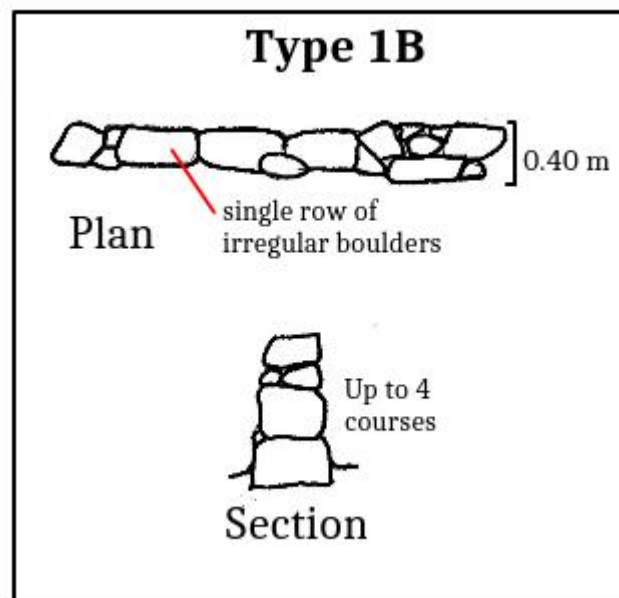


fig. 100 - Type 1B wall construction

- Type 1C (*fig. 101*):

Type 1C is another wall type that is built from stone material. Similar to Type 1A, it is characterised by two parallel rows of drystone slabs with a mixed rubble infill, usually consisting of small pebbles and gravel. However, it clearly differs from the Type 1A

walls in that the stone slabs were placed in an upright position. The width of this wall type appears to vary considerably, with examples ranging from 0.30 metres to 0.80 metres. These walls are formed of just a single course, typically 0.40 metres high. This single course possibly supported a further course of horizontal slabs. On top of this, the rest of the wall is thought to have been formed of organic materials, such as palm fronds, or possibly remained an open space with simple low walls.

This type is comparable with the two domestic stone walls discovered at Shimal SX and Hili 8, Period III, as well as the 2nd millennium BC funerary architecture of collective tombs located within the northern coastal zones. It is interesting to note that the distinctive sub-circular and long collective overground tombs (“Ghalilah” and “Shimal” type), constructed with double-skinned ring walls formed of upturned stones with a gravel fill, is a technique thought to have been associated with the first half of the 2nd millennium BC (Carter, 1997: 35-39). The Period III layers at Hili represent the same Early Wadi Suq period (from c. 2000 BC). However, this construction style is also attested at the Late Bronze Age (c. 1600 - 1250 BC) settlement at Shimal, SX, where a stone wall was discovered with two rows of vertically set slabs, only 30 cm wide, but with the same rough gravel fill as at Hili 8, Period III (Vogt & Franke-Vogt, 1987: 73). The limited domestic and funerary architectural comparisons available, therefore, represent a fairly broad provenance from both early and late 2nd millennium BC periods.

These walls are closely comparable with the Type 2 walls excavated at the Settlement Slope (*Part I*, Chapter 3). Using dates retrieved from comparable walls of this type

found at other sites, the Type 2 features appear to be representative of an architectural style associated with the Wadi Suq period and/or Late Bronze Age period.

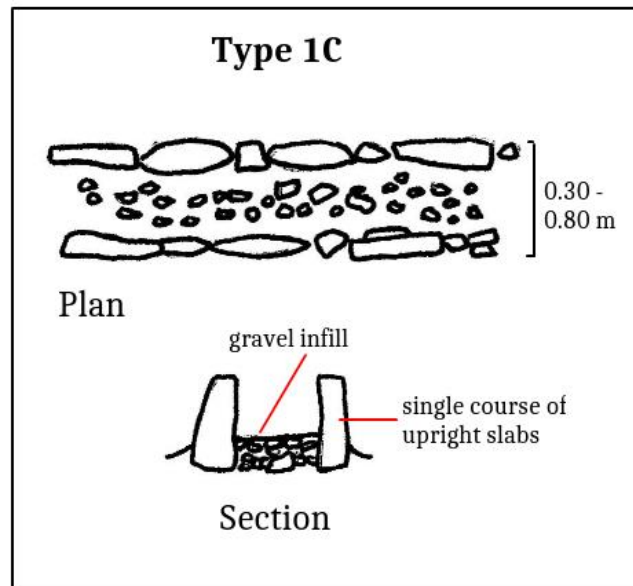


fig. 101 - Type 1C wall construction

- Type 2:




Type 2 walls are defined by a combination of stone and mudbrick material used in the construction of its lower courses. The manner in which the two materials are deployed can vary from site to site. In some, regular stones are laid horizontally to form a foundation, on top of which successive courses of well-shaped 'piano convex' mudbricks are laid. In other cases, the mud bricks form the core of the wall and are then reinforced with dressed stones or rounded boulders for the outer and inner faces.





The mixture of stone and mudbrick in the wall presents a clear contrast from the Type 1 walls, constructed primarily of stone courses.


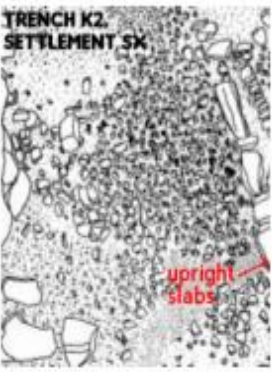


This construction type is recorded at Hili 8 (Period II), Kalba and Tell Abraq. The walls are commonly associated with nearby monumental round tower structures. The walls themselves appear to function primarily as terraces and platforms, associated with perishable structures built from organic materials. This method of construction, therefore, can possibly be considered as being an architectural characteristic found at major settlement sites.

- Type 3:

These walls were formed entirely of mudbrick. The Type 3 walls tend to include mudbricks that are approximately 8cm thick and interspersed with thick layers of sandy clay. The mudbrick walls are on average one metre wide and preserved to various heights depending on preservation. This wall type occurs at three of the sites referred to above: RJ-2 (buildings VI-X), Tawi Said and Nud Ziba. In the case of the latter two, more excavation is required to determine the exact nature of the domestic structures. The Type 3 walls at RJ-2 represent a complex multi-celled domestic structure.

Site	Photograph	Construction Type	Type Number	Reference
Umm an-Nar island		<p>The carefully constructed stone walls are 0.80 m wide and built from two rows of regular flat limestone blocks (0.30 x 0.20 x 0.15m). These are horizontally laid, and stand to a height of 0.60 - 0.80 m, equivalent to eight courses.</p>	1 A	Frifelt, 1995: 95
Maysar-1		<p>Two rows of flat rectangular stone slabs laid horizontally with a fill of loam and slag, 0.6m wide.</p>	1 A	Weisgerber, 1981: 193
Asimah (AS-99)		<p>Two faces of flat, irregular, locally-sourced quartzite blocks which vary in size, with a gravel fill. Measuring 0.85 - 1.00 m wide, with up to five surviving irregular courses.</p>	1 A	Vogt, 1994: 153

SWY-3		<p>The unworked, locally-sourced sandstone boulders (0.30 x 0.40 m) form walls consisting of a single-row, 0.40 m wide, up to 3-4 courses high. Mud-brick formed the upper levels.</p>	1 B	Mery, 1998: 218
RJ-2 (building IV)		<p>Due to poor preservation, only a fragmentary plan survives of the stones that form the structure's walls. Yet, it is apparent that they consist of a single row of boulders.</p>	1 B	Cleuziou & Tosi, 1990: fig. 8
RJ-1		<p>The 0.80 m wide walls were made from a single jumbled row locally sourced, irregularly-sized stone boulders and material from an abandoned Umm an-Nar tomb. The whole elevation was made from stone.</p>	1B	Biagi, 1988: 4
Ghanadha Island		<p>The circle of large stone boulders appears to create a platform for possible perishable structures made from organic material</p>	1 B	al-Tikriti, 1985

Hill 8, Period III		<p>The stone wall has a single course of two faces of vertically set slabs, 0.80 m wide, with a filling of smaller stones in between, 0.40 m high. This may have supported a course consisting of horizontal slabs.</p>	1 C	Cleuziou, 1989: 72
Shimal, SX		<p>A stone wall was discovered with two rows of vertically set slabs, 0.30 m wide, with a gravel fill.</p>	1 C	Vogt, 1987
Hill 8, Period II	 	<p>The stone foundations are preserved to height of 1.25m. They consist of horizontally laid, regular-sized stones mortared with mud. The foundations also included several 'sugar lump stones' from the nearby Umm an-Nar tombs.</p> <p>The 'piano-convex' mud-bricks composed the upper courses, up to a height of 2.5m</p>	2	Cleuziou, 1989: 68



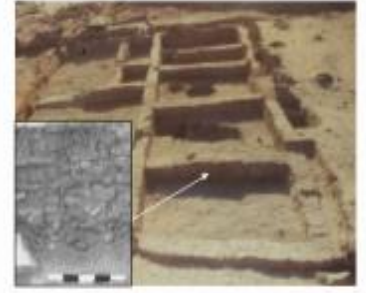
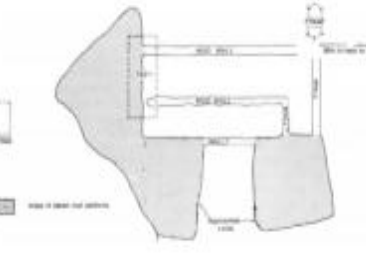
Tell Abraq (locus 40)		The 1 - 1.20 m thick mixed walls enclosed an occupation area on top of the eastern side of Tell. These were constructed from mudbricks with an outer facing formed of irregularly-size stone blocks.	2	Potts, 1991: 37, fig. 28
Kalba 4		A collection of rounded wadi boulders and packed mud form series of retaining walls which create terraces against the southern exterior of the Tower feature.	2	Eddisford, Phillips, 2009: 106
RJ-2 (buildings VI-X)		These walls were roughly 1.00 m wide and constructed from 8 cm thick mud-bricks, interspersed with layers of sandy clay.	3	Azzara, 2009: 9
Tawi Said		There are two mud-brick walls visible on the surface, 1.00 m wide. These connect two mud-brick platforms. The site has been exposed to significant erosion.	3	de Cardi et al. 1979: 87
Nud Ziba	- see 'Nud Ziba' section above -	Seven mud-brick walls, 0.60 m wide, were discovered. Some stand up to 1.70 m high.	3	Kennet, Velde, 1995: 83

fig. 102 - The wall construction 'types' identified at Umm an-Nar, Wadi Suq & Late Bronze Age domestic sites

2. *The House Plans*

By collating the architectural data from the Settlement Slope and other Umm an-Nar and Wadi Suq domestic sites, it is also possible to conduct a comparative analysis of the house plans. The limited 'house' structures identified can be grouped together according to their 'multi-celled' or 'single or double-celled' layout.

The multi-celled houses (*fig. 103*) are characterized by the complexity of their spatial arrangements. The rooms are highly integrated shared spaces, associated with interconnecting corridors, easily accessible courtyards and multiple doorways. This type of domestic building is attested at Umm an-Nar island, Amlah 4, Khor Fakkan, RJ-2 and Hili 8. Furthermore, the multi-celled interior of the Umm an-Nar house discovered at the Settlement Slope resembles the structural layouts at these sites (see *Part I*, Chapter 3).

By contrast, the single and double-celled structures (*fig. 104*) are noticeably less complex in design. These are smaller units that typically consist of a single construction phase and are relatively isolated from each other when compared to the highly integrated, multi-celled structures. Double-celled structures were found at SWY-3, Maysar-1 and Asimah, while a collection of single-celled stone-walled units were observed at RJ-1.

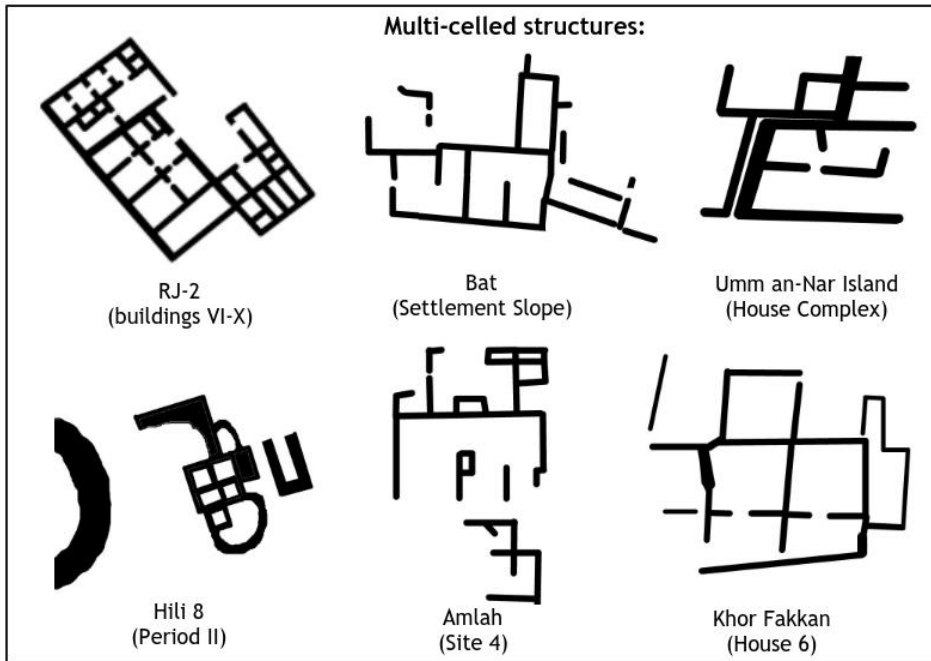


fig. 103 - Multi-celled house units (not to scale)

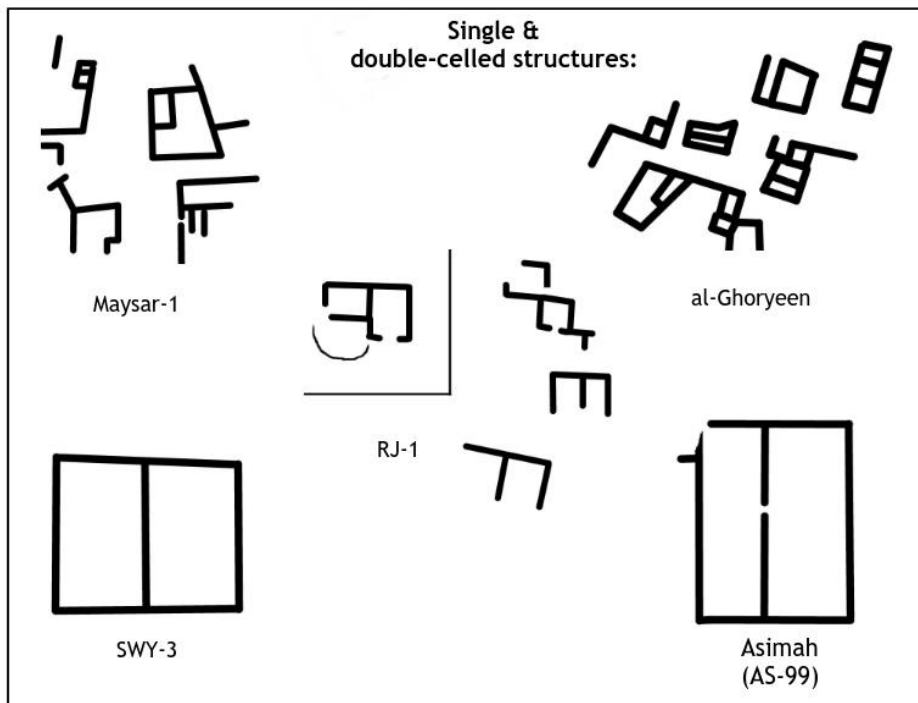


fig. 104 - Single and double-celled house units (not to scale)

Discussion

This section will argue that the architecture from the Umm an-Nar and Wadi Suq domestic sites is directly related to their geographical zones and the chronological periods with which they are associated. It should be noted that, at present, this discussion is based on a small number of examples and that these are provisional conclusions. The main aim is to put forward a general hypothetical framework against which my data from the Settlement Slope can be compared (Chapter 6 'Discussion').

The Type 1A walls can perhaps be viewed as a re-occurring Umm an-Nar construction style as they occur at least four sites and are widely distributed across different geographical zones - from Umm an-Nar island (zone 1) and Asimah on the northern coasts (zone 2), to Maysar (zone 4) and Bat (zone 5) in the interior oasis regions. The size of the domestic sites at which these walls are present varies: Umm an-Nar island is considered a substantial settlement with a considerable house complex, while Asimah exhibits just a single domestic structure with two simple rooms. It seems likely that these well-built Type 1A walls will be shown to serve a wide range of Umm an-Nar domestic sites. They may have represented a standardised architectural type which was perhaps widely recognised and commonly adhered to when constructing residential units during the second half of the 3rd millennium BC.

The Type 2 walls consist of a combination of mudbrick and stone and may have also been another common architectural feature of the Umm an-Nar period. These walls were present at three large settlement sites, each containing a round tower structure.

The Type 2 walls are typically located in habitation areas immediately outside the round tower: they either form terrace features, as at Kalba, or peripheral domestic structures, as at Hili 8. As with the Type 1A walls, this type seems to have been widely distributed, with examples discovered in the northern coastal regions (Tell Abraq, Kalba) and in the oasis belt region of the interior (Hili 8). Together with Type 1A, it is suggested that both these wall construction types might, therefore, be viewed as standardised architectural styles associated with a highly integrated Umm an-Nar culture.

The Type 1B walls are a possible example of an evolutionary regional style that occurred at within a specific geographical zone during the Late Umm an-Nar period. These single-row stone walls are attested at zone 6 domestic sites found on the Ja'alan coast - RJ-2, RJ-1 and SWY-3. The walls at RJ-2 and SWY-3 are dated to the final centuries of the 3rd millennium BC, while the single-celled units at RJ-1 are early 2nd millennium BC structures. The complex house units at RJ-2 were typically Type 3 mudbrick structures. The stone Type 1B walls of Building IV at RJ-2, therefore, can be regarded as a change in construction style which occurred during the end of the 3rd millennium BC. The house at SWY-3 is considered to be a possible peripheral late Umm an-Nar site to RJ-2; thus, it is natural that they both adopted the same wall construction type. This architectural style can be interpreted as an example of continuity during the transition period between Umm an-Nar and Wadi Suq cultures as it also occurs in the 2nd millennium BC, illustrated by the Type 1B stone houses at RJ-1. This wall type is associated with houses which are generally simpler and smaller in design when compared with the mudbrick complex at RJ-2 or the Type 1A complex at

Umm an-Nar island. This wall type might therefore be interpreted as a late 3rd millennium architectural development concentrated in the Ja'alan zone 6.

The Type 1C walls appear to represent both a Wadi Suq and Late Bronze Age architectural style attributed to a few domestic sites. This wall type was found at three large settlement sites: Hili 8 in Period III, the Settlement Slope at Bat, and at Shimal SX. It also shares a number of architectural characteristics with the early 2nd millennium BC collective tombs found at Ghalilah and Shimal (Carter, 1997: 35-39). This type may have been an architectural style which remained in use at various sites throughout the 2nd millennium BC - from c. 2000 BC at Hili 8, to the Late Bronze Age period at Shimal. At Hili and Bat this type occurs in contexts found directly above Umm an-Nar architecture; it seems, therefore, that this type may have represented an evolution in style from the earlier Type 1A walls at zone 5 oasis domestic sites during the start of the 2nd millennium BC. The Type 1C width measurements varied considerably from site to site, it is therefore difficult to establish what function these walls served.

Despite the limited amount of dated evidence, once considered at a regional level the domestic wall construction types suggest a gradual transformation in construction techniques between the Umm an-Nar and Wadi Suq periods. Types 1A and 2 appear to have represented standardised 3rd millennium BC architectural construction styles, found at six Umm an-Nar domestic settlement and round tower sites. The large settlement sites in the northern coastal regions - zones 1 and 2 - continued to exhibit Type 2 wall types, in addition to evidence of *barasti* structures, in the Wadi Suq period.

Elsewhere, the well-made Type 1A Umm an-Nar stone walls appear to be replaced by examples of new construction types after the collapse of the Umm an-Nar period. Their form depends on their geographical zone: the single-row stone Type 1B walls become features of coastal zone 6 sites, while the upright stone Type 1C walls appear at sites in the zone 5 interior region.

The complexity of the house plans seems to change with varying degrees dependent on their geographical zone during the Umm an-Nar-Wadi Suq transition period. The table of house plans, above, (*figs. 42, 43*) compares the typical number of rooms per unit present at each of the domestic sites identified above. During the Umm an-Nar period the house units are typically characterised by complex architecture: domestic sites at Umm an-Nar island, Amlah Site 4 and RJ-2 all include house units with highly integrated shared spaces with interconnecting corridors, multiple entrances and shared courtyards. These trends of complex, communal living are characteristics perhaps indicative of the culture itself. Interestingly, those Umm an-Nar domestic sites which provide contrasting simple double celled units - for example at Asimah and SWY-3 - have been interpreted as possible minor peripheral or 'satellite' sites that existed in close association with nearby regional centres, such as those at Tell Abraq and Ra's al-Jinz respectively (Phillips, 2007: 5).

In the northern coastal zone 2, there is evidence that some of the complexities of Umm an-Nar house designs were continued into the Wadi Suq period. The occupation of the Umm an-Nar round tower sites at Tell Abraq and Kalba 4 seemingly continued into the 2nd millennium BC in the form of substantial terracing and mudbrick platforms

constructed as habitation areas outside the monumental structure. In contrast, the Wadi Suq domestic structures from the Ja'alan zone 6 are noticeably different. When compared to the 3rd millennium BC compounds at RJ-2, the house plans at RJ-1 appear smaller (no more than four cells), less integrated and associated with groups who are seen as becoming increasingly isolated from their neighbours.

Both the wall construction types and house plans reaffirm the view that regional variation played a key role in the changes that occurred to settlement pattern and intensity during the Umm an-Nar to Wadi Suq periods. A domestic site hierarchy can further illustrate how the nature of domestic sites were affected by their geographical zone. Both Deadman (2012: 87) and Phillips (2007: 5) have provided their own versions of provisional hierarchies which can be applied to domestic sites during the Umm an-Nar period. Using their hierarchy systems, a three tiered approach can be made applicable to the domestic sites listed in the catalogue: the lowest level (1) can be used to describe 'temporary' sites, characterised by the absence of architecture but which consist of sherd scatter and hearths - sites such as Ghanadha Island can be assigned to this level. The middle level (2) is applicable to 'settlement' sites which demonstrate evidence of architecture, whether stone, mud-brick or the remnants of perishable housing. The majority of the domestic examples provided can be assigned to this level - for example, Umm an-Nar island, Ra's al-Jinz and Asimah. The top level (3) is reserved for those sites categorized as 'local' or 'regional' power centres. These must have domestic architecture in association with one or more monumental round tower structure - Bisya, Kalba, Tell Abra, Maysar and Hili can all be placed in this highest hierarchical level.

To this hierarchical model can then be added the identified domestic Wadi Suq sites. The same criteria apply to the different levels - no architecture, domestic architecture, monumental architecture. The results of a temporal comparison of sites within this hierarchy model reveal that there was a distinct level of occupational continuity in the coastal regions of zones 1 and 2. In these zones the 'Local' and 'Regional' centres from the Umm an-Nar period are thought to have maintained their existence into the Wadi Suq period. In contrast, the large Umm an-Nar settlements of the inland oasis regions of zones 4 and 5 disappear or gradually decline in importance after c. 2000 BC. As discussed in the Literature Review (*Part I*, Chapter 1), this may have been due in part to the increasing aridity that affected the subsistence of those inland centres reliant on dry farming and oasis agriculture. The northern coastal communities, by contrast, were able to offer their marine resources and accommodate a dietary shift to littoral gathering (Gregoricka, 2013: 356).

There are, however, clear limitations in the application of a site hierarchy for the whole of southeast Arabia. Even for a relatively integrated culture such as the Umm an-Nar, this system can only be applied to certain geographical regions. The Ja'alan coastal sites of RJ-2 (zone 6) and Umm an-Nar island (zone 1), for example, lack monumental architecture but appear to be significant regional centres with their own specialised functions (Kennet & al-Jahwari, 2010: 211). The site hierarchies should therefore be limited to identifying regional trends rather than used as a 'universal' application and should not necessarily be taken as evidence of one site's relative status over another.

As discussed in the previous chapter, the current consensus regarding the nature of societal transformations during the Umm an-Nar-Wadi Suq transition period is based upon the theory of regional differentiation (Carter, 1997; al-Jahwari, 2008). This argues that different geographical regions or 'zones' experienced varying levels of socio-economic change during this time. A comparable study of the 'wall construction types' and 'house plans' from the limited Umm an-Nar and Wadi Suq domestic structures supports this approach. The provisional site hierarchies, referenced above, provide a general context highlighting the change in settlement patterns which occurred during this transition period. The architecture appears to reflect the cultural changes of the period: the domestic structures of the Umm an-Nar period were typically constructed from well-made stone walls (Type 1A) and included complex interior layouts. The walls of the Wadi Suq domestic structures were constructed in new styles (Types 1B, 1C) and appear to display smaller, more simple plans. Whether due to an increasingly arid climate, the disintegration of commercial exchanges, internal social factors - or a combination of all three - the architectural transformations that occurred during the Umm an-Nar Wadi Suq transition phase appear to have been subject to these regional trends.

Chapter 4 - The Pottery

Introduction

In June 2015 this author re-visited the site at Bat in order to analyse and illustrate the excavated pottery assemblages from both the 2013 and 2014 seasons at the Settlement Slope. The aim of the ceramic study was to identify clear diagnostic pottery 'types'; which could then be provisionally dated using comparable examples from other sites. It was important to record the densities and distribution of these types, as it was hoped the pottery dataset would provide a series of approximate dates for the sequence of wall construction phases – this is presented later, in Chapter 5 'The Results.

Methodology

The entire collection of diagnostic pottery from the Settlement Slope was looked through and the form, fabric and decoration of the sherds were recorded. This helped identify potential diagnostic 'types' from the Umm an-Nar, Wadi Suq and Late Bronze Age periods. It is, however, a limited pottery study, as it does not form the central basis for the dissertation and it is thus confined to establishing only provisional ceramic 'types'. Due to time constraints I was unable to distinguish detailed individual fabrics; therefore, these types are grouped based primarily upon their form and then by decoration.

The best examples from each type were illustrated, while a few of the more notable individual sherds were photographed and included in the subsequent pottery catalogue. The pottery was allocated an approximate date through comparisons with published examples from contemporary Bronze Age sites in southeast Arabia. The pottery types from the Settlement Slope and their proposed chronologies are set out below:

Pottery 'Type'	Period	Approx. Date
1	Middle Umm an-Nar	2500 – 2200 BC
2	Late Umm an-Nar	2200 – 2000 BC
3	Late Umm an-Nar	2200 – 2000 BC
4	Late Umm an-Nar	2200 – 2000 BC
5	Late Bronze Age	1600 – 1250 BC
6	Early Wadi Suq	2000 – 1900 BC
7	Late Bronze Age	1600 – 1250 BC
8	Middle/Late Wadi Suq	1900 – 1600 BC
9	Early Wadi Suq	2000 – 1900 BC
10	Late Wadi Suq	1700 – 1600 BC

fig. 105 – Proposed approx. dates for the Settlement Slope pottery 'types'

The Pottery Data:

- *The Umm an-Nar Types:*

The domestic wares of this period adhere to a few established forms and decorations and exhibit very little alteration during the Umm an-Nar period (c. 2700 - 2000 BC). Unlike the funerary assemblages, the Umm an-Nar domestic pottery has no foreign parallels and perhaps reflects the establishment of an autochthonous craft tradition during this period. The local production of the domestic pottery at the Settlement Slope is characterised by its sandy paste and decorative geometric motifs which are both paralleled at sites throughout this region.

It is important, however, to emphasise the regionalisation of certain domestic pottery styles. At Hili 8, the domestic ware displays a distinctive sandy and porous texture and represents by far the majority of the ceramic production in the Hili region. Yet, the geochemical analysis comparing Hili sandy ware with the domestic ware excavated at the Settlement Slope at Bat has revealed that they derived from distinctly different clay sources and do not appear to have been circulated regionally (Ghazal & Thornton, 2014: 16). Furthermore, the domestic pottery assemblage from the Settlement Slope is often thicker and lower fired - leaving a light grey core - and lacks the red slip common at Hili. It seems that each major Umm an-Nar settlement manufactured its own pottery wares and that these may be distinguished by chemical analysis (Cleuziou & Tosi, 2007: 223).

The only ceramic typology available to us, which covers the uninterrupted timespan between the early 3rd millennium BC and the early 2nd millennium BC, is Serge Cleuziou's preliminary sequence for the Hili 8 settlement - therefore, despite the regional differences between the two domestic pottery assemblages, I will refer to his ceramic sequence as the closest reference collection.

Type 1:

Type 1 is defined by both medium and large open-mouthed storage jars. These typically display simple everted rims, have short or no necks, a wide shoulder and a globular body extending down to a flat round base. This is a common form seen at a number of domestic sites during the mid to late 3rd millennium BC (*fig. 106*) (see references below).

The fabric consists of a sandy tempered ware, with an orange/pink-coloured exterior and frequently contains a grey core. The fabric has only a few noticeable <1mm grainy inclusions. This fabric is comparable to the local domestic sandy wares observed at a number of other sites. At Hili 8 local sandy wares occur in Period IIc² (Cleuziou, 1989: 76) and account for 85-95% of the settlement's pottery assemblage during the period between c. 2500-2000 BC (Blackman et al. 1989: 66). This sandy fabric also occurs at coastal sites: for example, at Kalba 4 similar sandy orange fabric is termed UN4 by Carter (1997: 263) and at Asimah the same material is labelled 'Umm an-Nar domestic ware' (Vogt, 1994: 164).

The sherds that belong to this group are frequently decorated with black-painted geometric and linear designs. These include single or double wavy lines, positioned in between single or double horizontal lines (*fig. 107*). This design is frequently attested at Maysar-1 (Mery, 2000: figs. 98, 100); while sherd 131805-003 shares a form and decoration with an example from Hili 8 IIc² (c. 2500 - 2400 BC) (Cleuziou, 1989: pl. 25. 8). A number of sherds were decorated with more complex designs, incorporating spirals and ladder motifs (*fig. 108*). These occur on storage jars at Hili 8 during phases II d-e (c. 2400-2200 BC) (Cleuziou, 1989: 77; pl. 26. 7) and from the settlement on Umm an-Nar island (Frifelt, 1991: 176, fig. 240, 1014 QB). The near complete shoulder and rim sherd, 131602-001 (*fig. 110*), displays a complex series of ladders and double spiral motifs and is similar to a jar discovered at Tell Abraq (Potts, 1990: fig. 56. 2). Based on the fact that these elaborate patterns tend to be absent from late 3rd millennium contexts, these decorated sherds can be considered as representative of the Middle Umm an-Nar period, c. 2500-2200 BC.

The Type 1 storage jar sherds can also be decorated with wavy appliqué ridges (*figs. 109, 111*). The undecorated triangular, curving appliqués added to sherd 131301-002 share a number of close parallels with examples from Hili 8 IIc² (Cleuziou, 1989: pl. 24) and round tower 1145 at Bat (Frifelt, 1985: 105, fig. 2). The flattened wide appliqués, on the other hand, were observed at the settlement on Umm an-Nar island (al-Tikriti, 1981: pl. 125 A, C), Asimah North (Vogt, 1994: fig. 74, nos. 8, 9, 10) and within the Umm an-Nar levels at Kalba 4 (Eddisford & Phillips, 2009: fig. 10. 4). Some of the body sherds (131712-001, 131904-001, 132101-002 and 132101-005) display appliqué bands decorated with vertical black lines. These were described by

Frifelt during her original excavation at the 'Bat settlement' (1985: 1145 GL) and identified as a 'mid 3rd millennium BC' decorative style. This 'meander-ridged' pottery, as it is sometimes known, is also found in layers associated with Periods I and II (c. 2600 BC to 2200 BC) at the settlement on Umm an-Nar island. At Hili 8, appliqué pottery seems to have disappeared by the beginning of Period IIe. The discovery of this form of decorative pottery, therefore, reinforces a Middle Umm an-Nar date for the Type 1 sherds.

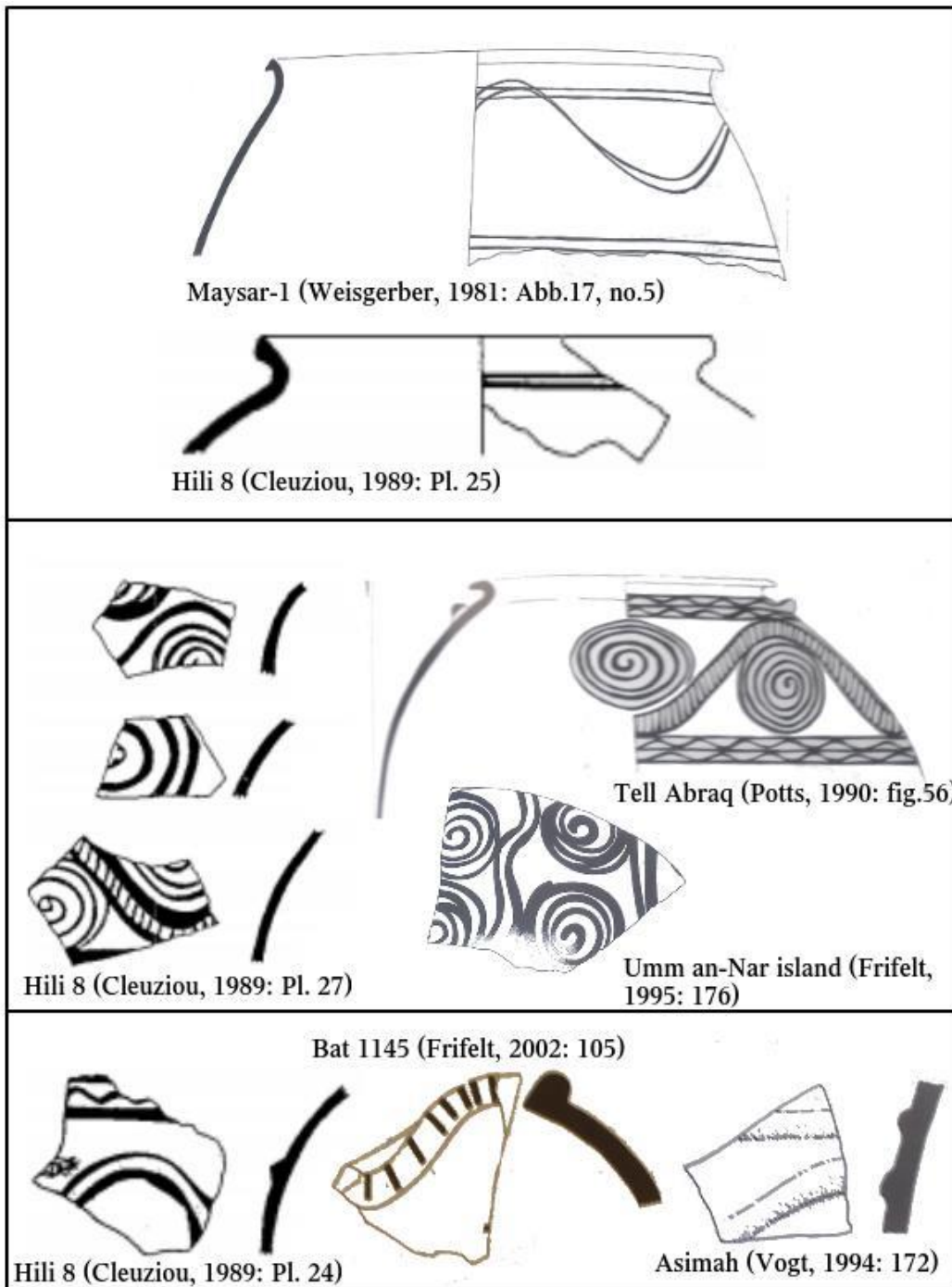


fig. 106 - Type 1 sherds found at Umm an-Nar domestic sites

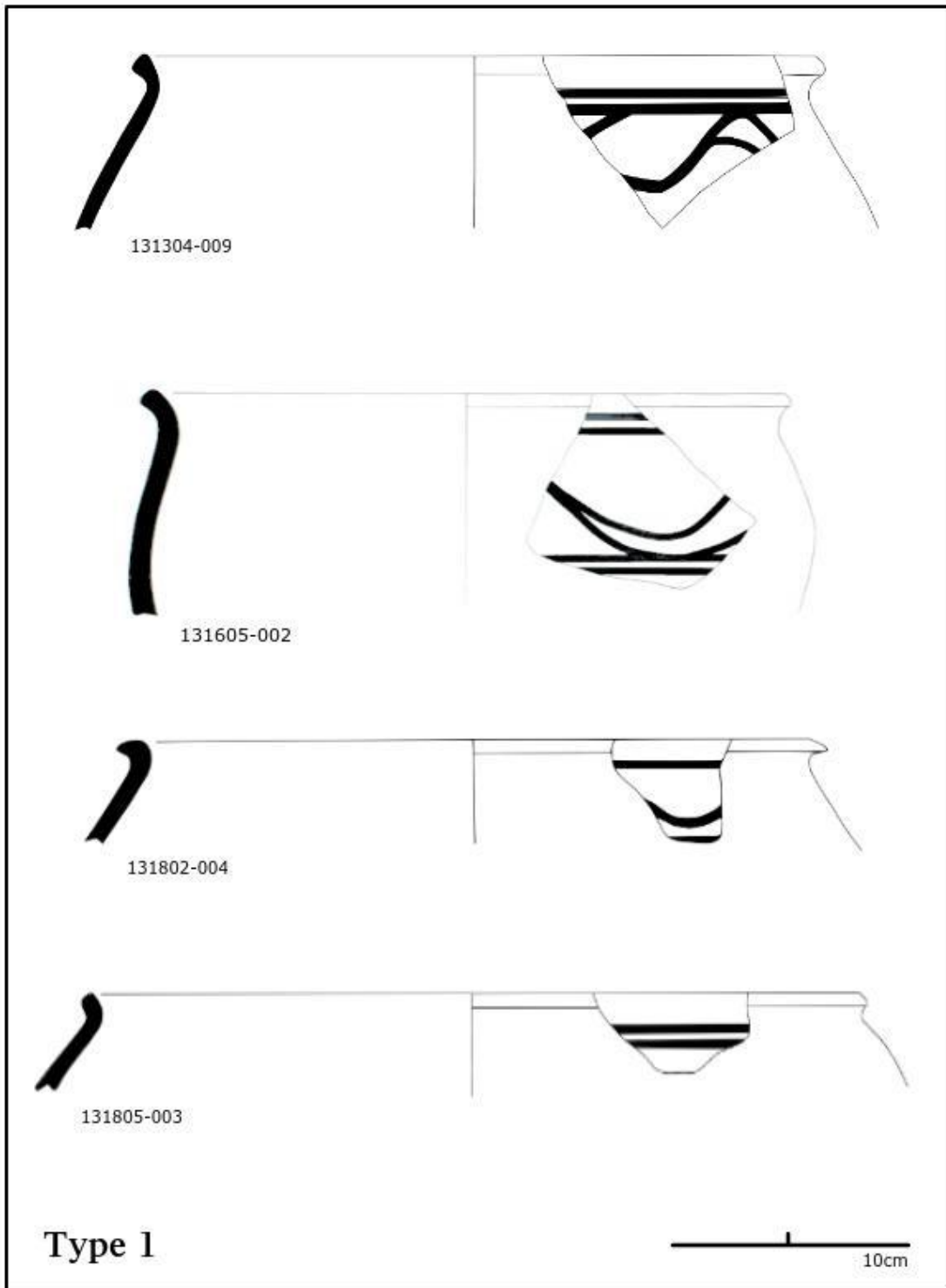


fig. 107 - Settlement Slope 'Type 1' storage jars (all Settlement Slope 'Type' illustrations and photographs are the work of the author of this dissertation)

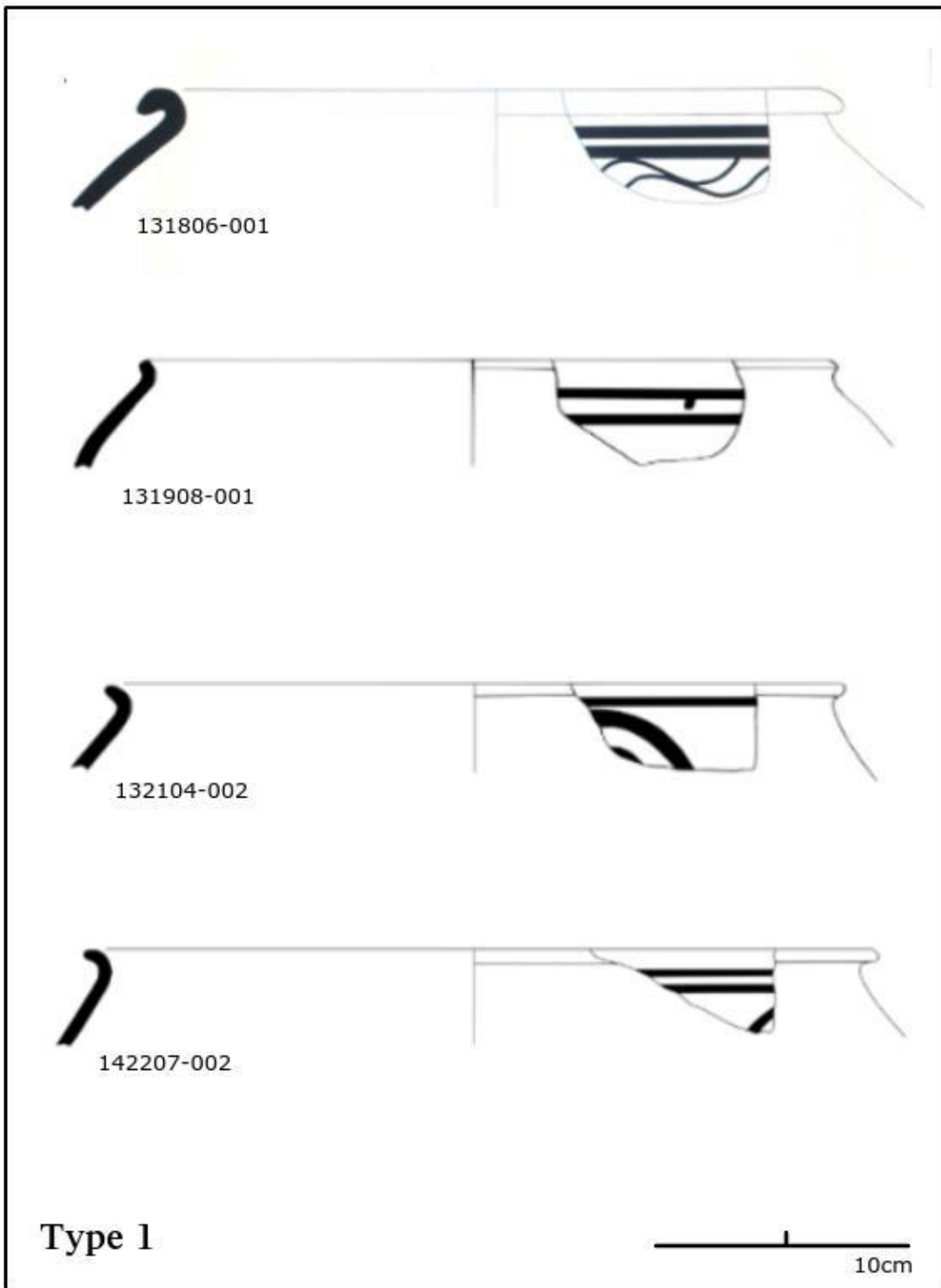


fig. 107 - (cont.)

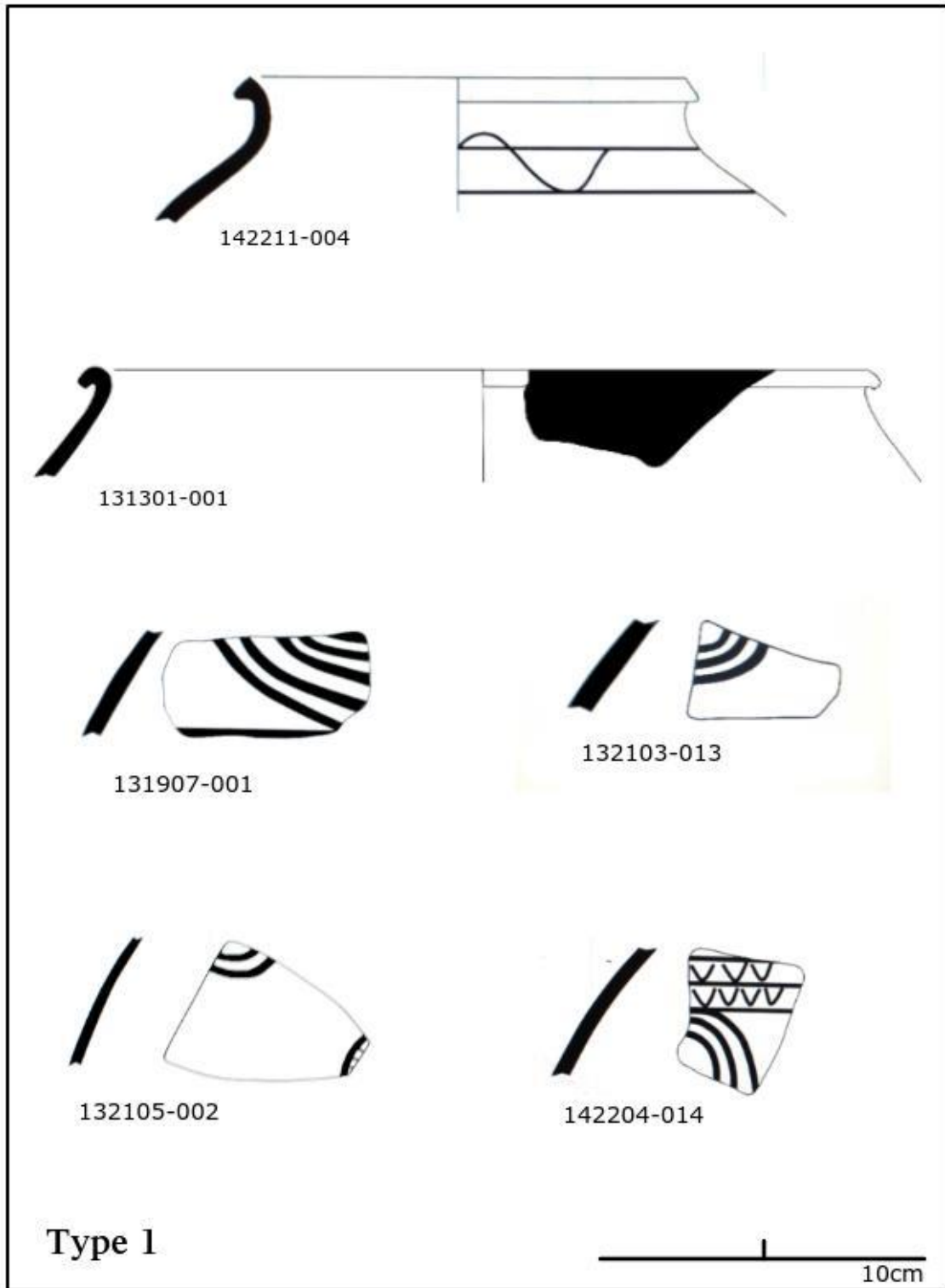


fig. 107 (top) - (cont.)

fig. 108 (bottom) - Type 1 body sherds with painted decoration

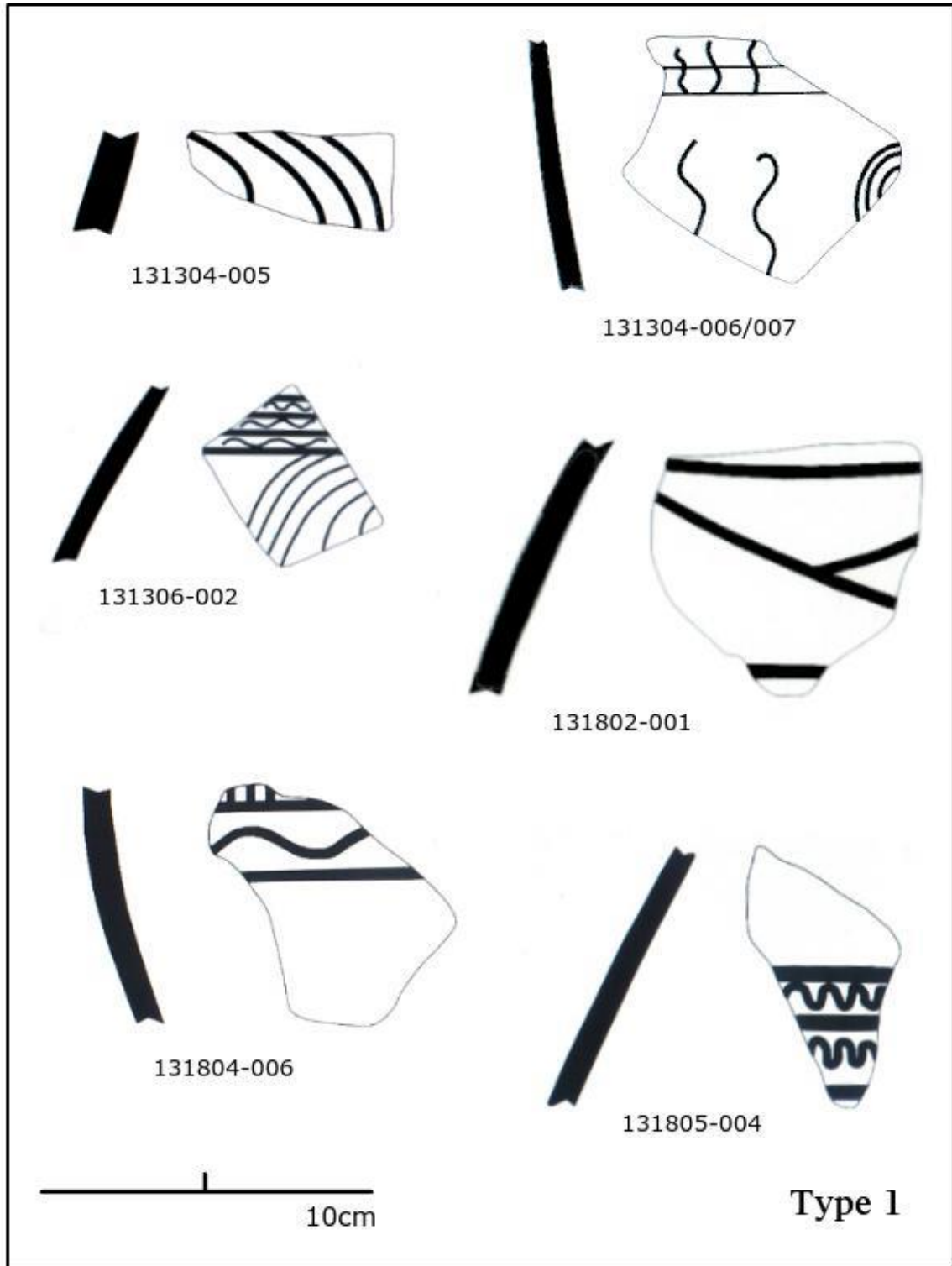


fig. 108 - (cont.)

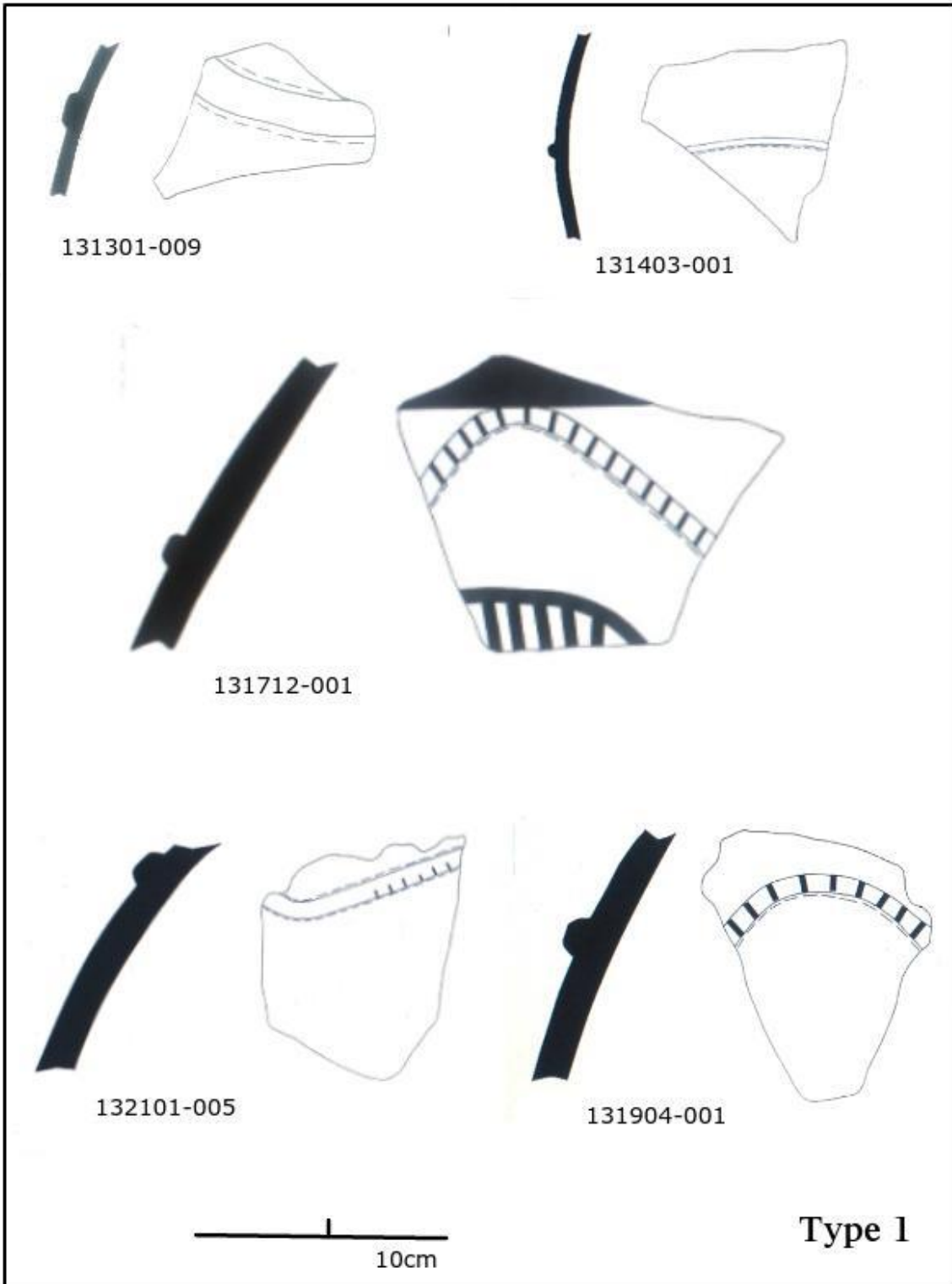


fig. 109 - Type 1 body sherds with appliqué decoration

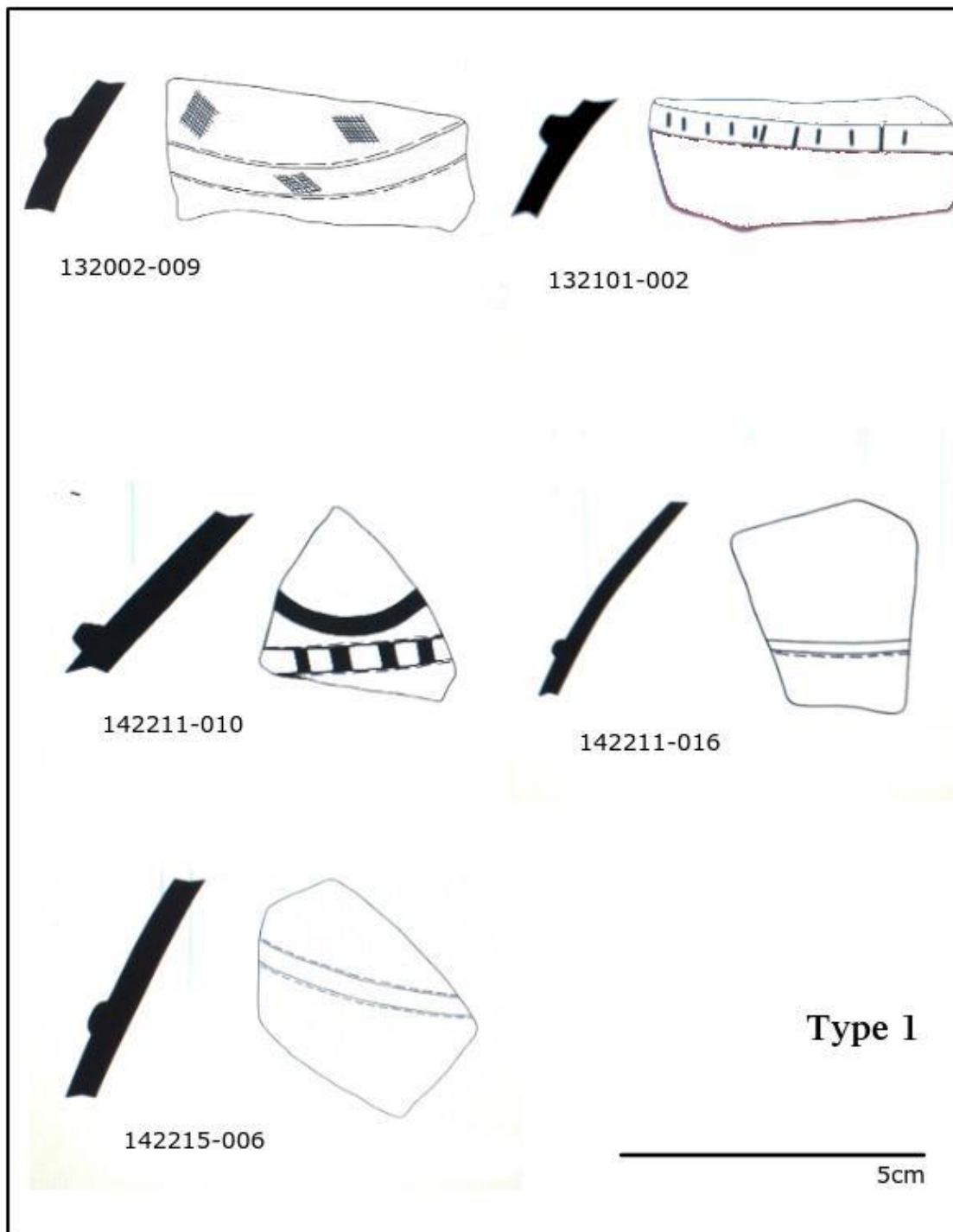


fig. 109 - (cont.)



Type 1

fig. 110 - Type 1 body sherds with painted spiral motifs



Type 1

fig. 111 - Type 1 body sherds with appliqué decoration (top) and lugs (bottom)

Type 2:

In addition to the Type 1 jars, it was also possible to identify another group of storage jars. The Type 2 jars are defined by their distinct thickened triangular rims and an upright, less globular form (*fig. 112*), when compared with the Type 1 vessels. The form of the Type 2 jars bears close resemblance to the medium-sized, short-necked storage jars found in the destruction levels at Nud Ziba (Kennet & Velde, 1995: 88, fig. 8. 14-16) and even with a few painted jars found in the Early Wadi-Suq layers at Kalba 4 (Carter, 1997: 37, fig. 22.10).

The decorative motifs of this type can be identified by single or double wavy lines, framed by double horizontal lines (*fig. 113*). In many ways, these are comparable to the geometric designs on many of the Type 1 vessels and often there is limited decorative differentiation between the two Umm an-Nar ceramic Types. Yet, combined with the distinct form and fabric, the simple linear designs of Type 2 vessels may be considered a possible evolution from the Middle Umm an-Nar Type 1 motifs. The horizontal bands painted beneath the rim correspond to vessels found at Tell Abraq (Potts, 1990: fig. 12. 4) and Hili IIf (c. 2200 - 2000 BC) (Cleuziou, 1979: fig. 31. 7). The double wavy line motif, observed on sherds 131504-001 and 132106-002, is the same as sherd TA 836, from Tell Abraq (Potts, 1990: 51, fig. 55.1), attested on sherds from the Late Umm an-Nar funerary assemblages at Tomb A (Mery, 1997: 175, fig. 3. 5) and also at Tomb 1059 (al-Tikriti, 1981: Pl. 96B). A few examples from the Settlement Slope display an alternate short and thick wavy line design - 132001-001, 131806-002; these can be compared with a selection of storage jars found at Hili in layers that correspond to Period IIf

(Cleuziou, 1989: Pl. 29, nos. 1, 2), and the late occupation layers at Umm an-Nar island settlement (Frifelt, 1991: fig. 241, 1014.KP3; fig. 96. 1014. DG).

The fabric appears to slightly differ from the sandy finish of the Type 1 sherds. The pottery of this type is often harder and smoother to touch, with a darker orange/red appearance and multiple 1mm black inclusions, that may be charcoal. An example of this fabric is demonstrated by body sherd 131501-008 (*fig. 114*). The comparisons with the Umm an-Nar domestic sites, referenced above, and the possible evolution of the decorative motifs from the Type 1 examples, likely date these Type 2 storage jars to the end of the 3rd millennium BC.

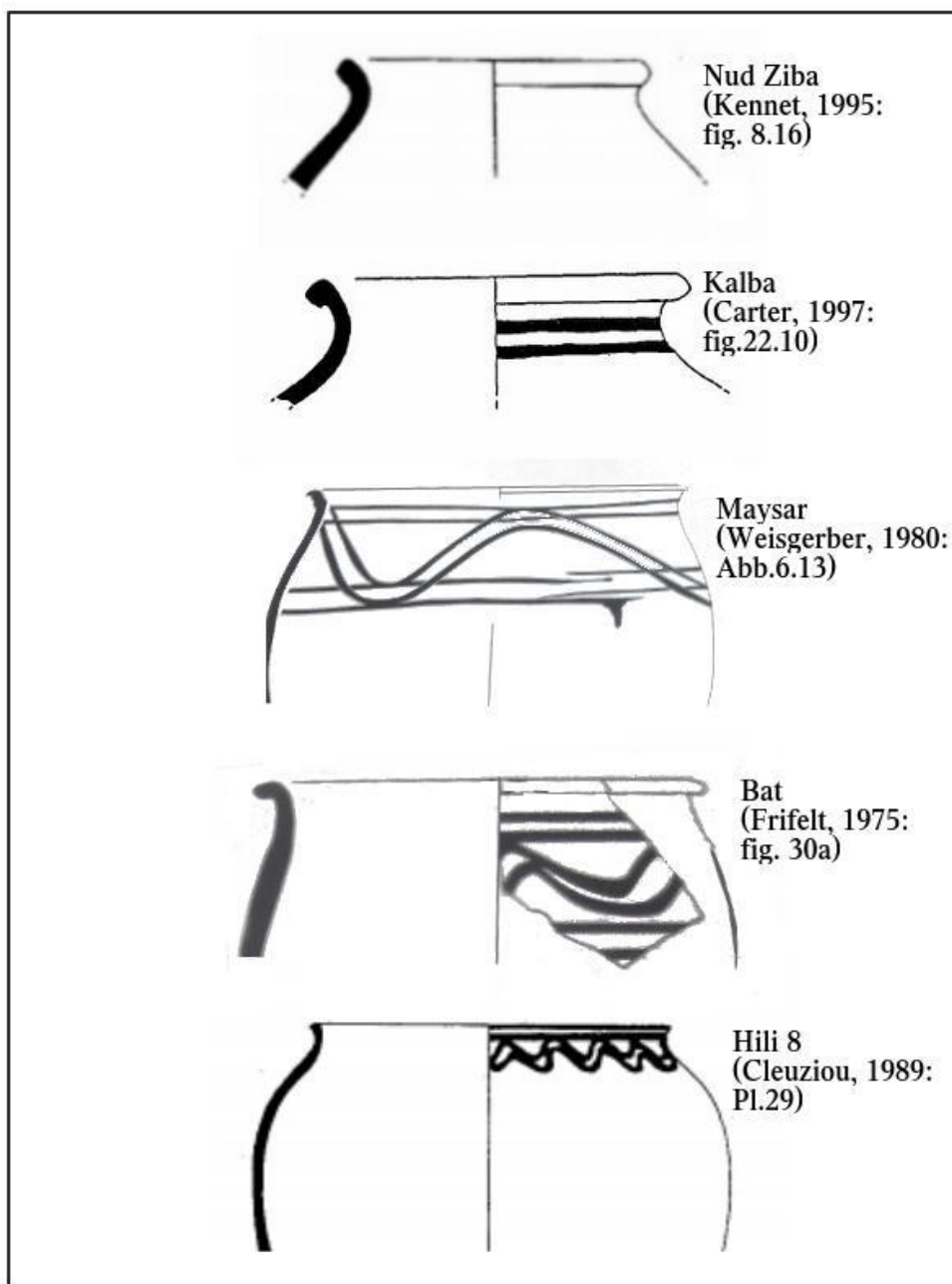


fig. 112 - Type 2 sherds found at Umm an-Nar domestic sites

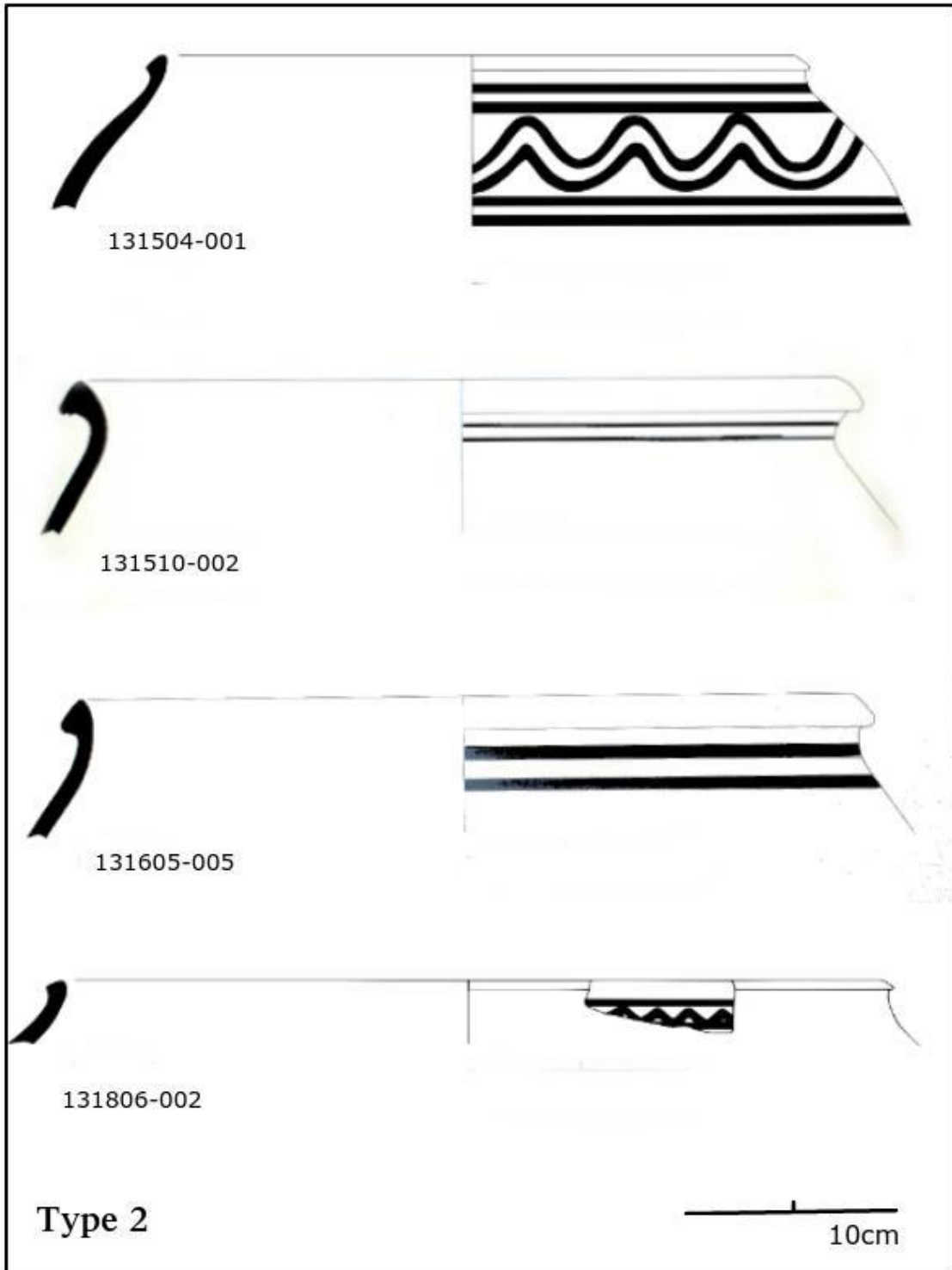


fig. 113 - Type 2 storage jars

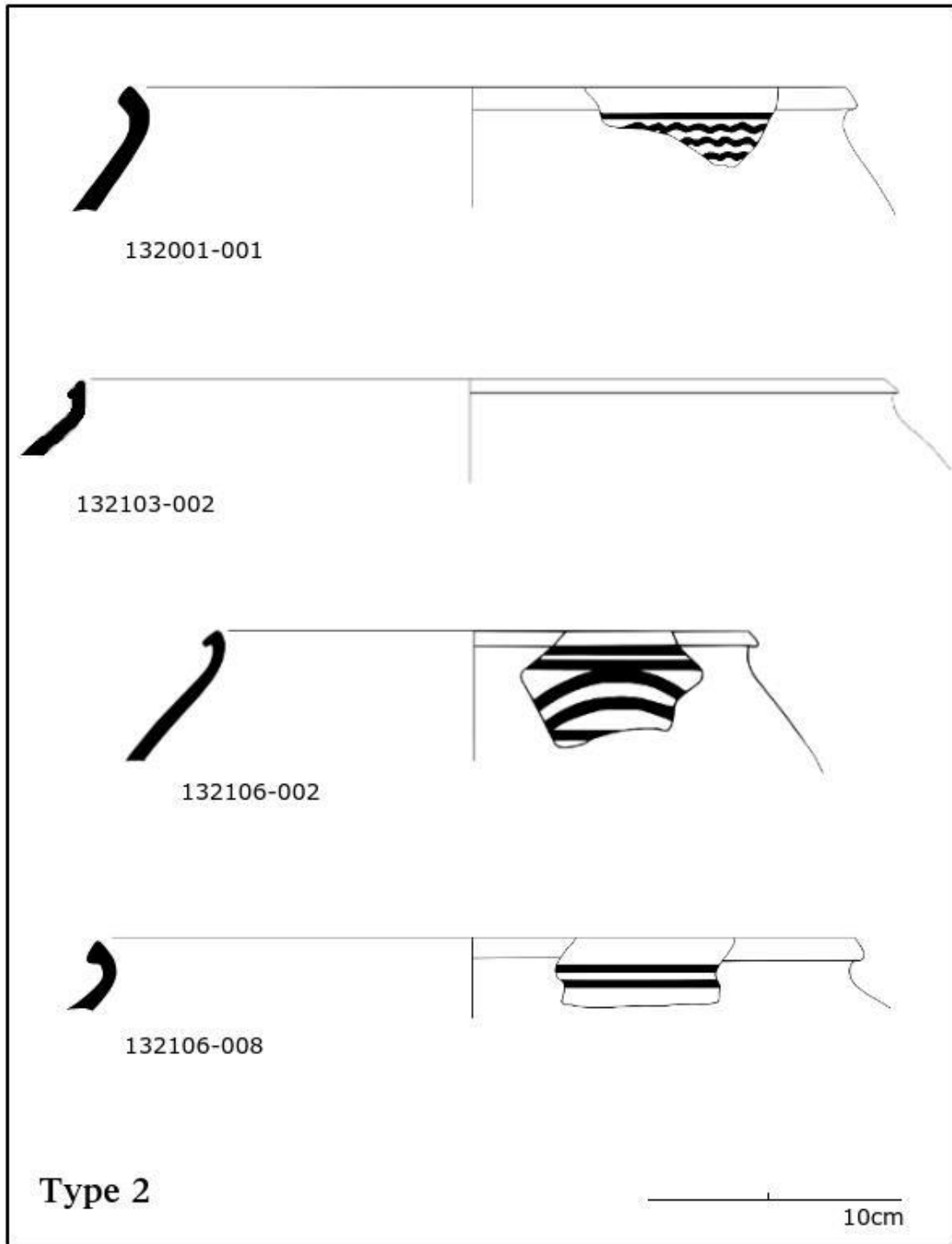


fig. 113 - (cont.)



fig. 114 - Type 2 body sherds with painted decoration and small black inclusions (bottom)

Within this type are also a small number of sherds that contain a coarser fabric (131101-001, 131605-002). As with most of the Type 2 vessels, these display a triangular rim which is

attested at Maysar-1 (Weisgerber, 1980: fig. 45). The material, however, has a different soapy, lightweight feel to it and contains frequent black, white and red 1mm inclusions (*fig. 115*). These medium-coarse sherds are often decorated with double horizontal lines framing a single wavy line; this pattern can be compared with examples from Hili 8, IIf (Cleuziou, 1989: Pl. 29. 7). Thus, this sub-type of the Type 2 storage jars can be dated to the end of the 3rd millennium BC; its new fabric is a possible indicator of the manufacturing changes that occurred during Late Umm an-Nar culture.



fig. 115 - Possible new soapy, coarse fabric for Type 2 jars

Type 3:

A third type of jar was identified from the Umm an-Nar pottery assemblage. In addition to the large storage jars of types 1 and 2, a small number of flaring rims were allocated Type 3 - 131804-005, 132001-002, 132106-004. These are defined by a marked transition between shoulder and neck (*fig. 117*). They have vertically drawn out and everted rims - apart from sherd 132106-004 which has a flattened rim. These can be compared in form with similar short-necked vessels excavated at Nud Ziba (Kennet & Velde, 1995: 88, fig. 8. 7-8). Sherd 131804-005 can, in particular, be paralleled with a late 3rd millennium BC jar found at Tell Abraq (Potts, 1990: 49, fig. 53. 2). The double-lined decoration beneath the rim is typical of sherds discovered in Late Umm an-Nar contexts at Kalba 4 (Carter, 1997: 61, K.438) and Tell Abraq (Potts, 1990: 49, fig. 53.8; 1991: 28, fig. 14. 4;) and is also comparable with the small jars discovered in the Early Wadi Suq layers at Kalba (Carter, 1997: 37, fig. 22.10). The comparison, therefore, between the form and decoration of Type 3 jars and those from Kalba, Tell Abraq and Nud Ziba (*fig. 116*), suggests that these jars are probably of a Late Umm an-Nar or even Early Wadi Suq date.

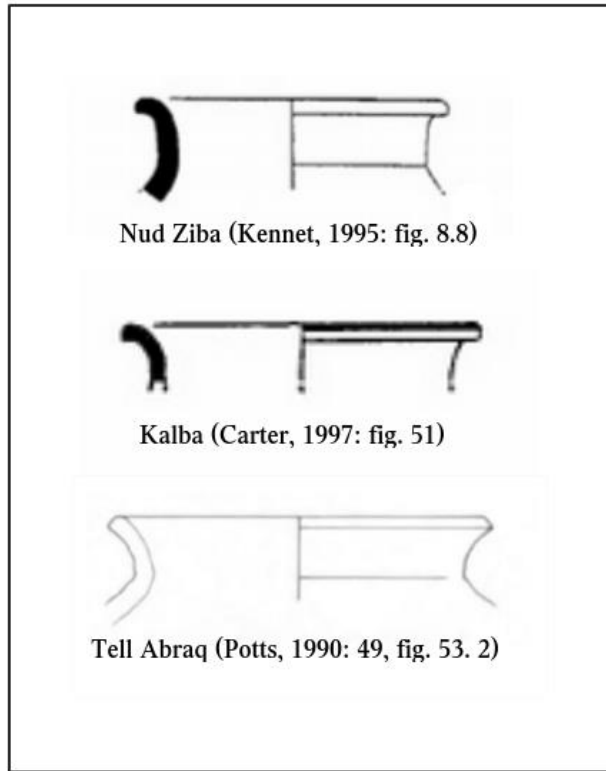


fig. 116 - Type 3 sherds found at Umm an-Nar domestic sites

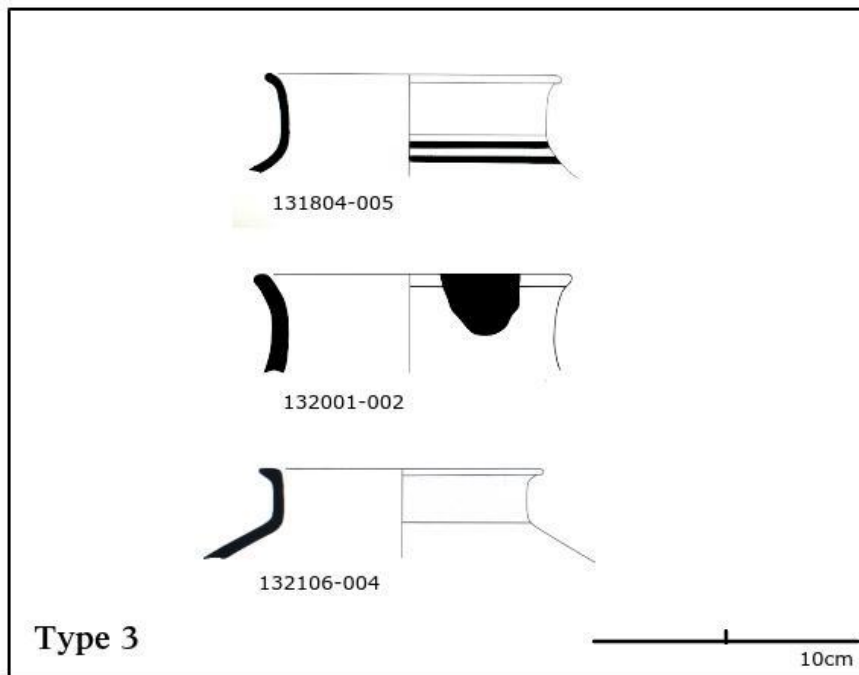


fig. 117 - Type 3 short necked jars

Type 4:

This type is represented by the rim and body sherds of suspension vessels (*fig. 119*). These are necked pots, of various dimensions, with a ring-base containing four equally distributed perforations. A strip of clay is located on the shoulder which also contains four perforations. These are decorated in a distinctive narrow lattice pattern. The ring-base 132104-001 can be compared with the collection of suspension vessels discovered in Tomb A at Hili (*fig. 118*) (Mery, 1997: 176, fig. 4. 5). Body sherd 142207-003 displays the same narrow cross-hatched lattice pattern as 1014. KC and PZ from the House Complex at Umm an-Nar island (Frifelt, 1995: fig. 237). A pierced ring-base and undecorated lug - 142211-025, 131804-004 - both possibly belonged to suspension vessels (*fig. 111*). The perforated ring-base has parallels at the settlement at Umm an-Nar island (al Tikriti, 1981: Pl. 69, A-C), as does the lug (Frifelt, 1995: fig. 252, KS.9). Mery writes (1997: 176) that these narrow-latticed vessels are typical of both the funerary and domestic assemblages of the late 3rd millennium BC.

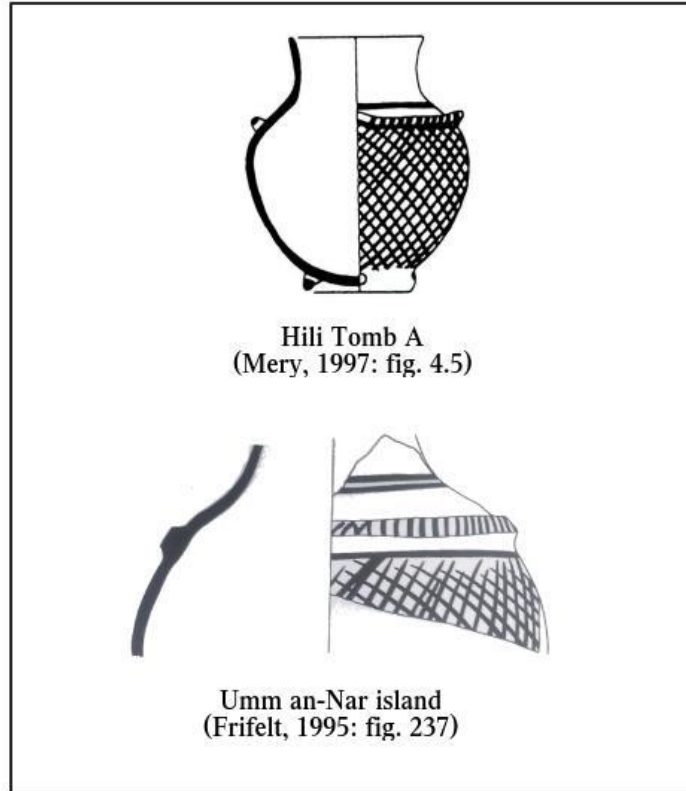


fig. 118 - Type 4 sherds found at Umm an-Nar funerary and domestic sites

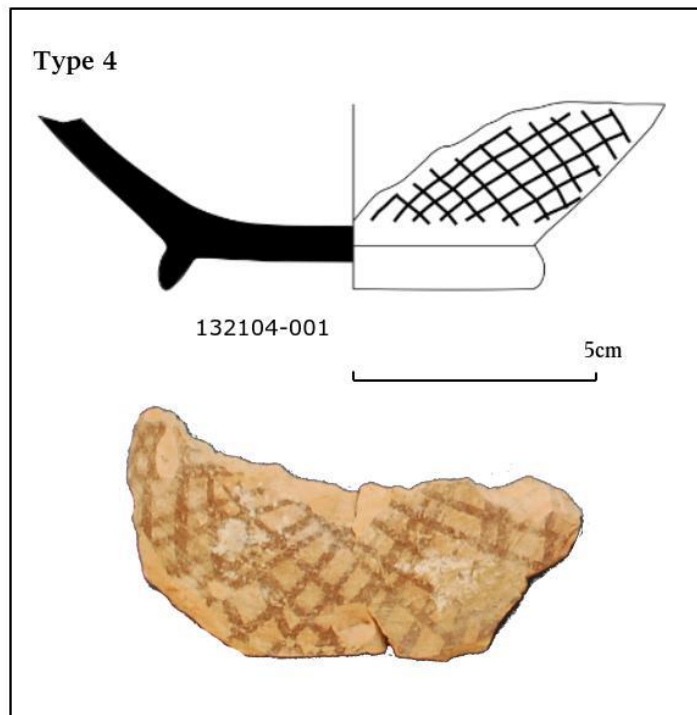


fig. 119 - Type 4 suspension vessel sherd

The Indus Material:

Black-Slipped storage jars (BSJ) are a common ceramic feature at domestic sites during the Umm an-Nar period. The 10mm-thick, black-slipped body sherds were common in the Umm an-Nar contexts at the Settlement Slope. They are defined by their thick reddish, well-fired fabric which contains numerous micaceous inclusions. They are also notably harder and denser than the domestic Umm an-Nar wares described above. The interior walls usually display a thick black/grey slip, while the exterior contains evidence of flaking black paint (*fig. 120*) (Cleuziou, 1981: 281). These jars are evenly distributed throughout the region's domestic Umm an-Nar inventories (Vogt, 1996: 120). The sherds found at the Settlement Slope are comparable with those excavated at Ghanadha (al Tikriti, 1985), Shimal (Vogt, Franke-Vogt, 1987: 78), Asimah (Vogt, 1994), Ra's al-Jinz (Cleuziou, Tosi: 1987) and Hili 8 (Cleuziou, 1989: 77) to name but a few. At Hili 8 they were concentrated within the Period IIf layers (*ibid.*), while at Ra's al-Jinz they were associated with the Period III contexts (Cleuziou, Tosi, 2001). Thus, based on the dates these sites, the Indus Black-Slipped jars appear to be anchored within the final phases of the Umm an-Nar pottery sequence.

Given the ubiquity of the BSJ across the Oman peninsula, it is likely that the majority of the material originated from a single source in the Indus periphery (Ghazal, 2015: 21). Yet, it is difficult to establish exactly what is represented by their presence in the Umm an-Nar assemblages. The thick internal coating of the Indus vessels facilitated the storage of liquids, while their design was made to fit the curvilinear profile of the hull of a boat (Mery, 1998: 42; 2007: 199, *fig. 207*). The BSJ were therefore likely made to meet the requirements of

transport and trade, although exactly what they were intended to carry has not yet been determined by chemical analysis. The presence of these vessels at coastal Umm an-Nar sites are a possible indicator of a profitable trade having existed between the two cultures at these locations during the 3rd millennium BC. Significantly, numerous examples of BSJ have also been found at inland Umm an-Nar sites, including the Settlement Slope, Bat. The transport of BSJ vessels would have required considerable effort and research has suggested that the containers may have emptied of their contents upon reaching the main coastal sites, such as at Ra's al-Jinz (Mery, 1998: 226). Perhaps contact with Indus traders at the interior oasis sites was therefore stimulated by the status gained in owning the large vessels themselves? Whatever the precise function of the Indus BSJ vessels, the discovery of a considerable number of sherds at the Settlement Slope may be regarded as evidence of the site as having integrated itself within a network of far-reaching trade routes by the late Umm an-Nar period (Mery, 2007: 199).

It is also important to note the discovery of a very sandy, 12mm thick 'fingernail' sherd - 131711-001 (fig. 120). The light orange fabric was coarse, with multiple grainy inclusions and formed of a crumbly texture. Sherds with a similar impressed decoration have also been attested at other domestic sites, for example at Hili 8 (Cleuziou, 1989: Pl. 32. 5) and Maysar-1 (Weisgerber, 1981: 51). They are thought to have represented a common Harappan ceramic tradition, that was either imported or copied, and occurred in late 3rd millennium BC domestic contexts.

The Indus
Material



fig. 120 - Indus Black Slipped Jars and 'fingernail' sherd (bottom right)

- *The Wadi Suq & Late Bronze Age Types:*

In the northern coastal geographical zones, complete pottery sequences for the 2nd millennium are available at Tell Abraq (Potts, 1990) and Kalba (Carter, 1997). The tomb assemblages at Shimal also comprise a homogenous group of objects, all datable to the Wadi Suq period. The inventories make it possible to associate these sites with a clear Wadi Suq (c. 2000 - 1600 BC) material culture; this can be clearly differentiated from pottery associated with the subsequent Late Bronze Age period (c. 1600 - 1250 BC) (Velde, 2003: 104).

The large part of Wadi Suq pottery assemblages from the few settlements of the interior regions, such as at Hili 8 (Period III), are formed of typical domestic forms: storage jars, open flat bowls and cooking pots (Righetti & Cleuziou, 2010: 290). These domestic assemblages, however, often contained indistinct pottery shapes that make it difficult in differentiating between the Wadi Suq period to the Late Bronze Age. This helped to create a misleading impression of uniformity and the term 'Wadi Suq' was applied indiscriminately to the period between 2000 - 1250 BC (Velde, 2003: 102).

Although some domestic pottery forms may overlap the Wadi Suq-Late Bronze Age transition, the majority of the Late Bronze Age assemblages, such as those at Tell Abraq, Shimal and Kalba, represent a new range of types. The pottery is often unpainted and there appears to be no differentiation between the funerary and domestic assemblages. The new pottery types

from the Late Bronze Age contexts highlight the importance in separating the Wadi Suq and Late Bronze Age periods into two distinct cultures (Velde, 2003: 112).

It is also important to consider the impact regional trajectories had on this region during these periods. This has not yet been fully researched but it may be proved that the timing of the ceramic developments between the northern coastal zones and the interior regions varied considerably (de Vreez, *pers comm.*). The limited number of known domestic sites from the Wadi Suq and Late Bronze Age periods means parallels have to be drawn between the Settlement Slope assemblage and those from other contemporary sites. It is important to stress, however, that such ceramic comparisons are not as reliable as those used for the previous Umm an-Nar period.

Type 5:

These pedestalled bases belong to goblet vessels (*figs. 122, 123*); these are thought to represent a Late Wadi Suq development and then dominate the assemblages from the subsequent Late Bronze Age (Velde, 2003: 105). In the settlements these are mostly undecorated vessels and typically consist of a medium-fine pale orange, soft fabric that contains frequent 1-2mm white inclusions. They are also characterised by a string-cut pedestal base (c. 5 cm in diameter) with a pronounced solid foot. The use of string-cutting is considered a technique typical of the Wadi Suq period.

Five of these base sherds were found at the Settlement Slope - 131301-003, 132001-020, 132104-007, 142214-003, 142229-001. There are a number of comparable examples from contemporary Wadi Suq and Late Bronze Age sites (*fig. 121*): such as the Late Wadi Suq layers at Kalba 4 (Carter, 1997: 45, fig. 34. 1) and Tell Abraq (Potts, 1991: fig. 86. 6; 1990: fig. 95. 8), and the Late Bronze Age contexts at Shimal SX (Velde, 1992: 62) and Sharm (Barker, 2002: 8, fig. 4).

The prominent foot of Base 131301-003 can be directly associated with base K4.467 from Kalba 4 (Carter, 1997: fig. 34. 1), and SP335 from Sharm (Barker, 2002: fig. 4. 13). The stem between the foot and the body, displayed by bases 132104-007 and 142214-003, is a feature that can only be found in the fine goblet examples from the Late Bronze Age (Velde, *pers comm.*). This distinctive ledge feature is illustrated by Sharm vessel, SP 278 (Barker, 2002: fig. 4. 14), and another base from Kalba, K.201 (Carter, 1997: fig. 34. 1), both found in Late Bronze Age strata.

The carinated ledges displayed by base sherds 132104-007 and 142214-003 are paralleled by a pedestalled foot discovered at Tell Abraq (Potts, 1990: 81, fig. 95. 8). According to preliminary phasing work carried out at Tell Abraq (Magee et al. 1994: 272), a C¹⁴ date was published from the phase stratigraphically *above* the sherd, which was dated to 3270+/-75 BP, cal. 1670-1460 BC (Potts, 1993: 126, table 1). This suggests that at Tell Abraq these carinated goblet bases appear to have become popular slightly earlier than the Late Bronze Age - i.e. during the Late Wadi Suq period. Based on comparable bases from Tell Abraq, Kalba and Shimal, the Type 5 examples from the Settlement Slope should therefore be considered

as pottery forms characteristic of the Late Wadi Suq, which extend into the Late Bronze Age period.

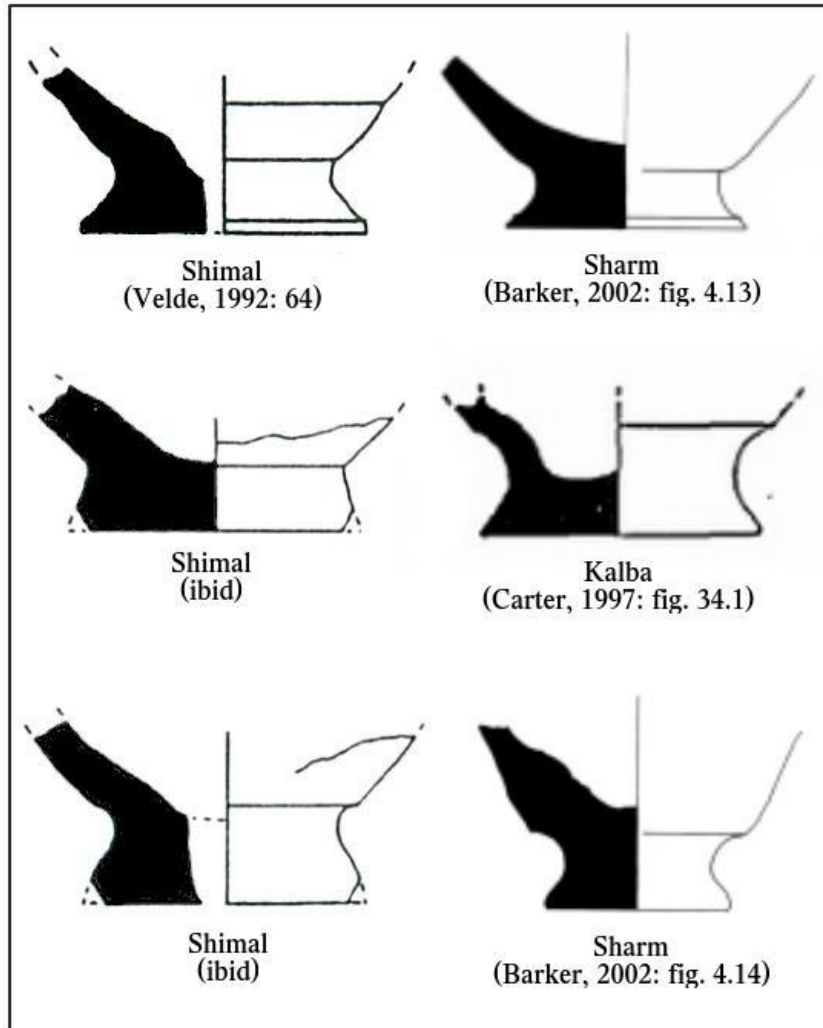


fig. 121 - Type 5 base sherds found at Wadi Suq & Late Bronze Age sites

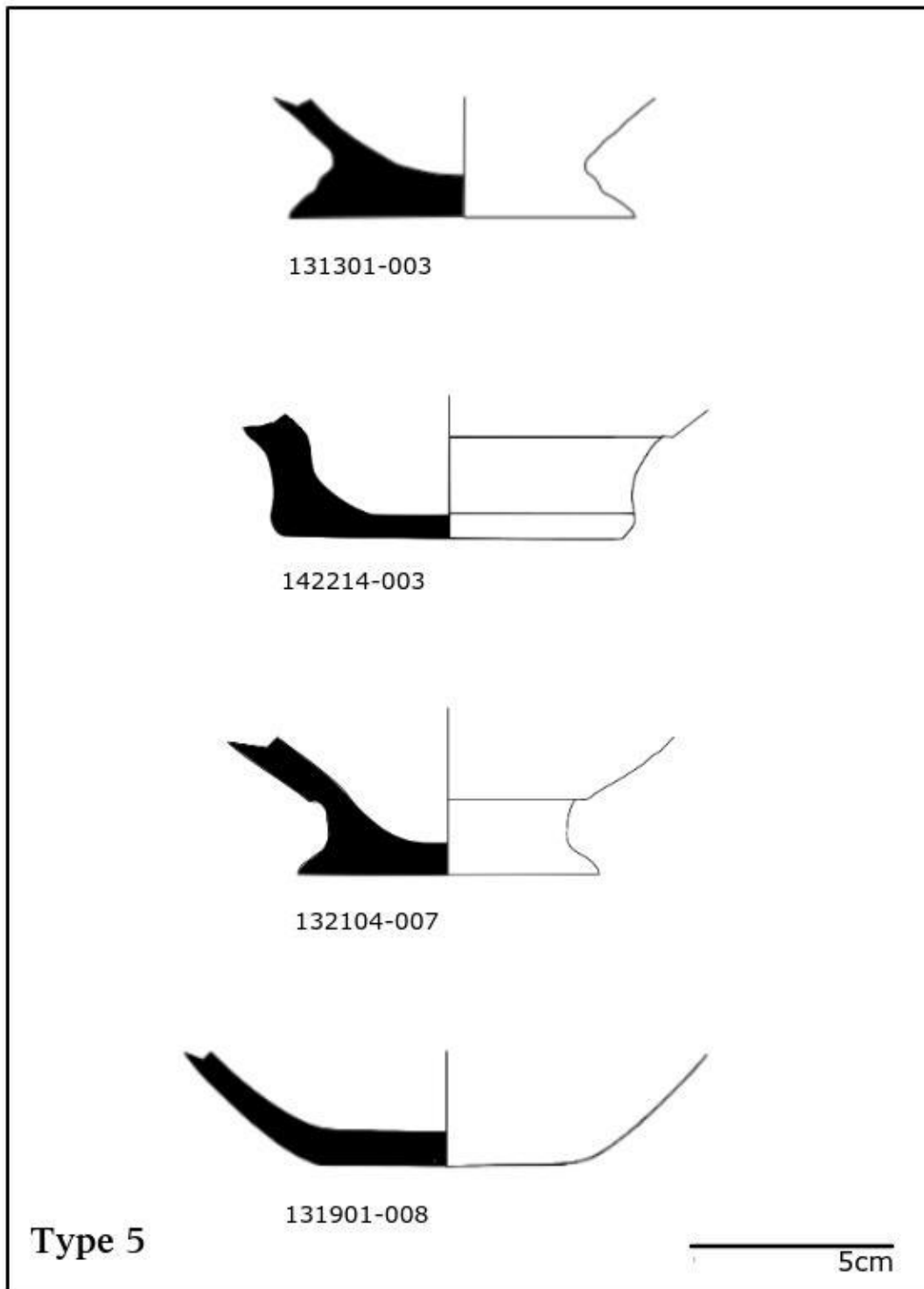


fig. 122 - Type 5 bases



fig. 123 - Type 5 bases with circular string-cut impressions (top left)

Type 6:

These vessels represent a collection of small (c. 10 cm in diameter) open bowls (figs. 125, 126). They have simple, straight, slightly everted or even slightly inverted rims. The majority of those discovered at the Settlement Slope were made from a red/purplish, soft and porous fabric that contains frequent (1mm - 3mm) vegetable matter and soft red inclusions (1 mm). The distinctive colour is thought to be a consequence of over firing the vessels which are rich in limestone temper.

There were five Type 6 rim sherds discovered in the Settlement Slope assemblage - 131501-001, 131603-006, 131803-002/003, 132001-004, 132104-004. They share the same open form as sherds from the Early Wadi Suq layers at Hili 8, Period III (*fig. 124*) (Righetti, 2010: 286, fig. 2. 5). On the other hand, this type can also be associated with Middle to Late Wadi Suq examples found at Tell Abraq, which are formed of the same pink/red grainy fabric (Potts, 1991: 53, fig. 14).

The multiple horizontal lines depicted on sherds 131603-006 and 132001-004 can be compared with the decoration of Early Wadi Suq examples from Hili 8 (Righetti, 2010: 284, fig. 1. 22). Another body sherd - 132103-004 - shares an identical decoration, consisting of misaligned horizontal lines (fig. 69), as the globular pot sherds at Hili 8 (*ibid.* 285, fig. 5). Sherds 131803-002/003, however, depict a set of vertical lines extending down from the straight rim; this can be closely compared with Middle and Late Wadi Suq assemblages found

at Tell Abraq and Kalba (Potts, 1990: 60, fig. 71.3-5; Carter, 1997: fig. 34); a bowl sherd, discovered at a Late Wadi Suq tomb (2171) at Samad Ash Shan, depicts the same vertical painted line decoration (Yule, 2001: 324).

The Type 6 rim sherds appear to share parallels with both Early (Hili 8) and Late (Tell Abraq, Kalba, Sharm) Wadi Suq assemblages and thus seem to have been used at the Settlement Slope at some point during these periods, c. 2000 - 1600 BC.

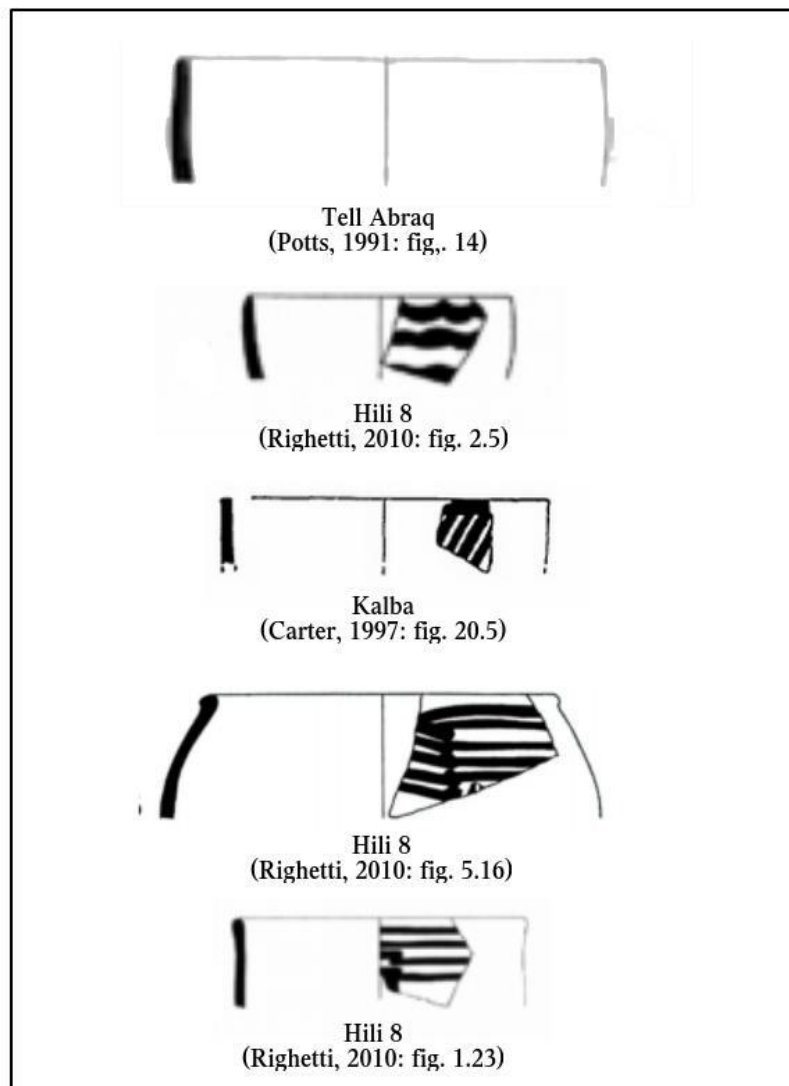


fig. 124 - Type 6 sherds found at Wadi Suq domestic sites



fig. 125 - Type 6 body sherds with painted decoration

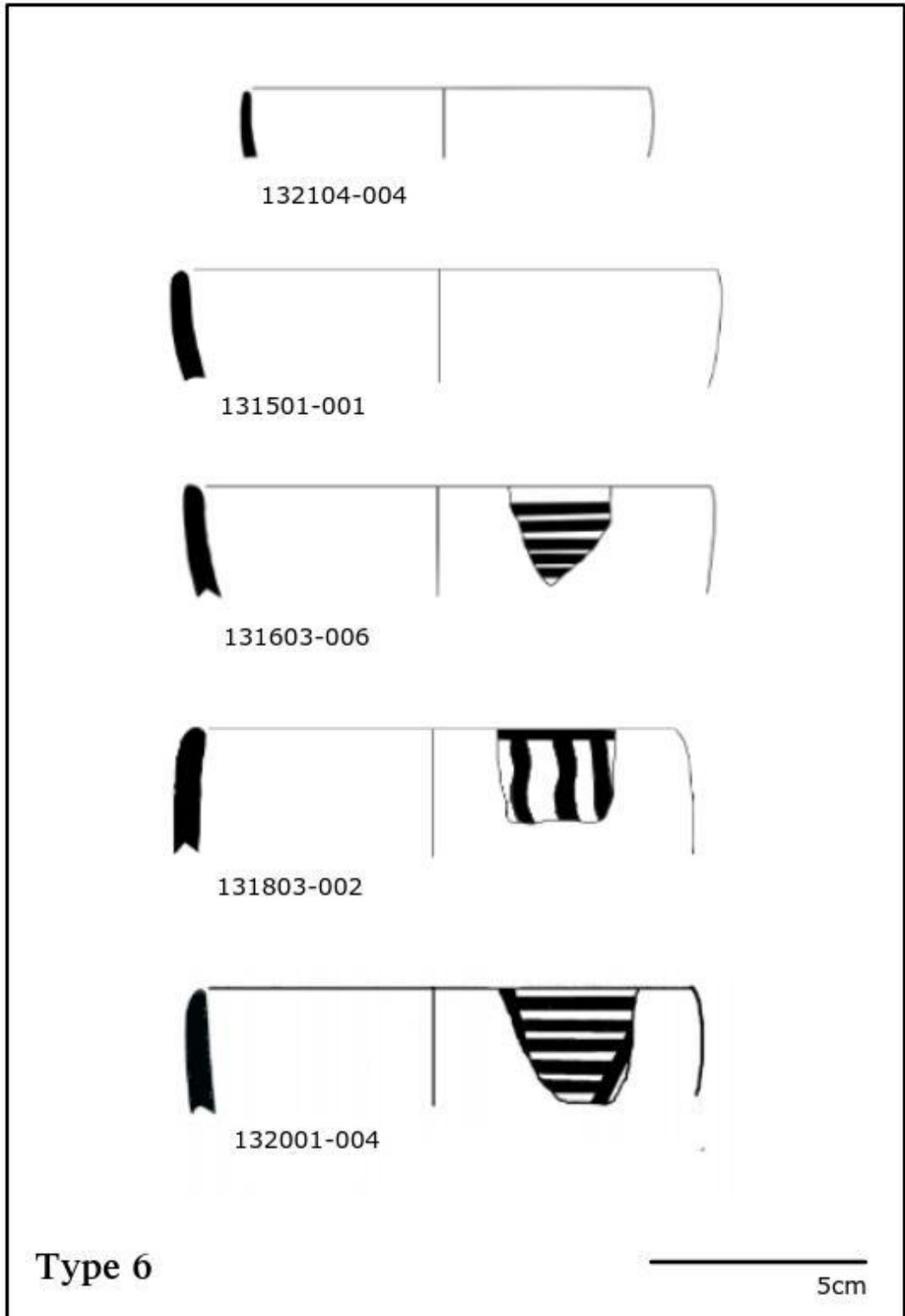


fig. 126 - Type 6 rim sherds

Type 7:

A small collection of vertical, slightly everted rims, belonging to undecorated globular cooking pots, can be assigned Type 7. These vessels are coarse, heavy (c. 10mm thick) and contain traces of soot on their exterior and interior. The fabric is a light brown colour and contains multiple 4mm red inclusions (fig. 129); it can possibly be associated with Carter's Fabric 2 'cooking ware' found at Kalba (1997: 251) and recorded at Sharm (Barker, 2002: 11, fig. 8). The coarse temper often cracks the surface during production and results in the temper material visibly sticking out. In some instances the fabric is tempered with small globules of copper slag - see 131304-004 (fig. 127) - which forms part of Sophie Mery's Late Wadi Suq 'Shimal 1-type' coarse fabric (2000: 266).



fig. 127 - Cooking jar sherd tempered with copper slag

There are signs that the lower portion of the body may have been rounded. This design can be matched with the globular jars recovered from the tombs at Sharm (*fig. 128*) (Barker, 2002:

10, fig. 7.7). Sherd TA 507 from Tell Abraq is also closely comparable in form and size to the globular cooking pots found at the Settlement Slope. This example was discovered in 'Wadi Suq III' layers, which correspond to c. 1600 - 1400 BC (Barker, 2002: 12; Potts, 1990: fig. 90.8). The Type 7 vessels, therefore, are attested at a number of 2nd millennium BC sites and appear to represent plain cooking pots dating to the Late Bronze Age period.

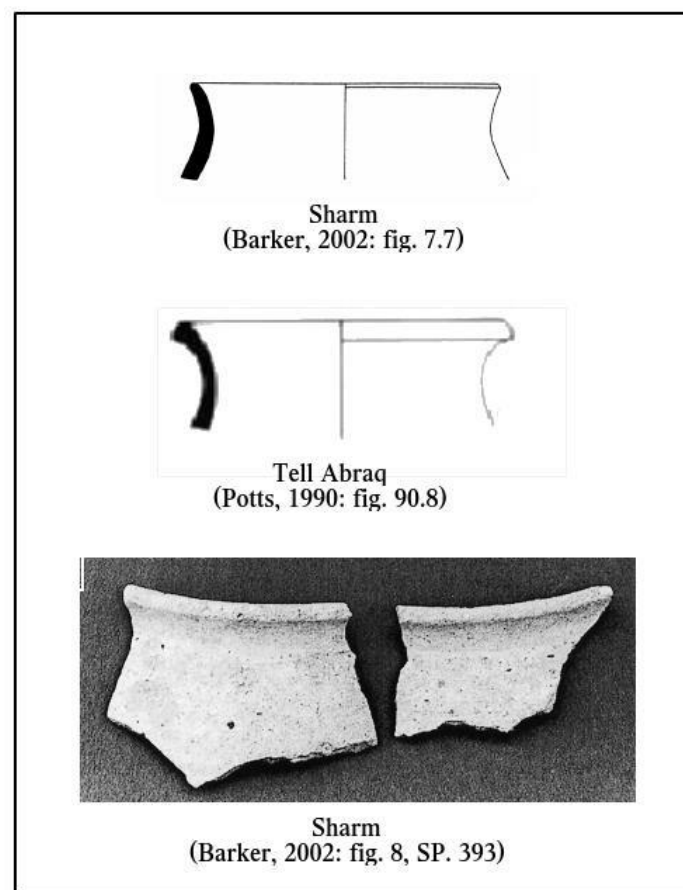


fig. 128 - Type 7 sherds from Late Bronze Age sites



fig. 129 - Type 7 cooking jar sherds

Type 8:

Two painted beaker sherds form Type 8. These are extremely common within Wadi Suq funerary contexts: for example, at Ghalilah Tomb 2 (Donaldson, 1984: 299, fig. 19), Jebel Buhais (Uerpmann et al, 2006: 24, fig. 20) and the Shimal tombs (Vogt & Franke-Vogt, 1987: 147: fig. 12). They also sometimes occur in settlement contexts, such as at Tell Abraq (Potts,

1990: fig. 50. 3) and Hili 8 (Cleuziou, 1981: figs. 4, 6). Although the Wadi Suq beakers display a form similar to some open bowls, the two examples found at the Settlement Slope exhibit a finer and thinner (4mm thick) fabric than that associated with Type 6 vessels (fig. 131). The Type 8 examples may have been originally associated with the Wadi Suq cist burials.

They are decorated with painted black decorations on a red/brown slip. Sherd 131702-001 forms the near complete remains of a straight-rimmed beaker with a maker's cross-shaped mark present on the rounded base. The decoration includes two horizontal lines framing a single shallow wavy line. The form is identical to that of beaker no.7 from Shimal, Tomb 1 (Donaldson, 1984: 283, figs. 3-6). Although the rounded base is a feature characteristic of the Early and Middle Wadi Suq phases (Velde, 2003: 104), the decoration of thick wavy lines between horizontal bands is regarded as a later development which becomes the dominant motif during the Middle and Late Wadi Suq phases (*ibid*); it has parallels at numerous Wadi Suq funerary deposits, such as Shimal Tomb SH99 (Vogt & Franke-Vogt, 1987: fig. 32. 3) and Jebel Buhais, BHS1 (Uerpmann et al. 2006: fig. 20). The incised maker's mark has a parallel at Shimal Tomb SH99 (no. 5) (*fig. 130*), where the rounded base of the beaker is signed by an identical slanted cross symbol (Righetti, 2015: 84, fig. 57).

The second sherd is a small fine body sherd with red paint and black painted vertical bars on top of a red and white slip (*fig. 131*). It has a very typical decoration of metopes created by groups of vertical lines with hanging/standing double loops in between. This motif can be paralleled by the beakers discovered in the Shimal tombs (Velde, 2003: 103, fig. 2. 5) (*fig. 130*) and the Period III layers at Hili 8 (Righetti & Cleuziou, 2010: 284, fig. 1) - it is typical of the

earlier and middle Wadi Suq period. Significantly, the sherd is unique in displaying two different slips - red and white - on the surface. These two sherds seem likely to have originally been part of the assemblages associated with the Middle/Late Wadi Suq cist burials found on top of the domestic structures at the Settlement Slope.

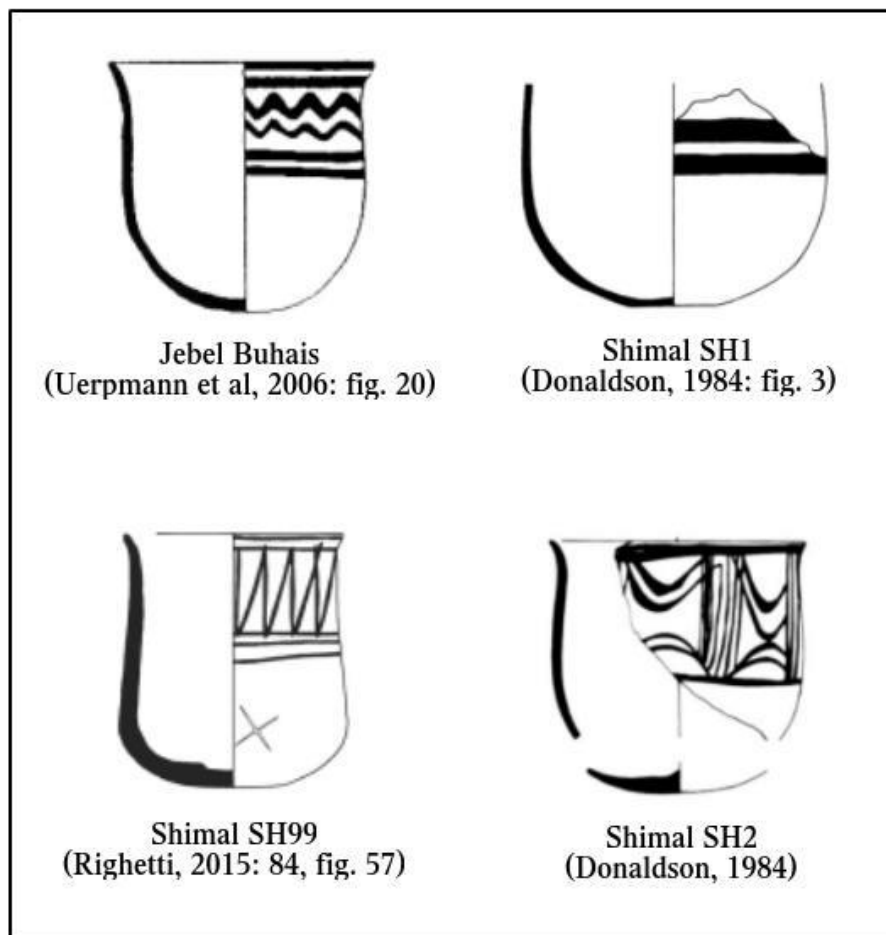


fig. 130 - Type 8 sherds from Wadi Suq funerary sites

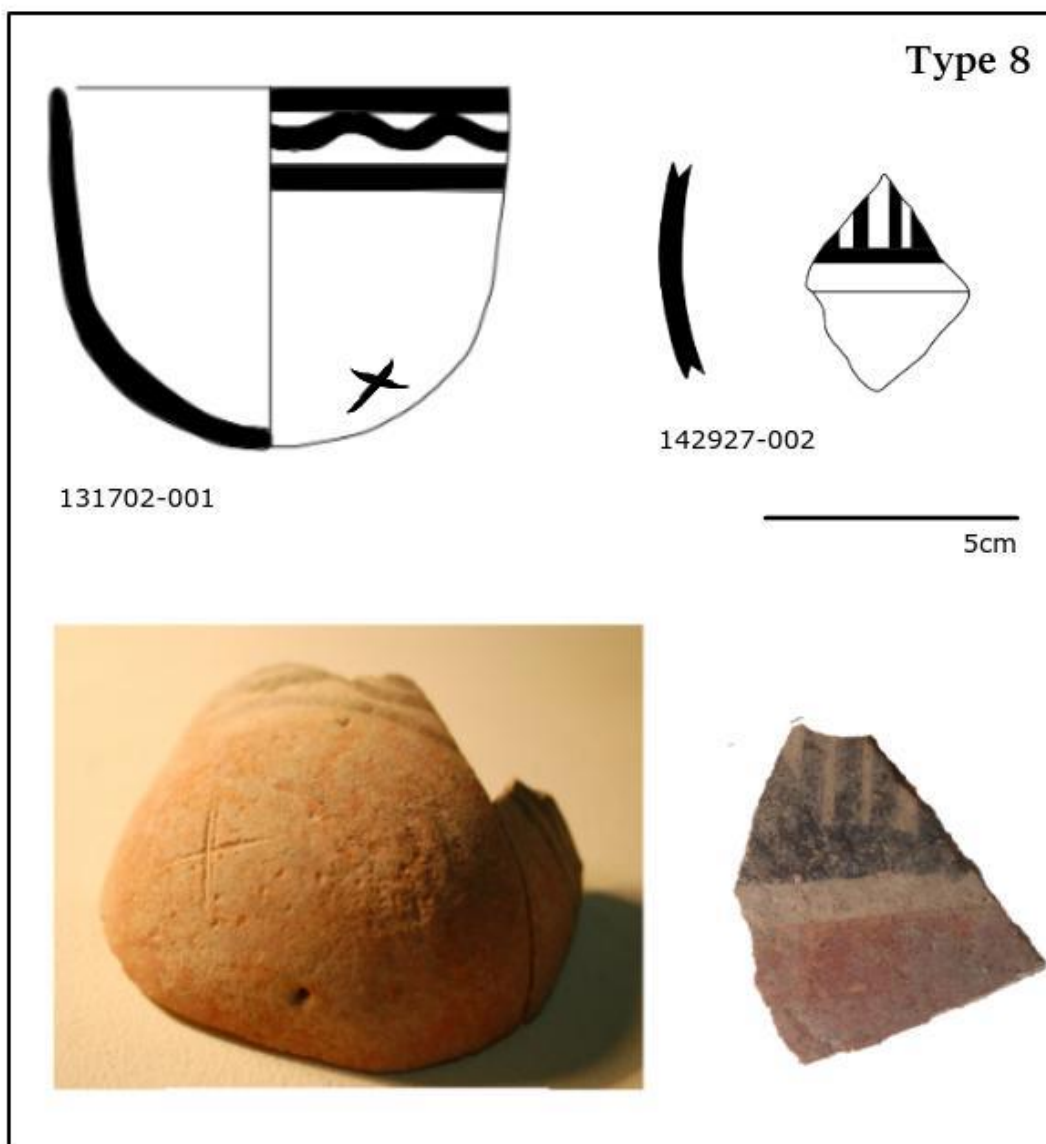


fig. 131 - Type 8 beaker sherds

Type 9:

These represent a series of undecorated jar rims. The Type 9 jars have distinctive flattened, everted rims, with either a rounded (132101-009) or square end (131901-010) above a very

short neck which then transitions into a gently curving shoulder (*fig. 133*). They are made from a medium-hard sandy orange fabric that contains visible 1mm white inclusions. The rim sherds can be compared with examples found at Hili 8, Period III (*fig. 132*) (Righetti & Cleuziou, 2010: 288, fig. 4. 5-7), as these all display identical flattened rims above a clear short vertical neck. There also seems to be evidence for this type of vessel in the northern coastal settlement sites. At Kalba, the Jar 4 type (K4.474 and K4.432) displays the same flattened rims; these were discovered in the Early Wadi Suq layers (Carter, 1997, fig. 22. 4). The Type 9 jars can also be compared with an nearly identical Tell Abraq rim sherd, TA 1983, which was made from a closely comparable sandy buff material (Potts, 1991: 44, fig. 43. 4); this example was found within Velde's Early Wadi Suq level (Potts, 1990: fig. 71. 3). This pottery type, therefore, should be dated to the Early Wadi Suq.

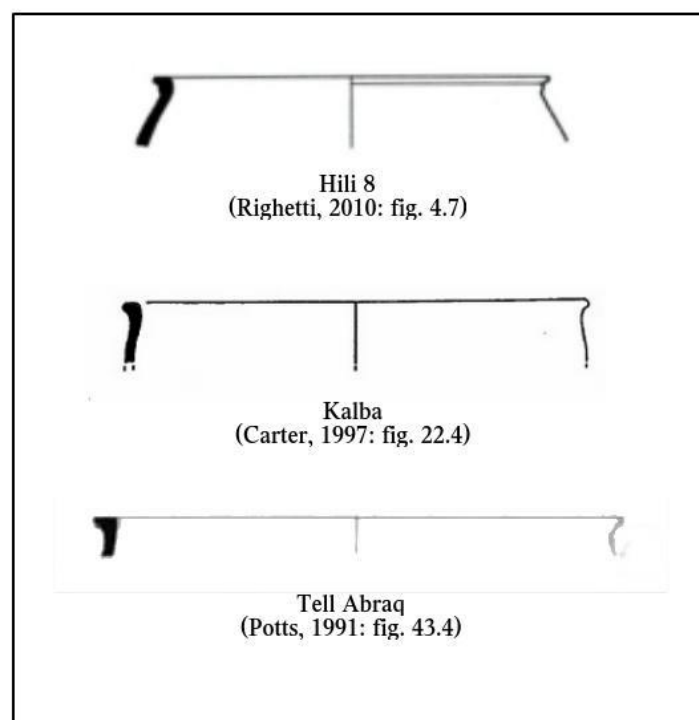


fig. 132 - Type 9 sherds found at Wadi Suq domestic sites



fig. 133 - Type 9 rim sherds

Type 10:

This type is represented by a small number of painted bowl rims. Sherds 131704-002 and 132105-003 form the upper bodies of Late Wadi Suq bowls and are decorated on their exterior with pendant lines descending down from the rim (*fig. 135*). They consist of a fine, relatively hard fabric that contains a few visible 1mm black inclusions. They can be compared with the red-painted bowls from Kalba (Carter, 1997: 256); these vessels were always burnished and the same can be seen with 131704-002, which displays a shiny, polished appearance on its exterior. The decorative black painted vertical lines can be seen on examples from Tell Abraq - TA 1647, TA 1357 (*fig. 134*) (Potts, 1991: 60, fig. 71. nos. 3, 4). The

bowls with pendant painted lines are also common at Shimal and Tell Abraç, where they are taken to be characteristic of the Late Wadi Suq phase (Velde, 1992: 93).

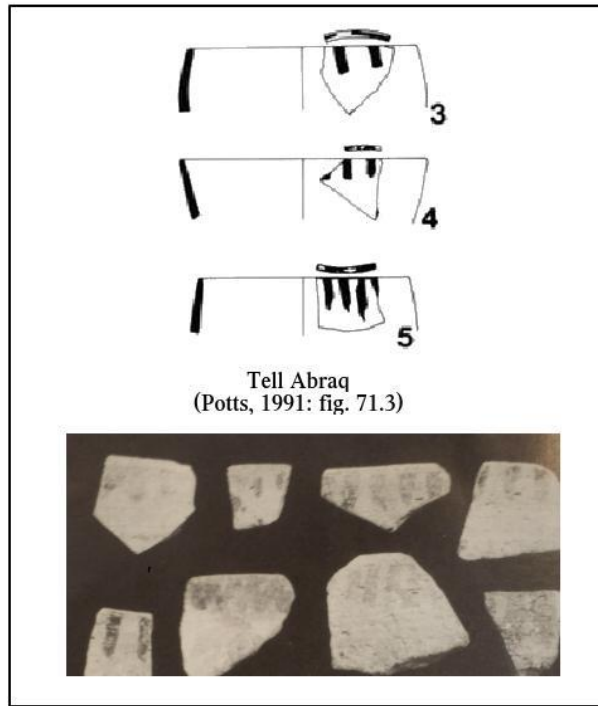


fig. 134 - Type 10 sherds from a Wadi Suq & Late Bronze Age domestic site

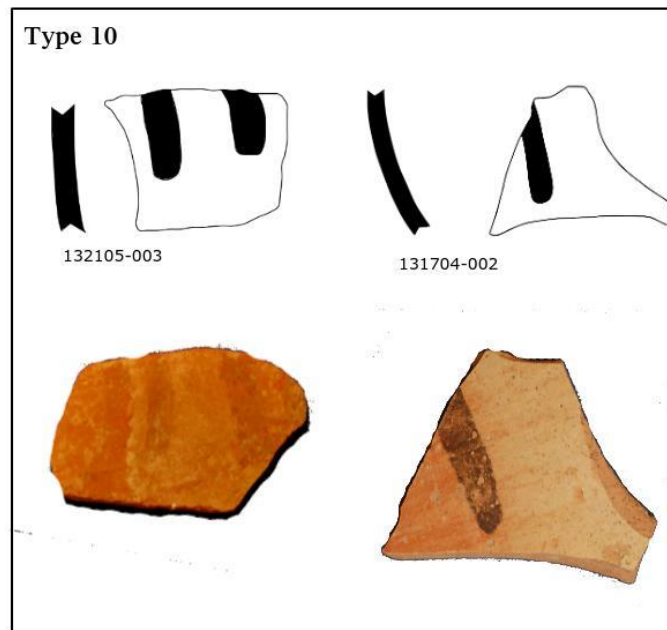


fig. 135 - Type 10 body sherds with painted decoration

Spouted Jar Rims:

The typically ubiquitous Wadi Suq spouted jar vessels are almost entirely absent from the Settlement Slope assemblage. These globular jars had a rim-spout and were common at most early 2nd millennium BC sites, in both domestic and funerary assemblages (*fig. 136*); for example, at Hili 8 (Righetti & Cleuziou, 2010: 289, fig. 5. 1), Wadi Suq (Frifelt, 1975: fig. 20a) and Shimal (Velde, 2003: fig. 2. 11). Only one example was discovered at the Settlement Slope - sherd 131604-002 (*fig. 137*). It displays traces of black painted vertical lines either side of the spout. The tubular spout is connected to a badly preserved rim which is indicative of an Early Wadi Suq date - as opposed to the later 'shoulder spout' vessels (Potts, 2003: 104).

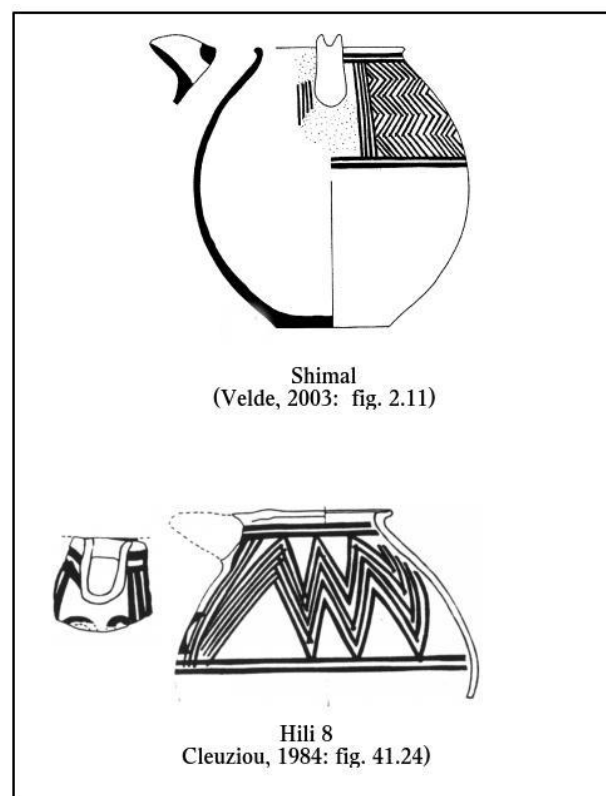


fig. 136 - Spouted jars from Wadi Suq domestic and funerary sites



fig. 137 - A painted rim spout from the Settlement Slope

The Indus Material:

In comparison with the large amounts of Indus artefacts present within late 3rd millennium contexts, very little comparative material is found in this region during the Wadi Suq and Late Bronze Age periods. This was possibly a consequence of the emergence of Dilmun which acted as a primary controller of trade for the Gulf region in c. 2000 - 1900 BC (Carter, 1997: 114). The Indus Black Slipped jar sherds discovered in the Hili 8 Period III layers have since been thought to have originated from 3rd millennium BC contexts (Cleuziou, 1989: Pl. 32. 1, 2). Nor has any definite Indus-related material been found in 2nd millennium BC levels at Tell Abraq (Carter, 1997: 114). Likewise, the Indus Black Slipped jars found at the Settlement Slope probably do not postdate the end of the Umm an-Nar period.

The implication of a collapse in trade with the Indus culture in the 2nd millennium BC, however, may not be entirely accurate. For the appearance of cord impressions on the bodies

of pots was a relatively common ceramic feature during the Wadi Suq period and can be accredited to techniques originating from the Indo-Iranian borderlands (Potts, 1991: 42; Vogt, 1996: 119, 125). Sherds 131201-001 and 131804-002 display horizontal rows of cord impressions, the latter in conjunction with black painted lines (fig. 138). The discovery of similar vessels at other sites suggests that the Settlement Slope site was not isolated in the Wadi Suq period and continued to function as an important point of exchange on local trade routes. The cord impressed sherds were found at Hili 8 Period III (Cleuziou, 1989: 78) and can be closely compared with items from the c. 2000 BC Indus colony at Shortugai (*ibid*). This technique was also recorded at Tell Abraq; TA 1205 is an example of a large class of string-impressed sherds which relate to the Harappan tradition of wrapping unfired large vessels with string in order to support them and prevent sagging when drying (Potts, 1991: 41, fig. 39.11). These string-impressed sherds are recorded at Shimal SX (Vogt & Franke-Vogt, 1987: 2) and early examples are attested in the 3rd millennium BC layers at the settlement on Umm an-Nar island (Frifelt, 1991: fig. 225, 1014.KH14).

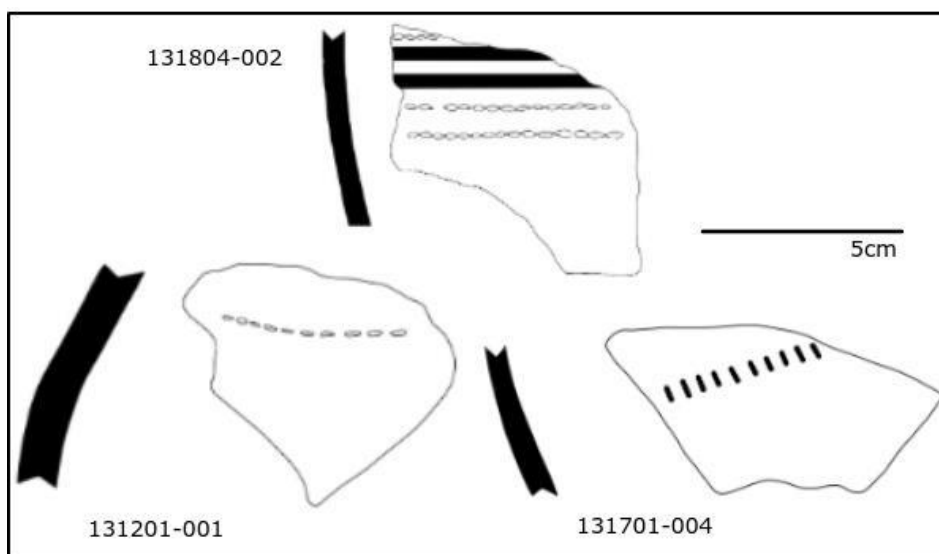


fig. 138 - Cord-impressed body sherds from the Settlement Slope

Discussion

The pottery at the Settlement Slope was mixed together within stratigraphic contexts that were not easily distinguished. The aim of the pottery study, therefore, was not to directly link individual diagnostic finds with specific architectural features. Rather, once a series of Umm an-Nar and Wadi Suq pottery types were identified, their percentage of the total assemblage could be calculated (*fig. 139*) and the distribution of the pottery types across the site could be analysed (*figs. 140, 142, 143*). Together this data will contribute towards ascribing a rough framework of dates for the overall phasing of the occupation and structural elements at the Settlement Slope, presented in Chapter 5 'The Results'.

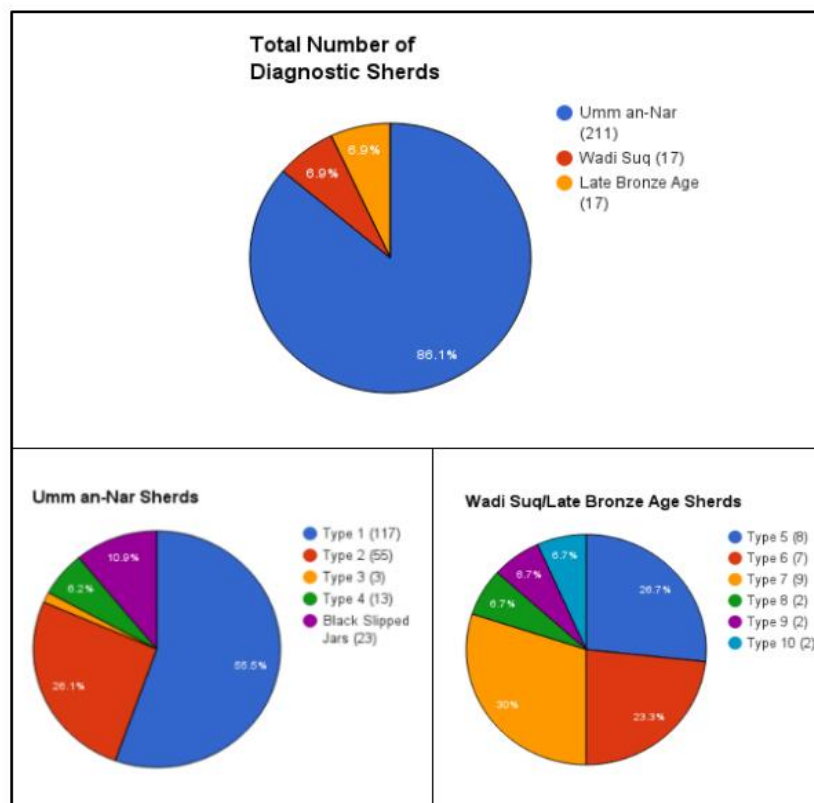


fig. 139 - Total number of diagnostic sherds from the Settlement Slope

The Umm an-Nar Pottery Types:

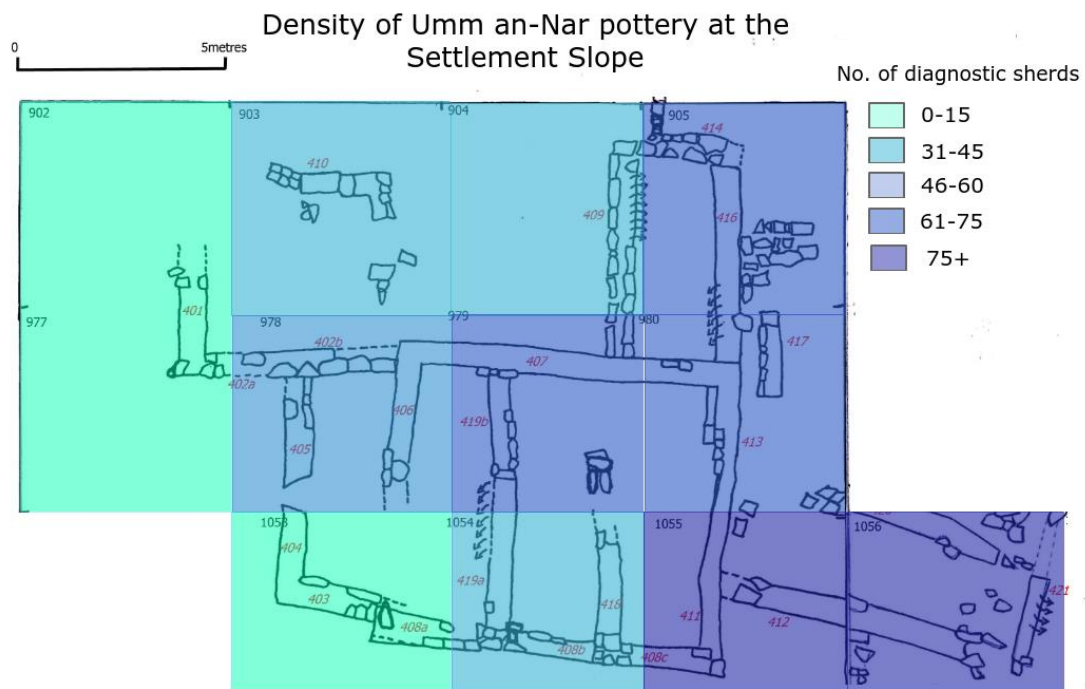


fig. 140 - Comparative densities of Umm an-Nar diagnostic sherds at the Settlement Slope

It is difficult to ascribe specific locations for the large assemblage of Umm an-Nar sherds that was excavated at the Settlement Slope: whereas the small number of identifiable Wadi Suq and Late Bronze Age sherds were recorded in association with nearby features at the time of excavation, each Umm an-Nar sherd was recorded simply with its 'Lot Number' (see *Part I*, Chapter 3). Consequently, while they can be traced to their horizontal layer, it unfortunately means that very few direct relationships can be ascertained between the diagnostic Umm an-Nar pottery and specific features. Nonetheless, the above plan (*fig. 140*) displays the concentration of diagnostic Umm an-Nar sherds in each grid across the site. While the results may be affected by the poor preservation of some grids (eg. 902, 977), it remains a useful tool

in identifying the key habitation areas at this domestic site - these will be discussed later in the Results section (Chapter 5).

The Type 1 sherds alone form nearly half (48%) of the total diagnostic sherd assemblage found at the Settlement Slope site. These sandy storage jars are considered to be representative of a widely recognised Umm an-Nar domestic area and, based on the assemblage at Hili 8 (Phases IIc² to IIe), are indicative of a Middle Umm an-Nar date (c. 2500 - 2200 BC).

A Late Umm an-Nar (c. 2200 - 2000 BC) occupation phase may be represented by the Type 2, 3 and 4 pottery sherds. The Type 2 storage jars formed the second largest proportion of pottery at the Settlement Slope, comprising 22% of the diagnostic assemblage. Not much can be interpreted from their general distribution nor were they associated with any specific structures, as they were commonly located within most areas at the site. Based upon decorative comparisons at other sites, these jars are allocated a Late Umm an-Nar date. Together the short-necked Type 3 jars and the Type 4 suspension vessels formed 7% of the total pottery assemblage and were also evenly distributed around most of the structures at the site. Both of these types can be dated to the Late Umm an-Nar period. The high volumes of these types indicate that perhaps sedentary occupation was sustained during this Late Umm an-Nar period at the Settlement Slope.

The domestic nature of the structures found at the Settlement Slope, during these Umm an-Nar periods, can be highlighted by the discoveries of various small finds (*fig. 140*); these include a copper needle and a copper sickle blade, both of which were situated inside the rectilinear house unit within possible Umm an-Nar contexts. Furthermore, activity areas were also located in spaces immediately surrounding the house. These contained a number of quern stones, spindle whorls, hammer and mortar stones and a possible gaming token (*fig. 141*). The large collection of Umm an Nar pottery types discovered within these deposits suggest that these domestic activity areas are likely to have been contemporary with the Umm an-Nar occupation of the Settlement Slope. The activity areas will be discussed in greater detail in the following 'Results' section (see Chapter 5).



fig. 141 - Copper small finds found within the domestic structure



fig. 142 - Domestic small finds associated with the exterior 'activity areas' (clockwise from top: grinding stone, spindle whorl, possible re-shaped gaming token, mortar stone, spindle whorl fragment)

The Wadi Suq & Late Bronze Age Pottery Types and the Architecture:

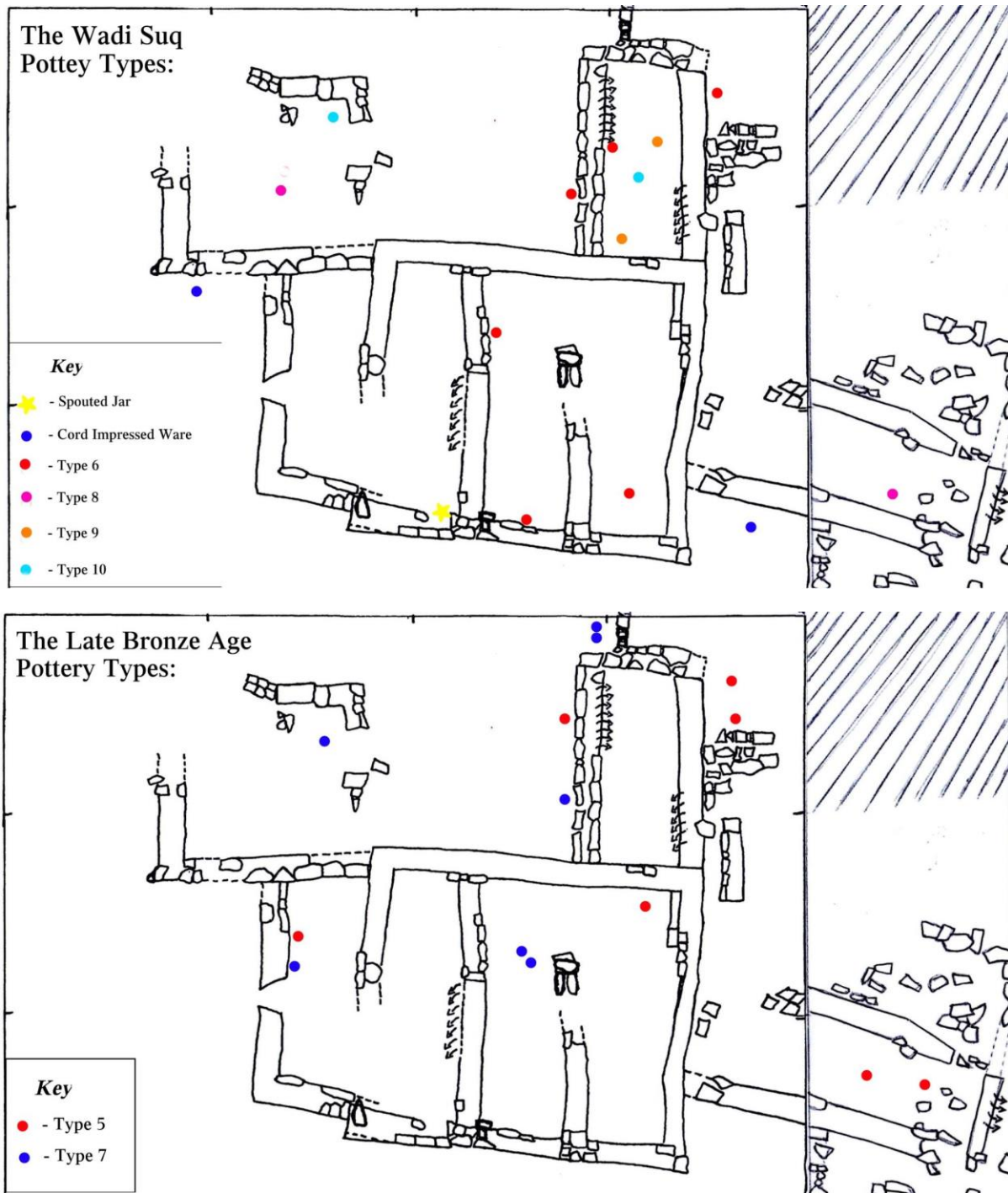


fig. 143 - Distribution of the Wadi Suq (above) and Late Bronze Age (bottom) pottery types at the Settlement Slope

Based on comparisons with similar examples at other sites, the small, decorated Type 6 bowl/cups and the undecorated Type 9 jar rims can both be dated to the early 2nd millennium BC (c. 2000 - 1900 BC). Although the Type 6 sherds comprise just 3% of the total assemblage, they were often concentrated in specific areas of the Settlement Slope (*fig. 142*). Two rims were located level with the base of an upturned stone wall that formed the northeast room extension. A decorated rim sherd, also of this pottery type, was discovered level with the base of another upturned stone wall that formed an interior partition. Finally, another Type 6 painted body sherd was retrieved from within a rubbish pit associated with some upright stone reinforcements. The two plain flat-rimmed Type 9 sherds, meanwhile, were both found beneath rockfall located inside the northeastern room extension and may, therefore, be connected with the triangular stone wall. Although not prevalent at the Settlement Slope, these pottery types were often found concentrated around the northeastern room extension and other later wall additions (*'wall types 2 and 4'*). This pottery is a possible indicator, therefore, that there was a series of new construction phases built during the Early Wadi Suq period at the Settlement Slope.

The Type 8 examples comprised of just two painted beaker sherds. These display the same simple wavy line decorative motifs that became the dominant motif in funerary assemblages during the Middle and Late Wadi Suq period (c. 1900-1600 BC). The near-complete decorated beaker was found inside one of the Wadi Suq cist tombs built intrusively on top of the ruined domestic structures. The beaker sherds may be associated with this 'Tomb Phase' and can

perhaps date the construction of the funerary structures at the Settlement Slope to the Middle/Late Wadi Suq period.

Although the Late Bronze Age (c. 1600 - 1250 BC) pottery types together only form 7% of the overall assemblage, they were often concentrated within specific areas (*fig. 143*). The majority of the Type 5 goblet bases were discovered within the room extensions added to the original rectilinear structure: two bases were discovered next to a wall forming the northeast extension, while another two carinated body sherds were found alongside the walls forming the southeast room extension. A collection of coarse Type 7 cooking jars also appeared to be associated with the walls of the northeastern extension. The distribution of the ceramic types may suggest that the eastern room extensions at the Settlement Slope continued to be occupied during the Late Bronze Age period. The scarcity of this pottery, however, may mean that this habitation occurred at a reduced intensity when compared to the earlier occupation phases.

Chapter 5 - The Results

Introduction

This chapter will set out a proposed sequence of construction phases for the walls excavated at the Settlement Slope. This will be primarily based on the stratigraphy of the architecture, which is presented in *Part I*, Chapter 3. This wall sequence will then be assigned a framework of dates; in addition to the radiocarbon samples obtained during excavation at the Settlement Slope, the comparable wall styles (see *Parts II & III*, Chapter 3) and ceramic types (see Chapter 4) discovered at contemporary Bronze Age domestic sites will help achieve this.

The Wall Sequence

Once the collated architectural data at the site had been differentiated into five wall 'types' - described in *Part I*, Chapter 3 - the next step was to establish a chronological sequence for their construction. A form of '*Harris Matrix*' can be drawn up based on the stratigraphic information of each wall found at the Settlement Slope (*fig. 144*). The matrix, below, illustrates how the walls were physically associated with each other - such as whether they were found above, below or bonded with other walls - eg. wall 405 (Phase 3) abuts wall 402 (Phase 2), which, in turn, abuts wall 406 (Phase 1a). This can help us understand how the wall

Types developed relative to each other and provide us with a provisional sequence for their construction.

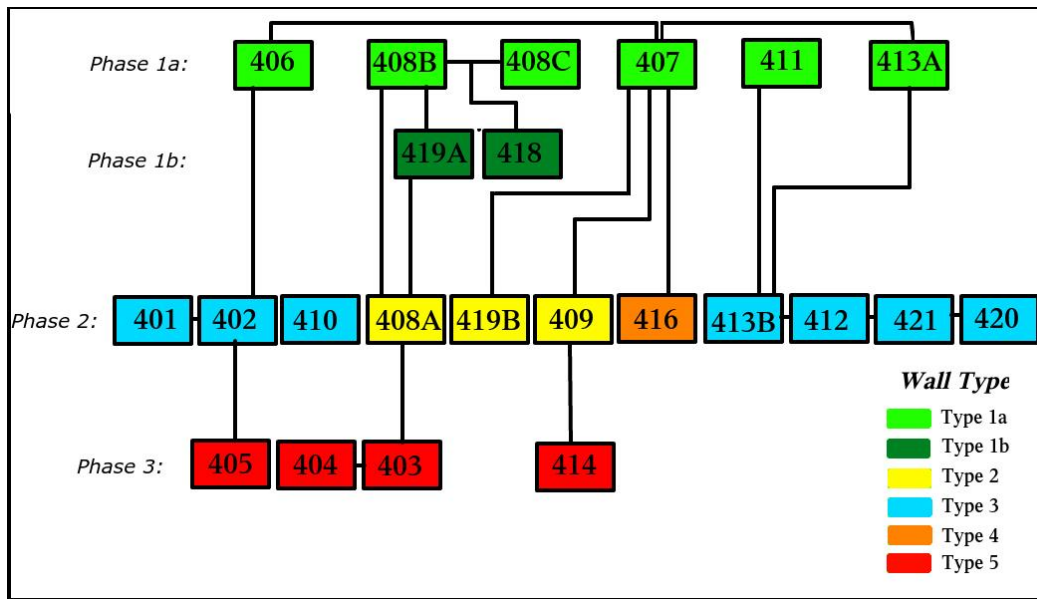


fig. 144 - A matrix illustrating the sequence of walls excavated at the Settlement Slope

(all plans, tables and photographs are the work of the author of this dissertation)

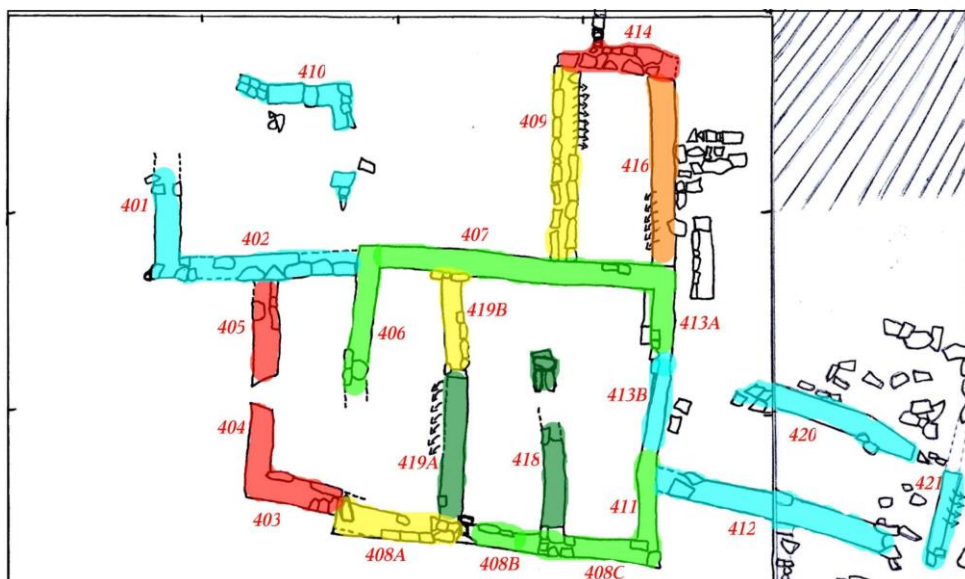


fig. 145 - The different phases of wall construction at the Settlement Slope

The matrix and plan, above, display three primary construction phases (*figs. 144, 145*). The earliest phase **(1a/1b)** is formed of the Type 1a and Type 1b walls. These are the earliest architectural features found at the Settlement Slope and all subsequent walls were found abutted against these Types. The final construction phase **(3)**, is characterised by the Type 5 walls. These cut through and abut against, all other wall Types at the site. These early and late construction phases can, therefore, be identified relatively clearly from the stratigraphic evidence presented in the matrix.

The middle construction phase, however, is composed of three different wall Types - 2, 3 and 4. These walls are built in very contrasting styles and were unlikely to have been contemporary features; this phase, therefore, may contain a series of sub-phases associated with each wall Type **(2a, 2b, 2c)**. Yet, none of these three Types share an immediate physical association and, therefore, the chronology of these walls could not be determined. It is clear, however, that Types, 2, 3 and 4 all abut against - and were stratigraphically above - the earlier Types 1a and 1b. In turn, these three Types were abutted by - and stratigraphically below - the later Type 5 walls. Although the stratigraphy at the Settlement Slope is simply not detailed enough to tell us in what chronological order these three Types were constructed, it does demonstrate that they were constructed during a phase sandwiched in between those representing wall Types 1a/1b and Type 5.

Dating the Wall Sequence

The archaeological sequence, displayed above, was obtained from applying relative dating methods - such as the stratigraphic relationships and base elevations - to a series of different wall Types excavated at the Settlement Slope. Although this successfully identified three principal construction phases (**1a/b, 2a/b/c, 3**), the lack of stratigraphic associations between certain wall Types prevent a fully reliable relative chronological sequence from being determined. Furthermore, it was important to establish how the cist burials discovered at the site (**Tomb Phase**) and the presence of Late Bronze Age pottery types (**Phase 4**) correspond to this sequence of construction phases.

The next step, therefore, was to apply a rough framework of absolute dates for the wall Types and their construction phases. This was mainly accomplished through an analysis of the C¹⁴ dates obtained during the excavation (*fig. 146, 147*):

No. on Plan	Lab No.	Season	Lot Number	Conventional Radiocarbon age	Calibrated Rev.	Period	Phase
1	Beta 244222	2013	131711	3830 +/- 30 BP	2430-2195 (99%)	Middle Umm an-Nar	1a/1b
2	Beta 244221	2013	131514	3860 +/- 30 BP	2260-2220 (9%) 2450-2265 (91%)	Middle Umm an-Nar	1a/1b
3	D-AMS 6422	2014	142227	3906 +/- 25 BP	2470-2315 (100%)	Middle Umm an-Nar	1a/1b
4	D-AMS 6424	2014	142934	3916 +/- 29 BP	2480-2315 (100%)	Middle Umm an-Nar	1a/1b
5	Beta 244220	2013	131511	3540 +/- 30 BP	1950-1770 (100%)	Early Wadi Suq	2a
6	D-AMS 6421	2014	142226	3421 +/- 31 BP	1865-1825 (5%) 1795-1635 (95%)	Middle/Late Wadi Suq	2b/2c or 3

fig. 146 - Radiocarbon dates obtained at the Settlement Slope

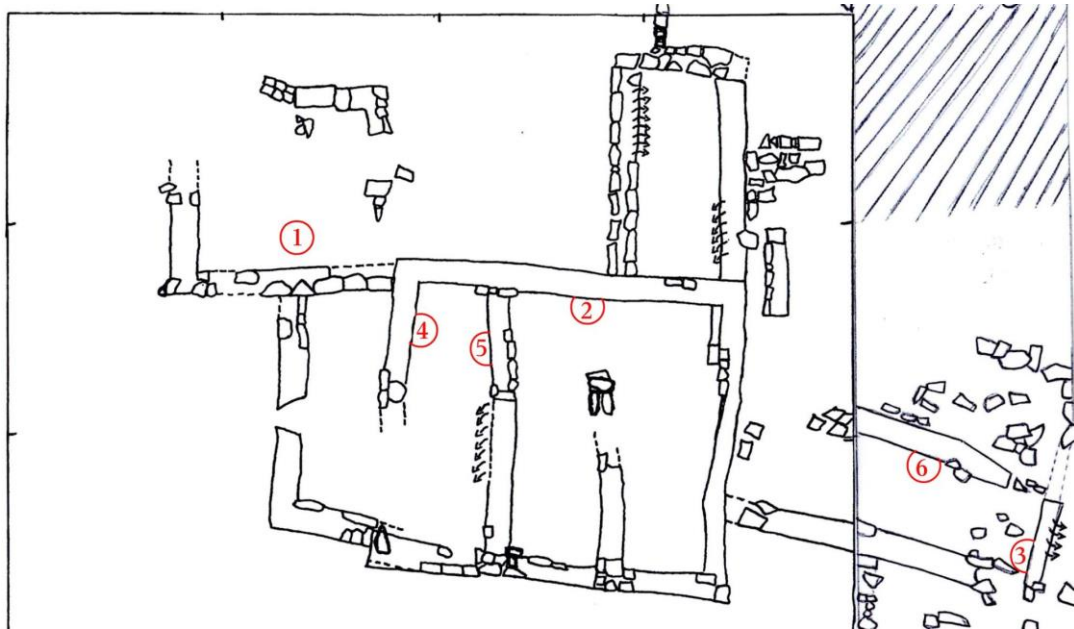


fig. 147 - Locations of the radiocarbon dates retrieved at the Settlement Slope

It should be noted, however, that, as previously discussed, the stratigraphic sequence is not consistent enough to allow a full matrix. It is, therefore, sometimes the *location* of the radiocarbon samples, rather than their stratigraphic relationship, that has prompted them to be linked with the walls. Despite this, the walls were also ascribed dates based on comparable studies of the wall construction styles (*Parts II & III*, Chapter 3) and the pottery types (Chapter 4). This information was combined with the provisional stratigraphic matrix, presented above, to produce a series of sequential plans for the development of the domestic structures with associated absolute dates.

The following table (*fig. 148*) sets out the proposed dates for the sequence of construction phases of walls at the Settlement Slope:

Phase Number	Period	Date
Phase 1a	Middle-Late Umm an-Nar	2400-2000 BC
Phase 1b	Middle-Late Umm an-Nar	2400-2000 BC
Phase 2a	Early Wadi Suq	2000-1900 BC
Phase 2b	Early Wadi Suq	2000-1900 BC
Phase 2c	Early Wadi Suq	2000-1900 BC
Phase 3	Middle/Late Wadi Suq	1900-1700 BC/ 1700-1600 BC
Tomb Phase	Middle/Late Wadi Suq	1900-1700 BC/ 1700-1600 BC
Phase 4?	Late Bronze Age	1600-1250 BC

fig. 148 - Proposed dates for the wall construction Phases

Phase 1a:

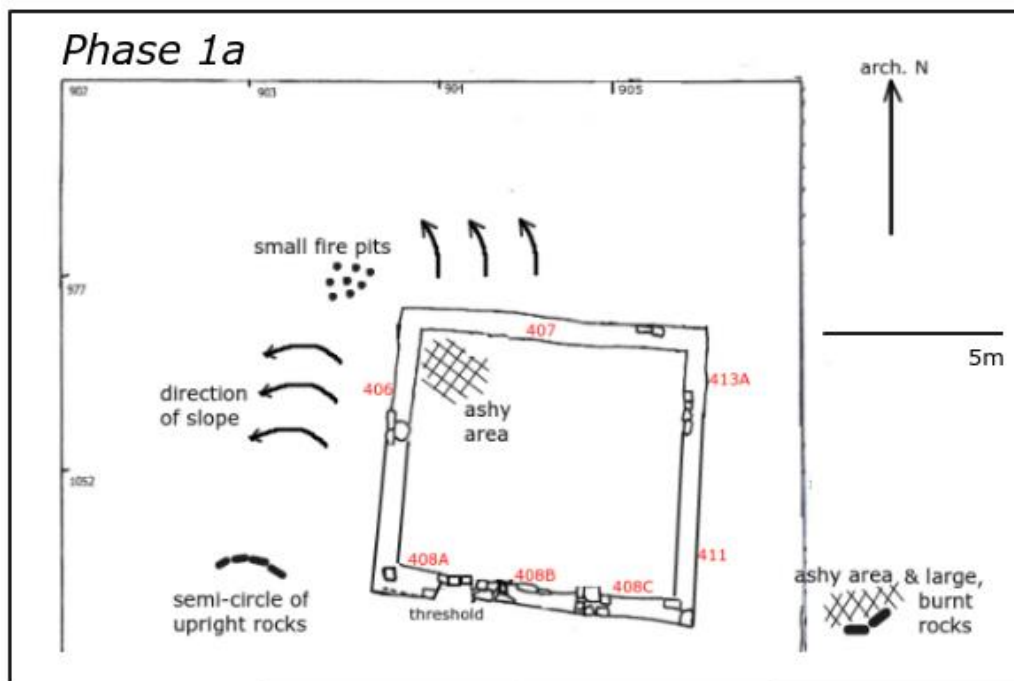


fig. 149 - Phase 1a structure and associated features

This was the original construction phase at the Settlement Slope site. It consists of a rectilinear house constructed from four well-made and bonded Type 1a walls (*fig. 149*). There was an entrance containing large threshold stones located in the southwest of the house. A comparison of the walls associated with this construction phase with those found at other sites, shows them to be typically ubiquitous features of the Umm an-Nar period. They appear in Middle Umm an-Nar contexts at Umm an-Nar island, Periods I and II, and also in Late Umm an-Nar contexts at Maysar-1 and Asimah AS-99 (see *Part II*, Chapter 3). A C¹⁴ sample (2) was obtained from the fill found in between the bottom two courses of Phase 1a wall, 407. It returned a date of cal. 2450-2265 BC. This can be regarded as the construction date for the original Phase 1a house.

The evidence for contemporary domestic activity occurring *within* the house was provided by the northwest interior where an extensive ashy lens was suggestive of an early hearth (*fig. 150*). It was cut into a possible surface which measured level with the bases of adjacent Type 1a walls, 406 and 407. The C¹⁴ sample (4) supplied a date of cal. 2480-2315 BC. Although the radiocarbon date is not associated directly with any specific wall, it places the occupation of the Phase 1a structure within this Middle Umm an-Nar period.

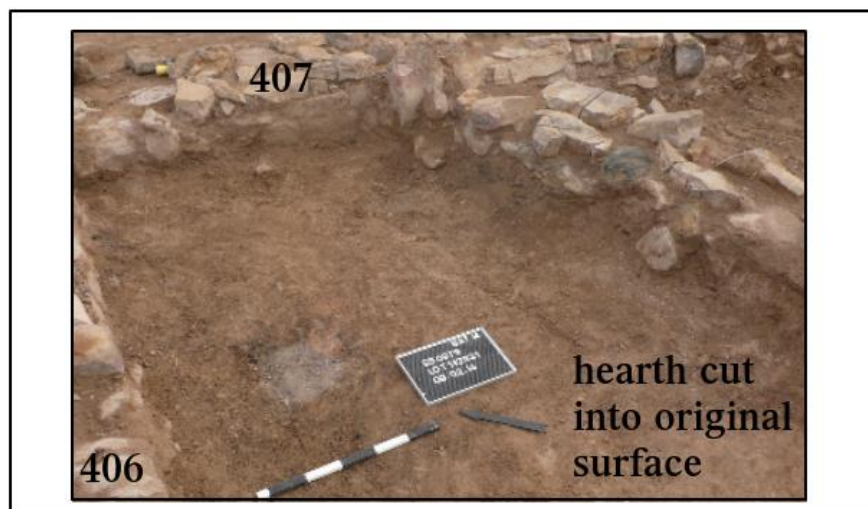


fig. 150 - Hearth found on surface of the original Phase 1a structure

There is further evidence of small-scale 'household' activities located *outside* the structure. The remains of a possible clay oven were discovered to the southeast of the building, within a thick ashy layer measured 10-15 cm below the Phase 2b wall, 421, which also contained a circular collection of natural burnt rock (*fig. 151*). The charcoal sampled from within this layer (3) returned a date of cal. 2470-2315 BC. The distribution of Umm an-Nar pottery densities at the Settlement Slope (*fig. 140, Chapter 4*) illustrates that the highest concentrations were located in the southeastern exteriors of the original Phase 1a structure. These may have acted

as the primary domestic activity areas serving the adjacent house structure or they may have represented dumping areas for cleaned out household 'rubbish'.



fig. 151 - Traces of burning found beneath later Phase 2b walls, 412 and 421

Another area of burning to the northwest of the house was marked by a series of small fire pits discovered in the layers below a Wadi Suq cist tomb (*fig. 152*). The layer of burning was recorded at elevations 20-30 cm below the Phase 1a walls. Yet, this is consistent with the existence of a more prominent slope outside the house during these initial phases, which was later levelled out with a rubble platform. A C¹⁴ date obtained from within one of these fire pits (1) was given at cal. 2430-2195 BC and, therefore, appears to have been connected with the Phase 1a structure. A small semicircle of natural burnt rocks was also discovered in a correspondent layer, 40 cm below the Phase 3 wall, 403, discovered with a small collection of copper prills. Together, therefore, these spaces appear to have represented exterior activity

areas which were contemporary with the original occupation phase, 1a, of the house during the Middle Umm an-Nar period.

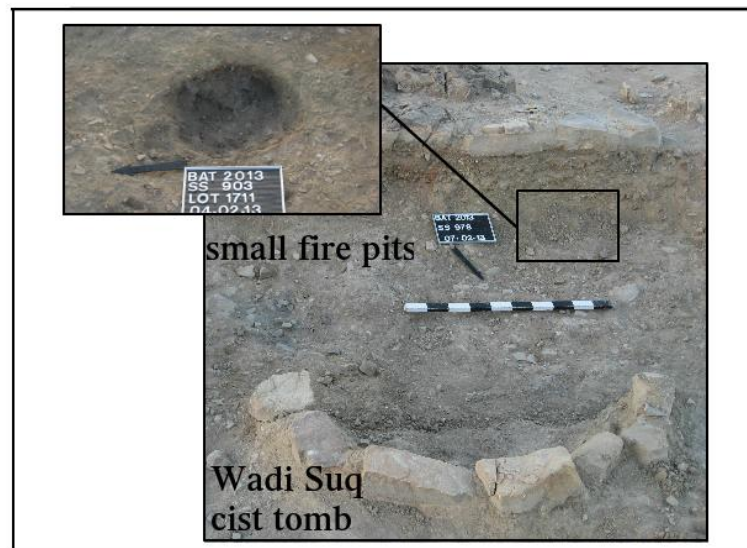


fig. 152 - Fire pits discovered beneath later Phase 2b wall, 402, and a Wadi Suq tomb

The Umm an-Nar pottery sherds found at the site, discussed in Chapter 4, support a Middle Umm an-Nar construction date for this initial phase as provided by the radiocarbon evidence. The *Type 1* sherds are comparable with storage jars from Periods I and II at Umm an-Nar island (Frifelt, 1995: 175), while the decorative motifs can be paralleled with examples from Hili 8, Period IIe (Cleuziou, 1989: pl. 28.9). The ceramics found associated with this phase also suggest the structure was occupied continuously up to until the end of the Umm an-Nar period. The *Type 2* sherds match the form of the storage jars found at Maysar-1 (Weisgerber, 1980: abb. 6.13), while the simple decoration is comparable with vessels discovered at Tombs A and 1059 at Hili (Mery, 1997: 175, fig. 3.5; al-Tikriti, 1981: Pl. 96B) - both are sites dated to the Late Umm an-Nar period. The *Type 4* suspension vessels reflect those discovered in Late Umm an-Nar contexts at Tower 1145, Bat (Frifelt, 2002). The *Type 1* and 2 storage jars alone

comprise 70% of the diagnostic pottery assemblage at the Settlement Slope. In addition, a considerable amount of domestic utensils - such as needles, quern stones, spindle whorls and even two gaming tokens - were found in layers associated with the original Phase 1a walls.

The C¹⁴ dates suggest that this phase originated some time during the Middle Umm an-Nar period, c. 2400 BC. The architectural comparisons reveal this wall type was common at Umm an-Nar period sites across southeast Arabia. The substantial assemblage of Middle to Late Umm an-Nar domestic pottery and small finds appears to reflect the longevity - c. 2400 - 2000 BC - of the occupation associated with this initial Phase 1a structure.

Phase 1b:

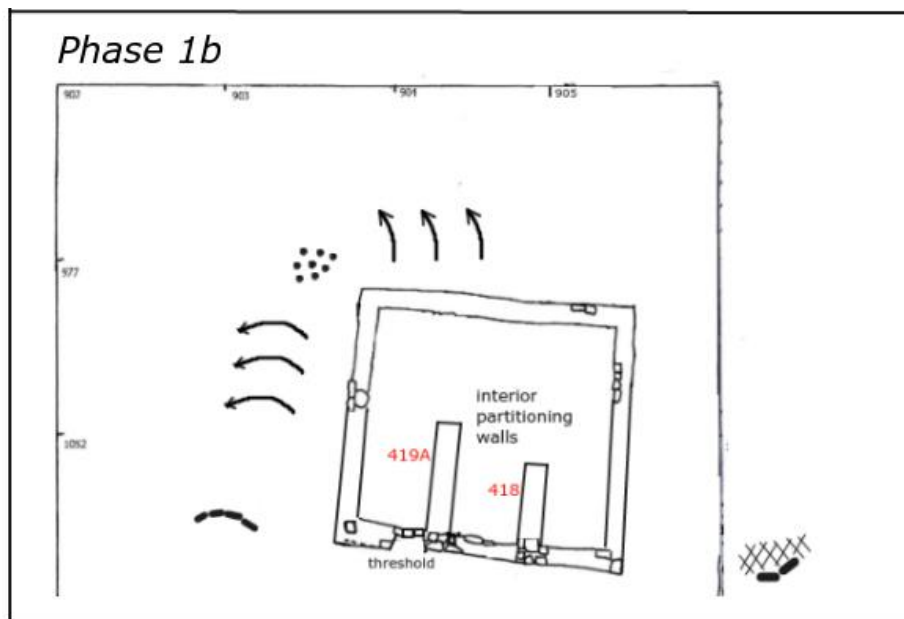


fig. 153 - Phase 1b structure and associated features

This sub-phase consists of the addition of two partition walls - 418, 419A - which partially extend south-north across the interior of the rectilinear house (*fig. 153*). These two walls share the same construction technique as the initial Phase 1a walls. Their base elevations, however, were measured 10-15 cm above the adjacent Phase 1a wall 408A/B. This shallow elevation may simply reflect the fact these walls were designed to divide the interior space and, therefore, were not major structural features. Yet they also both visibly abut against wall 408A/B via the placement of large stones. While their stratigraphic association with 408A/B may suggest they were added at some point after the initial construction phase, it is proposed that, based on their identical styles, these two walls represent a construction sub-phase closely associated with the original Phase 1a structure.

Phase 2:

This is a broad construction phase that features three different wall types. They are presented together in this phase due to their lack of direct stratigraphic associations. The stratigraphy can place the walls in between Phase 1a/1b and Phase 3; yet, the precise chronological order of the construction of these three wall types is difficult to establish using stratigraphy. Nevertheless, the application of associated radiocarbon dates, in addition to the comparable wall and ceramic studies, can help date three provisional sub-phases for construction Phase 2.

Phase 2a:

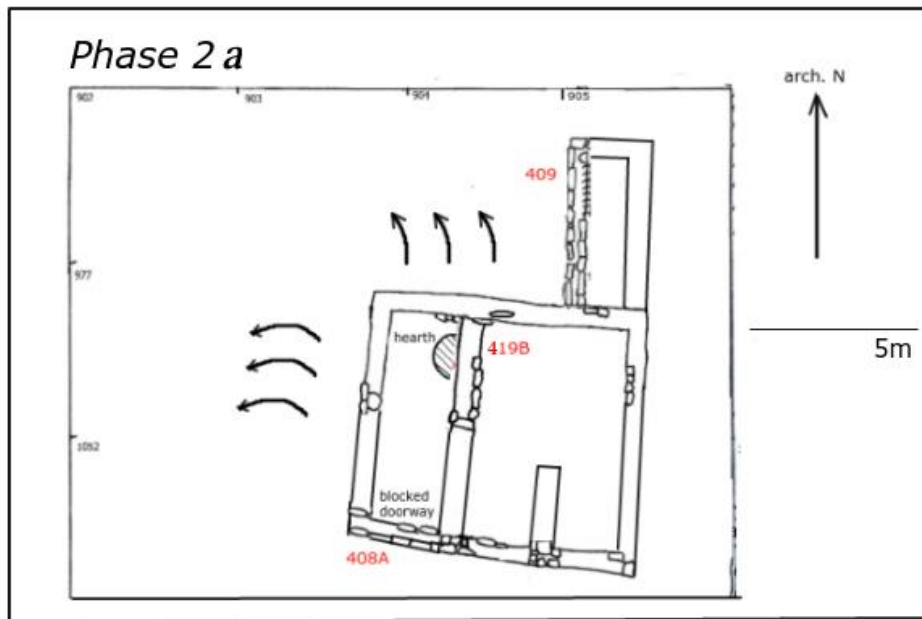


fig. 154 - Phase 2a structure and associated features

This sub-phase consists of the addition of 419B abutted against the end of 419A which served to partition off the interior of the house into two separate cells, the deliberate blocking of the earlier threshold, further reinforcement of upright stones laid along the southern walls and a new wall formed of upright stone slabs built to create a room extension in the northeast (*fig. 154*). The distinctive wall style of two parallel rows of upright slabs can be compared with an Early Wadi Suq example found in the Period III contexts at Hili 8, dated to c. 2000 BC. The unusual architectural features of Phase 2a also appear to replicate the style of the Early Wadi Suq collective tombs at Ghalilah and Shimal, located in the northern coastal zones, which are dated to the same period, c. 2000-1800 BC.

The continued domestic occupation of the Phase 1a/1b structure is highlighted by the discovery of a large *in situ* hearth, which abutted against the base of the upturned Phase 2a wall, 419B (*fig. 155*). The hearth was C¹⁴ dated (5) to the Early Wadi Suq period, cal. 1950-1770 BC. This, therefore, helps to date the occupation of the new room created by the Phase 2a partition wall.



fig. 155 - Hearth built up against base of Phase 2a wall, 419B

The Early Wadi Suq pottery types found in association with these Phase 2a walls appear to support the radiocarbon date and the architectural comparisons with other sites. A collection of *Type 6* cup sherds was discovered concentrated alongside the Phase 2a wall, 409, in the northeast extension. These can be matched with similar examples found in the Period III layers at Hili 8 (Righetti & Cleuziou, 2010: 286, *fig. 2.5*) and mirror 'Fabric 1' common throughout the Early Wadi Suq contexts at Kalba (Carter, 1997: 251). This pottery type also

occurred in layers associated with the reinforcements made to 408A/B. Furthermore, the plain short-necked *Type 9* jars were discovered beneath the 409 rock fall; this type matches an identical Tell Abraq rim sherd, TA 1983, which is made from a comparable sandy buff material and found within an Early Wadi Suq layer (Potts, 1991: 44, fig. 43. 4). The fabric of these jars can also be closely compared with the sandy 'Fabric 3' at Kalba, which is described as bearing a close resemblance to Late Umm an-Nar fabrics (Carter, 1997: 166). A spouted rim sherd, diagnostic of the Early Wadi Suq period, was discovered in the domestic refuse associated with the upturned stones of the blocked doorway in wall 408A.

The construction of these three walls, characterised by their distinct upturned large, stone slabs, appears to have occurred during the Early Wadi Suq period (c. 2000 - 1900 BC) and can, therefore, be considered the earliest of the middle (Phase 2) features.

- Phase 2b:

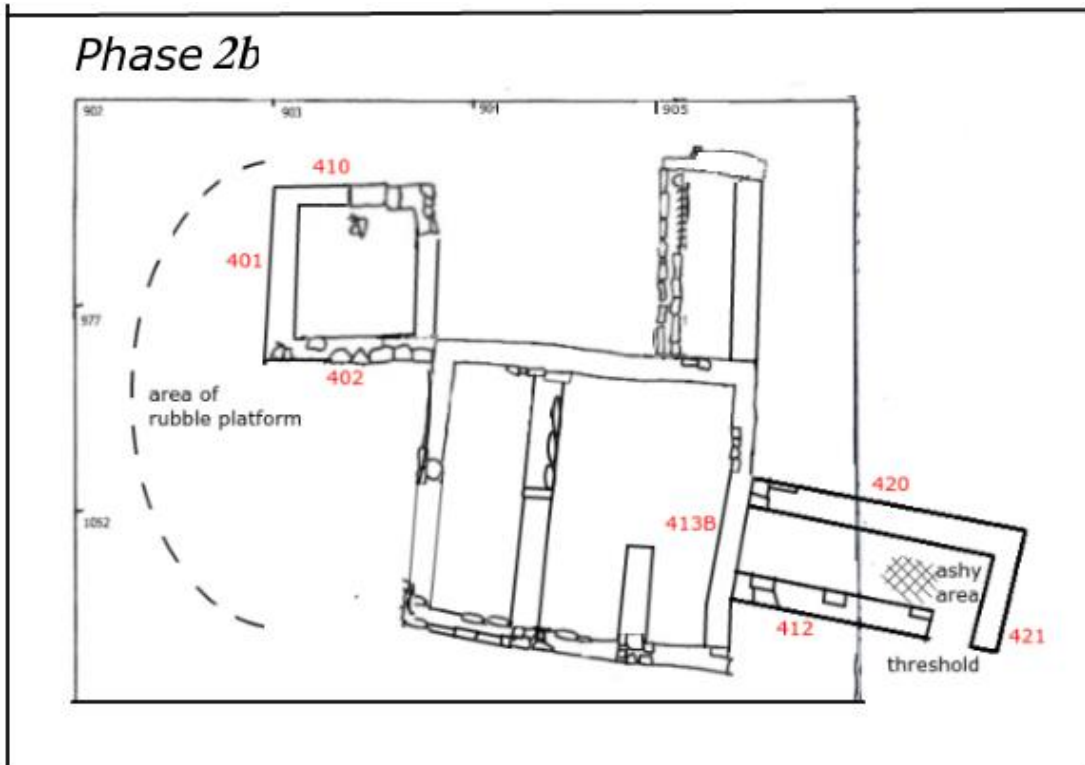


fig. 156 - Phase 2b walls and associated features

The next sub-phase, 2b, is represented by two room extensions added to the original house in the southeast and northwest (*fig. 156*). These were formed of a series of well-constructed walls made from large, rectangular stones which had been carefully dressed to present an inner and outer face, preserved to three surviving courses.

The extension to the southeast contains evidence of cooking activity, illustrated by a series of ashy lenses level with the base elevations of Phase 2b wall, 420 (*fig. 157*). These were discovered on top of a 10 cm-thick foundation layer of loose sterile clay which had been laid in order to flatten an area covered by Phase 1a fire pits and burnt rock. A radiocarbon date retrieved from this ashy lens (6) provided a date of cal. 1795-1635 BC demonstrating that this

room extension was occupied, at some level, during the Middle Wadi Suq period. Apart from their close proximity, however, there is no direct stratigraphic relationship between this ashy lens and wall 420. It is unknown therefore, whether these signs of habitation are contemporary with the construction of these Phase 2b walls, or in fact associated with an earlier or later phase.



fig. 157 - Ashy lens found near base of Phase 2b wall, 420

Another extension was added to the northwest of the original structure during this phase. Although not well preserved, these walls shared the same construction style as those observed in the southeastern extension. A sondage placed alongside Phase 2b wall, 402, helped discern the presence of an artificial rubble-filled platform which had been deposited in this exterior space. This is thought to have been an attempt to level out the gradient of the slope in order to facilitate the construction of this northwestern extension. The end of wall 402 abuts against the outer face of the bonded Phase 1a corner. The base elevations of 402

were also measured well above those associated with the Phase 1a walls. On the other hand, 402 was abutted in turn by the Phase 3 wall, 405. The stratigraphy tells us that the construction of Phase 2b likely occurred long after that of the initial rectilinear structure, yet before the construction of the Phase 3 walls.

The radiocarbon date obtained from within one of these Phase 2b room extensions suggests an occupation dated to the Middle Wadi Suq period. The ceramic assemblage, however, displays a curious lack of pottery types which can be confidently dated to the Middle Wadi Suq period. In contrast, there are clear diagnostic sherds from the Early Wadi Suq period (*Types 6 and 9*), plus a number of ceramic examples of Late Wadi Suq and Late Bronze Age date (*Types 5, 7, 10*). Therefore, although the radiocarbon date is evidence of domestic activity, in some form, continuing during the Middle Wadi Suq, the lack of ceramic types from this period indicate a reduction in the scale of occupation at the Settlement Slope site. The walls that belong to sub-Phase 2b, however, are substantial features highly suggestive of a permanent occupation of the site. It can be argued that the Phase 2b wall extensions were constructed shortly after, or, as the stratigraphy fails to rule out otherwise, may even be contemporary with, the construction of the Phase 2a walls, during the Early Wadi Suq period.

- Phase 2c:

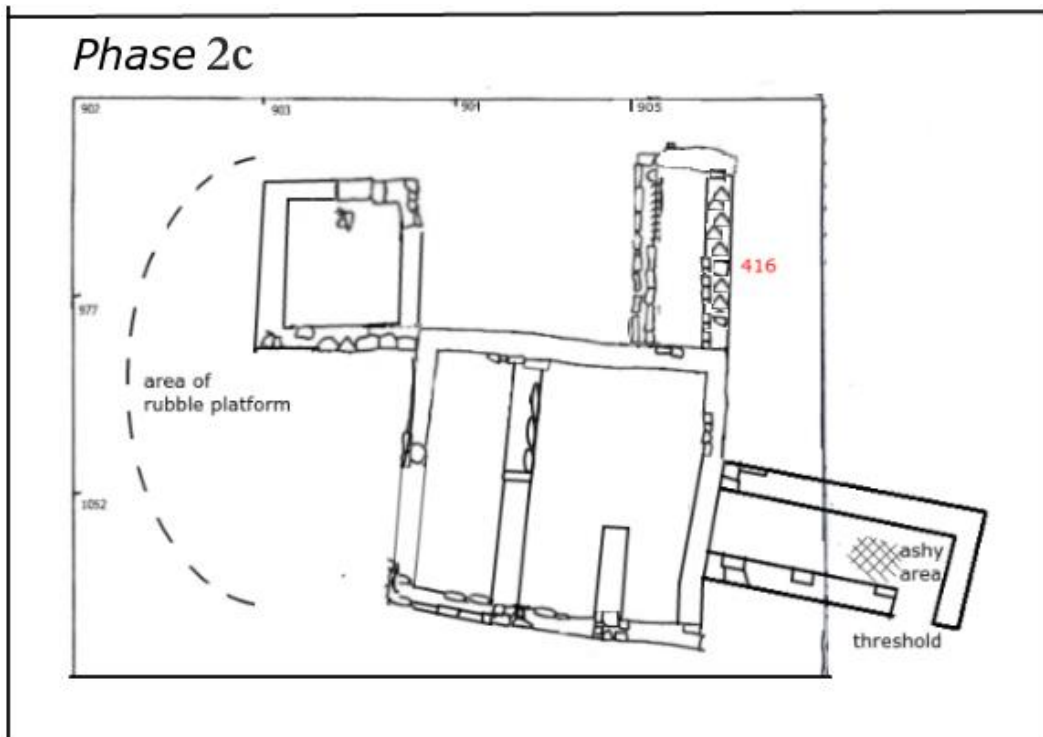


fig. 158 - Single Phase 2c wall

This single wall forms the eastern side to the northeast room extension (*fig. 158*), first delineated by wall 409 in Phase 2a. It is made from distinctive large stones, dressed to form a mixture of triangular and rectangular blocks. Like the Phase 2b walls, this is a substantial feature: preserved to two courses, the significant amount of surrounding rockfall is indicative of it originally having consisted of many more courses. It is impossible to establish its association with the other Phase 2 walls; although, as with the Phase 2a and 2b features, it shares a clear stratigraphic position above the Phase 1a walls and below the Phase 3 walls within the sequence.

There were no *in situ* features or C¹⁴ samples discovered associated with wall 416, making it difficult to date. It may be closely contemporary with the upturned stone wall, 409, which runs parallel along the opposite side of the room; the majority of the Early Wadi Suq pottery sherds - *Types 6 and 9* - were found within this room, in layers beneath the extensive rockfall. Yet, the clear stylistic differences between the two walls suggest otherwise; rather, the larger Phase 2c wall may have completely replaced a previous upturned stone Phase 2a wall in order to improve the structural qualities of the room. Like Phase 2b, therefore, this Phase 2c wall, based on associated pottery finds and the substantial make-up of its construction, can be provisionally placed in this middle construction phase which corresponds to the Early Wadi Suq period.

Phase 3:

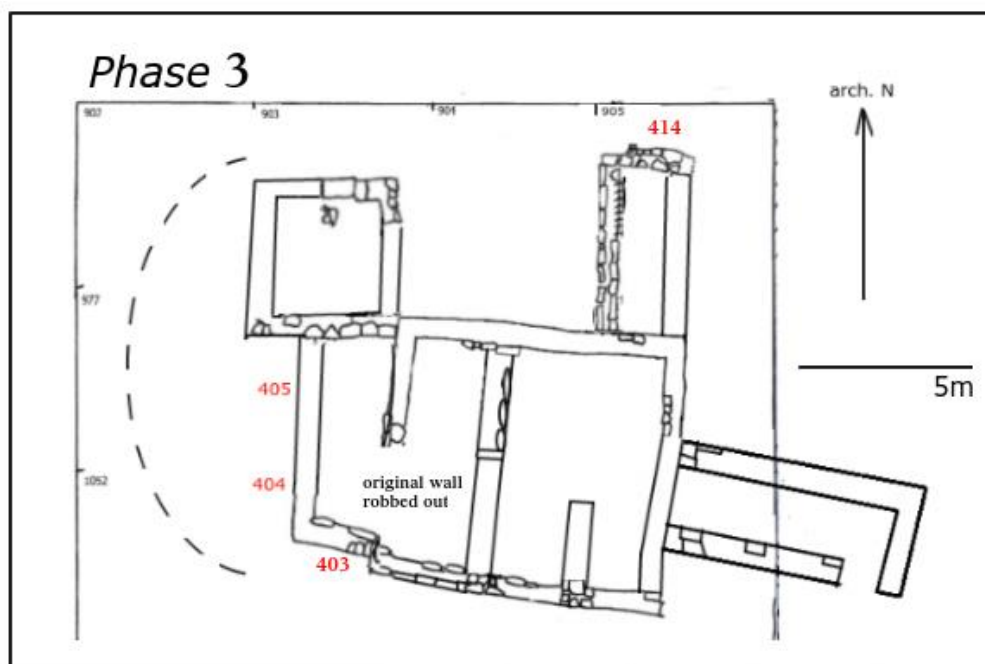


fig. 159 - Phase 3 walls and associated features

This phase consists of the construction of three new intrusive stone walls added to the western side of the original structure, plus a single wall added to the northeastern extension (*fig. 159*). These were formed from a wide range of stone sizes laid in single course, including large natural boulders, often laid in a vertical position. The western examples cut through the end of the Phase 2a wall, 408A, and also abut against the outer face of the Phase 2b wall extensions. Here, the walls follow their own distinct alignment and do not appear to be immediately related with the surrounding domestic architecture. It may have been during this late construction phase in which part of the original Phase 1a wall, 406, was robbed out in order to accommodate the new Phase 3 walls. Another Phase 3 wall was added in the northeastern extension. Here, it cut through the end of another Phase 2a wall, as well as abutting against the end of the single Phase 2c wall. The stratigraphy attests to these walls post-dating those from the other Phases and therefore, having been constructed during the end of the site's sequence.

The secure stratigraphic contexts associated with these unconventional walls allows them to be designated their own separate construction phase, which postdates all other domestic structures at the site. Assigning this phase a date, however, has proved difficult owing to the complete lack of *in situ* features and associated artefacts. The appearance of the cist burials is thought to signal the end of the occupation of the structures at the site, in which case Phase 3 lies between the Early Wadi Suq Phase 2 and the Middle/Late Wadi Suq Tomb phase.

Yet the unorthodox style of the walls - 403, 404, 405, 414 - raises questions as to their original function. The large, angular boulders appear inconsistent with the intention to create a

structurally sound wall foundation. Instead, they appear indicative of small enclosure boundaries which made use of the pre-existing stone features. If this is the case, the close proximity of the cist burials would not prevent the construction of simple boundary markers as it would new house structures. As they appear to represent the final domestic construction phase at the site, the Phase 3 walls have been assigned a date roughly contemporary with the Tomb Phase, sometime during the Middle or Late Wadi Suq (c. 1900 - 1600 BC). Yet it is unknown whether they predate the burials, or were in fact associated with the Late Bronze Age pottery which postdate the Tomb Phase.

The Tomb Phase:

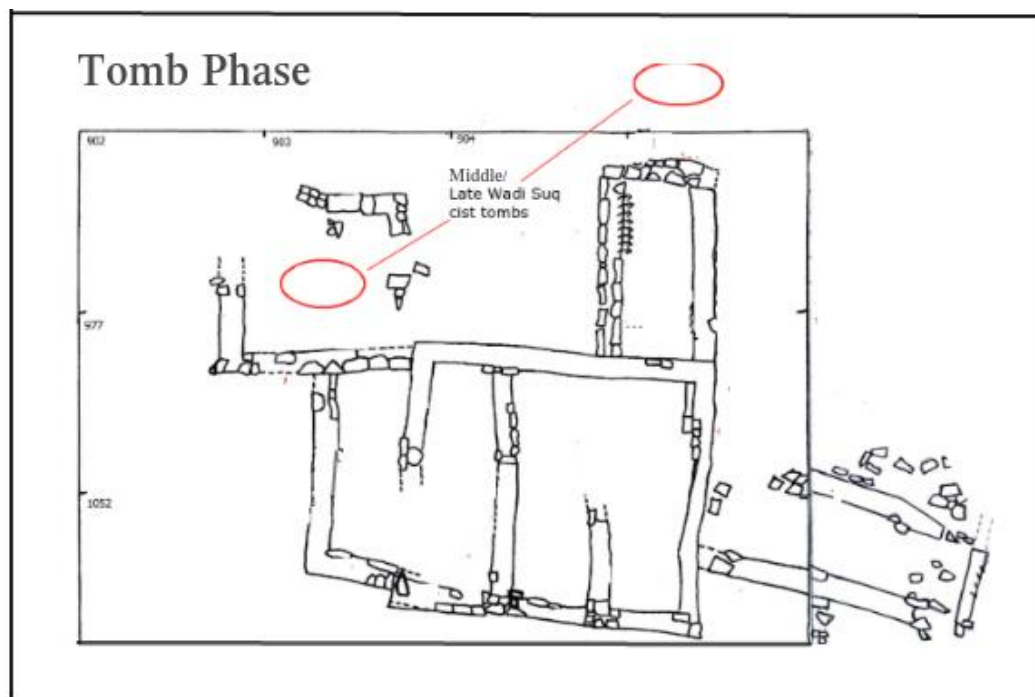


fig. 160 - Wadi Suq Tomb Phase

The Tomb Phase at the settlement consists of the appearance of a number of stone-lined cist burials spread out on top of round tower 1156 and across the Settlement Slope. It is thought that the burials signal the end of the domestic nature of the site and its designation as a funerary space. The design of the tombs themselves is a fairly ubiquitous example of a Wadi Suq single cist burial that occurs regularly throughout the Oman Peninsula during the Wadi Suq periods and even continuing into the Iron Age.

One of the tombs was discovered in amongst the domestic remains of walls 401, 402 and 410, inside the Phase 2b northwestern extension. These surrounding walls were robbed out in order to create space, and provide materials, for the tomb lining. The tomb assemblage included a fragment of a *Lucina* shell, eleven *olivella* shell beads and a near-complete round-bottomed *Type 8* beaker decorated with black painted lines and a potter's mark inscribed near its base (*fig. 161*). The wavy lined decorative motif can be closely compared with examples found in the 'Shimal' type tombs of the Northern Emirates, which have been dated to the Middle/Late Wadi Suq period, c. 1900-1600 BC (Velde, 2003: 104).

The Tomb Phase is important as it provides us with a *terminus ante quem* date for the final construction phase at the Settlement Slope. By comparing the beaker found within the assemblage with similar examples at other sites, the tomb in the northwest room extension can be dated to the Middle or Late Wadi Suq period. This means it is likely that the sequence of construction at the site had ended before this date.



fig. 161 - A cist burial from the Settlement Slope (top) and its funerary assemblage: decorated beaker, lucindae shell and shell beads

Phase 4:

This is best described as a possible ‘occupation’ phase, rather than a new construction phase. However, the possibility cannot be ruled out that the ephemeral enclosure walls of Phase 3 postdate the Tomb Phase and are in fact associated with this later phase of occupation.

There was no evidence of new domestic structures being constructed after the Tomb Phase. The cist burials, dated to the Middle/Late Wadi Suq period (c. 1900 - 1600 BC), were initially

thought to signal the end of the domestic occupation of the Settlement Slope, it was a surprise, therefore, to discover a small collection of Late Bronze Age (1600 - 1250 BC) ceramics at the site: 17 diagnostic sherds form nearly 7% of the overall diagnostic assemblage. The *Type 5* pedestalled goblet bases are associated with a later development within the Wadi Suq period and become dominant in the Late Bronze Age period (Velde, 2003); close parallels exist in layers at Tell Abraq which were radiocarbon dated to cal. 1670 - 1460 BC (Potts, 1993: 126, Table 1). The *Type 7* cooking jars represent examples of coarse ware discovered at Sharm (Barker, 2002: 11, fig. 8), Shimal (Mery, 2000: 266) and Tell Abraq (Potts, 1990: fig. 90. 8). Their coarse fabric, with large red inclusions, closely matches that found within Late Bronze Age contexts at these sites.

The goblet bases are typically found within funerary contexts and, therefore, it may be that they were associated with the Middle/Late Wadi Suq cist burials found throughout the site. Yet, as discussed above, the forms of these bases imply a later Late Bronze Age date. Furthermore, they were mostly found within relatively secure contexts below the rockfall inside the southeastern room extensions of Phase. The bases appear connected with these surrounding walls, perhaps denoting a domestic association. The coarse cooking jars are more suggestive of a domestic usage and were also found alongside the walls of the two eastern room extensions (see Chapter 4). The ceramic evidence seems to be indicative of the continued habitation of the eastern parts of the site, on some level, after the Tomb Phase.

Chapter 6 - Discussion

Introduction

In this chapter I will discuss the architectural development of a domestic site and its residential units, using the data collected from the Settlement Slope. This will focus on three chronological phases: the Umm an-Nar period, the 'transition phase and the Wadi Suq & Late Bronze Age periods. I will draw on the architectural data, presented in *Part I*, Chapter 3, as well as the proposed construction sequence illustrated in Chapter 5. Using the limited published literature on the subject, I will also compare the Settlement Slope with the contemporary domestic sites identified in *Part II*, Chapter 3 in order to assess whether my interpretations conform to the current consensus on the nature of domestic sites during these three periods.

The Umm an-Nar Period

Umm an-Nar domestic sites were primarily defined by a sedentary occupation that was maintained over a relatively long period. Yet, the recent excavation at the Settlement Slope exposed just a single house from this period. The research conducted by Frifelt during the 1970's ('Trench 1155'), however, provides a strong indication that the area of 3rd millennium BC habitation extends further up the slope (Brunswig, 1989; Frifelt, 1976: 60). Significantly,

Umm an-Nar pottery forms nearly 90% of the overall diagnostic pottery assemblage excavated at the Settlement Slope (see Chapter 4). The majority of these Middle and Late Umm an-Nar sherds were discovered as dense collections, located immediately alongside the outer faces of the house walls. The buildup of large amounts of discarded domestic pottery can perhaps be regarded as evidence that the site was occupied continuously during these periods.

The Settlement Slope would not have existed in isolation during the Umm an-Nar period. The associated palm gardens may have occupied an area encompassing 40-60 ha and supported a sizeable population of c. 1200 people (Wilkinson, 2003: 160), while the presence of seven monumental round tower structures (Potts, 2003: 144; Thornton & Cable, 2012), and a substantial necropolis consisting of collective round tombs, would have combined to form an impressive funerary and domestic landscape (see Chapter 2) (Frifelt, 1975: figs. 29-34; Schmidt, 2011: fig. 13). Additional excavation is required, therefore, in order to reveal more of the residential units that appear to have been representative of this sedentary Umm an-Nar domestic site.

The architecture of the single house discovered in 2013-14 can, by itself, reveal much regarding the nature of settlement in the 3rd millennium BC. During the Umm an-Nar period the house units were typically characterised by complex architecture including house units with highly integrated shared spaces, interconnecting corridors, multiple entrances and shared courtyards (see *Part III*, Chapter 3). Although smaller than other contemporary 3rd millennium BC domestic structures, the single stone-walled rectilinear house from the

Settlement Slope contains two partition walls which neatly divide the interior space into three well-integrated rooms. Although these walls may have separated the living space into multiple cells, they do not completely partition-off the space. In fact, by extending just halfway across the rooms, they arguably demonstrate the 'weak architectural boundaries' suggestive of the composite and highly integrated nature of the Umm an-Nar socio-cultural system (Azzara, 2009: 12). In fact, the layout of this structure accords somewhat with the highly integrated house units found at both nearby oasis sites, such as Hili 8 (Cleuziou, 1989: 68-70) and Amlah 4 (de Cardi et al. 1976: fig.10), as well as those located in other coastal geographical zones, such as at Ra's al-Jinz (RJ-2) (Azzara, 2009: 9) and Umm an-Nar island (Frifelt, 1991: 92) (see *Part II*, Chapter 3). At these sites, traditional nuclear family units may have gradually merged together into extended family groups during the Umm an-Nar period, constructing and occupying larger residential compounds, formed of inter-connected and shared spaces, out of necessity (Potts, 2003: 143).

The construction styles of the walls from the Settlement Slope which could be dated to the Umm an-Nar period – Type 1a/b - include multiple courses of well-laid, carefully-dressed stones, indicative of a well-organised phase of construction. These walls appear as a possible standardised architectural type; it seems that the Umm an-Nar populations followed mental templates that were widely recognised and commonly adhered to when constructing residential units during the second half of the 3rd millennium BC. This architectural phenomenon can be seen at a number of domestic sites, representing multiple geographical regions - see *Part III*, Chapter 3. For example, this wall type is consistent with the Type 1A examples discovered at Maysar (Weisgerber, 2007: 252), Umm an-Nar island (Frifelt, 1991)

and Asimah (Vogt, 1994: 153). These walls can be regarded as examples of enduring 3rd millennium BC architecture, having been discovered at both Early Umm an-Nar and Late Umm an-Nar period sites. Furthermore, the original finished appearance of the domestic structure from the Settlement Slope perhaps resembled those Type 2 examples excavated at Hili 8, composed of a stone foundation combined with a mudbrick upper half (Cleuziou, 1989: 68).

In addition to the interior living spaces, the activity areas surrounding the house can be interpreted as evidence of a clearly defined household economy (see Chapter 5). A series of stone-lined hearths, a clay oven lining and fire pits all attest to specialised spaces reserved for cooking activities. While the discovery of high concentrations of pottery, along with grinding stones, hammer and mortar stones, copper needles and a small sickle blade, suggest that a wide range of other household economy activities were undertaken within their own specially designated areas during the 3rd millennium BC. Most Umm an-Nar oasis settlements can be characterised by the presence of clearly defined functional zones, as highlighted by a large terraced area devoted to craft activities at Hili 8 (Cleuziou, 1989: 70) and special house units designated for metal working at Maysar-1 (Crawford, 1998: 136; Yule & Wagner, 2008: 2). The discovery of the activity areas around the original Umm an-Nar Settlement Slope structure, perhaps suggests that cooperation within the extended family groups operated on an economic level, as well as a domestic one (Potts, 2003: 143). At Ra's al-Jinz, for example, specially designated areas containing ovens and tools for shell manufacture, found within the multi-celled compounds, are argued to be evidence of an extended family sharing essential domestic tasks (Azzara, 2009: 12).

To summarise, the analysis carried out on the limited number of domestic structures that have been identified from the Umm an-Nar period in south east Arabia, reveals that their architectural features – namely the wall construction types and house plans - do largely correspond with those excavated at the Settlement Slope in Bat. Are we, therefore, seeing a common pattern of settlement occurring throughout the 3rd millennium BC period across a variety of geographical regions? As with the highly standardised ceramics and funerary structures relating to this period, the uniform domestic architectural styles of the Umm an-Nar period may be regarded as a result of a shared material culture operating between closely connected sites in both coastal and interior zones during this time.

The 'Transition Phase'

As highlighted in the 'Literature Review' (see *Part II*, Chapter 1), 2nd millennium BC settlement patterns contrasted heavily from the standardised, well-integrated and complex domestic sites of the Umm an-Nar period, discussed above. It has been argued by some that this was a consequence of the 'abrupt collapse' of the Umm an-Nar culture itself (Carter, 1997: 72; Cleuziou, 2007), thought to have been caused by a combination of climatic, trade and internal social factors (see *Part I*, Chapter 1). While a few regional centres located in the northern coastal zones, such as Kalba (Carter, 1997) and Tell Abraq (Potts, 1991), may have experienced uninterrupted occupation through the Umm an-Nar/Wadi Suq transition phase, the large majority of sedentary settlement sites seemed to gradually decline and suffer eventual abandonment during this period. There is solid architectural evidence, however, that points to a brief phase of continuity at a number of settlements in c. 2000 BC. Indeed, the societal

transformations and domestic developments that occurred during this brief transitory phase, and which were initiated by the collapse of the Umm an-Nar culture, appear to have been 'evolutionary rather than revolutionary' (Potts, 2001: 44).

Many of the wall construction types from 2nd millennium BC domestic sites suggest a gradual transformation in construction techniques between the Umm an-Nar and Wadi Suq periods. While Types 1A and 2 appear to have represented standardised 3rd millennium BC architectural construction styles, examples of new construction types begin to emerge after the collapse of the Umm an-Nar period. Their form appears to vary depending on their geographical zone: the single-rows of stones in Type 1B walls become features of coastal zone 6 sites, while the upright stone Type 1C walls appear at sites in the zone 5 interior region - such as Hili (Period III) (Cleuziou, 1989: 72) and a number of Wadi Suq funerary structures (see *Part III*, Chapter 3).

Indeed, a study of the construction phases at the Settlement Slope attributed to the early 2nd millennium BC indicate that the habitation of the site may have included the addition of three new wall 'types', the most diagnostic of which – Type 2 – was formed of the same upturned stones as those Type 1C examples mentioned above (see *Part I*, Chapter 3). These were used to effect a series of repairs, reinforcements and to block-up the doorways on the original Umm an-Nar house. It is thought that the Type 2 walls may have originally supported a further course of horizontal slabs which, in turn, may have supported mud bricks or organic materials (Cleuziou, 1989: 72). Although the upturned stone walls consisted of just a single course and are typically only preserved to 0.40m in height (*Part I*, Chapter 3), it is important to note that

these unorthodox stone walls contrast with the widely held perceptions regarding domestic structures from the early 2nd millennium BC - that they consist of postholes suggestive of *barasti*-style homes and constructed not with stone but ephemeral building materials, such as palm wood and fronds (Crawford, 1998; Potts, 2009).

A stone-lined hearth, abutted up against the base of an upturned-stone wall, provided a radiocarbon sample dating the construction of the Type 2 walls from the Settlement Slope to the early 2nd millennium BC (see Chapter 5). These Early Wadi Suq architectural features, along with the limited examples of Type 1C walls found at contemporary domestic sites, can be viewed as a possible testament to the existence of new interdependent groups who communicated aspects of continuity through their desire to occupy and extend earlier Umm an-Nar domestic structures.

This is further supported by the publication of isotopic work carried out on the Wadi Suq human remains found at coastal sites such as Shimal, Tell Abraq and Bidya (Gregoricka, 2011: 4). This revealed a dietary intake based primarily on products provided by oasis agriculture and that portrayed societies as remaining relatively sedentary in continuing to practice cultivation techniques typically representative of Umm an-Nar populations (*ibid*). The architectural and biogeochemical evidence, therefore, possibly calls into question how substantial the so-called 'collapse' of the early 2nd millennium BC actually was.

The nature of the development of the Settlement Slope during the early 2nd millennium BC 'transition phase' can also be explained by a series of room extensions and architectural adjustments. A number of single cells were added, as well as an upturned stone wall which extended the original partitioning walls in order to fully divide the interior space (see Chapter 5). The new layout corresponds with the perceived organisation of Wadi Suq societies across south-east Arabia during this period. In contrast with the integrated, extended families of the Umm an-Nar period, the communities of the early 2nd millennium BC are typically presented as living separately in smaller and increasingly isolated groups (Gregoricka, 2014) - although, as with the new wall construction types, the extent and nature of the architectural transformation after c. 2000 BC varied considerably depending on the geographical zone. At Ra's al-Jinz (RJ-1), on the Ja'alan coast, for example, the desertion of large clusters of integrated Umm an-Nar units, in favour of a series of disparate, single-celled structures, does not in itself reveal a change in the extended family set-up, but can be linked with the abandonment of the complex funerary rituals associated with the community membership of a common Umm an-Nar culture (Monchablon et al. 2003: 44).

To summarise, the limited examples of wall construction types and house plans from early 2nd millennium BC domestic sites appear to reaffirm the view that regional variation played a key role in the changes that occurred to settlement pattern and intensity during the transition from the Umm an-Nar to Wadi Suq period. Furthermore, the idea that the 'transition phase' was characterised by major social upheaval so soon after the 'abrupt collapse' of the Umm an-Nar period (Cleuziou, 2007: 228), appears to have been discredited by recent studies at Qarn al-Harf and Shimal highlighting inherited Umm an-Nar

characteristics prominent within the Early Wadi Suq ceramic assemblages (de Vreeze, 2016; Righetti, 2015); as well as research on the continued occupation of settlement sites at Tell Abraq and Kalba (Potts, 1993: 118; Carter, 1997: 76) during the early 2nd millennium BC. The Settlement Slope experiences a similar subtle transition with regards to the changes in its settlement pattern. Rather than displaying signs of sudden abandonment, the new room extensions, along with the *in situ* features and the discovery of a small number of Wadi Suq ceramic types found within the original house, can be regarded as evidence for the continued occupation of both the Umm an-Nar, and newly constructed, domestic structures, during the early 2nd millennium BC.

Yet, compared to the large urban centres in the northern coastal regions - such as at Kalba (Carter, 1997) and Tell Abraq (Potts, 1991) the smaller oasis settlements seem to have experienced a greater decline in population after c. 2000 BC - for example at Hili 8 (Cleuziou, 1978; Potts, 1990) and Maysar (Crawford, 1998). The relative paucity of Early Wadi Suq ceramic data at the Settlement Slope suggests that, while some levels of construction work may have continued at the site, its own population appears to have steadily diminished during this period (see Chapter 4). Furthermore, the unorthodox and regionally varying compositions of its Wadi Suq-phase walls are another possible indication that the new groups of the 2nd millennium BC who occupied these domestic structures during the 'transition phase' can perhaps be viewed as less integrated than the extended kin groups of the Umm an-Nar period. Due to a variety of climatic and social factors (discussed in *Parts I & II*, Chapter 1) many areas of the interior, especially, were simply no longer capable of supporting the local population (Hellyer 1998; Parker et al. 2006). Subsequently, while many settlements in the northern

coastal regions continued to operate at a sustained level in c. 2000 BC, the oasis settlements decreased in number, gradually becoming smaller and more ephemeral during this period (Carter 1997; Crawford 1998; Hellyer 1998; Blau 2007; Potts 2009).

The Wadi Suq & Late Bronze Age Periods

The gradual decline in population intensity and the disparity that grew between the northern coastal and interior regions, first apparent during the early 2nd millennium BC, are thought to have been accentuated during the subsequent Wadi Suq and Late Bronze Age periods. In fact, it is proposed by this author, that based upon a lack of diagnostic pottery types or radiocarbon dates associated with the Middle Wadi Suq period (c. 1900 - 1700 BC), that there may have been a gap in occupation at the Settlement Slope during this period. Indeed, it is believed that the Settlement Slope conforms to a wider trend of abandonment experienced at other oasis settlements during this period (Frifelt, 1976). The settlement record of the interior regions seems to decline, leaving only a small number of sites occupied on a full-time basis. The abandonment of sites occurred largely within the interior oasis zones, at Hili 8 (Jorgensen, 2003: 41) and Maysar (Hauptmann, 1988) - where dry farming techniques were no longer viable due to an inadequate water supply - but also in the eastern coastal Ja'alan region, with Ra's al-Jinz (RJ-1) (Cleuziou et al. 2003) and SWY-3 (Mery, 1998: 219) - where shifting trade routes may have had negative consequences (see *Parts I & II*, Chapter 1). The gradual changes in settlement pattern, first observed during the 'transition phase', therefore,

may have resulted in an eventual widespread reversion back to semi-nomadic modes of subsistence during the majority of the 2nd millennium BC (Potts, 2001: 44).

On the other hand, the presence of substantial Wadi Suq and Late Bronze Age cemeteries at Samad ash-Shan, near Maysar (Weisgerber & Yule, 1988: 10) and at Wadi Suq (Frifelt, 1975: 373), suggest that the size of the overall populations within the interior regions did not decline dramatically during the 2nd millennium BC. Rather, the limited evidence of transient '*barasti*' housing and ephemeral architecture discovered at inland Wadi Suq domestic sites (Gregoricka, 2013: 355) suggests that part of the population may have been nomadic, engaging in alternative building techniques, re-visiting ancestral sites and occupying the settlements on a seasonal basis (al-Jahwari, 2008: 345). This may explain the difficulty experienced in identifying traces of structures associated with a Late Wadi Suq or Late Bronze Age phase at the Settlement Slope in the archaeological layers.

A small number of distinctive Late Wadi Suq and Late Bronze Age pottery types were identified at the Settlement Slope (see Chapter 4). It is difficult to interpret the exact nature of these late habitation phases as there is no evidence of the construction of any new associated domestic structures. Significantly however, the ceramic evidence from the Late Bronze Age period at the Settlement Slope is concentrated in just two room extensions (see *Part IV*, Chapter 3). This appears to be a consequence of the earlier construction of at least three intrusive Late Wadi Suq cist tombs, occupying all other parts of the site during the 'Tomb Phase' (see Chapter 5). The incorporation of earlier tombs within a Late Bronze Age domestic site is an important element in the cultural perceptions of these groups (de Vreez: *pers*

comm). At Shimal, an Early Wadi Suq 'Shimal-type' tomb (Sh. 95) was constructed using the natural rock formation. A later settlement was then built over the top of the tomb, re-using the material of the outer wall layer (Gregoricka, 2011: 163-165). A survey of the Wadi Andam revealed it was not uncommon to find evidence of temporary structures close to tombs (al-Jahwari, 2008: 346). The concept of living in close to proximity to earlier tombs can be regarded perhaps as an indication of nomadic groups associating themselves with an ancestral mortuary landscape.

To summarise, while throughout the 2nd millennium BC there is strong evidence for settled regional centres in the northern coastal zones persisting continuously and unaffected by societal changes - for example at Shimal (Vogt, 1987: 7), Tell Abraq (Potts, 1993b: 118) and Kalba (Carter, 1997) - the oasis settlement sites, by contrast, can be characterised by 'a general organisational decline', resulting in a reversion from a stratified non-state society, back to a tribal society based on nomadism (Cleuziou, 1981: 292; Laursen, 2009: 137). The Late Wadi Suq and Late Bronze Age evidence from the Settlement Slope is restricted to localised signs of habitation during these final occupation phases: the presence of ancestral tombs, the lack of permanent domestic architecture and a limited ceramic assemblage, together cite the existence of a possible camp-site that was visited only on a seasonal basis. Based therefore on the evidence at the Settlement Slope and the limited number of known contemporary sites, it can be argued that by the second half of the 2nd millennium BC, the largely uniform settlement patterns and architectural styles experienced previously throughout south-east Arabia had been replaced by significant sub-regional variations in the

region's material culture - including ceramics, funerary culture and architecture (see *Part II*, Chapter 1; *Part II*, Chapter 3) (Carter, 1997: 75-78; al-Jawari, 2008: 339).

Using the architectural data collected from the Settlement Slope for these three periods, this chapter has discussed the development and decline of an oasis settlement site, focusing primarily upon its domestic structures. These represent exceptional examples of sedentary domestic architecture dating to the Umm an-Nar period and conform with the long-lived occupation phases attested at a number of other contemporary sites (Cleuziou, 1989: 67-71; Azzara, 2009; Potts, 1993b). The 'transition phase' in c. 2000 BC, while displaying elements of continuity in the form of new construction phases, can be characterised by a gradual decline in levels of occupation, as suggested by the limited Wadi Suq pottery assemblage found at the Settlement Slope. This is certainly consistent with the decline observed at contemporary local settlement sites (Carter 1997: 57; Cleuziou, 2007: 218) - thought to be a result of environmental factors (Brunswig, 1989: 72; Jorgensen & al-Tikriti, 2003: 41). It is difficult to interpret much about the social structures of the later Late Wadi Suq and Late Bronze Age populations based upon the archaeology found at the Settlement Slope. Nonetheless, the absence of any newly constructed domestic architecture from these periods is a possible indication that the gradual depopulation appears to have become accentuated during these final occupation phases; this also accords with the reversion to a highly mobile and nomadic mode of subsistence proposed for this interior region during the second half of the 2nd

millennium BC (al-Jahwari, 2008: 345; Carter, 1997: 94; Cleuziou, 1981: 292; Gregoricka, 2013: 355).

During the course of this chapter, this author has been aware of the danger of forcing the architectural data from the Settlement Slope into a pre-existing interpretative framework. This data, on the whole, does indeed appear to corroborate many of the wider trends displayed at other domestic sites; yet, this has been concluded as a result of a systematic approach including excavation and post-excavation analysis.

Conclusion

It is an unfortunate fact that relatively little is known of Bronze Age domestic sites in southeast Arabia, despite over fifty years of intensive research in the region. Archaeological evidence of the residential structures themselves is particularly limited. The primary aim of this paper, therefore, was to analyse the architectural data obtained from the Settlement Slope and discuss the development of a single settlement site from the interior of southeast Arabia during the Umm an-Nar period, through the so-called 'transition' phase and into the Wadi Suq and Late Bronze Age periods

In order to achieve this, I set myself five objectives. These have all been fulfilled during the course of this dissertation.

- ❑ To conduct a review of the archaeological data from both Umm an-Nar and Wadi Suq cultures and present a critical understanding of societal models proposed in the published literature.
- ❑ To catalogue all known domestic structures from both cultures and thereby to identify architectural features and trends.
- ❑ To describe and to classify the walls that were excavated on the Settlement Slope
- ❑ Based on the above, to create a construction sequence for the Settlement Slope and to date it using internal and external (comparative) evidence.
- ❑ To discuss the architectural development of a sequence of domestic structures

The opening Literature Review section (Chapter 1) provided an introduction to the Umm an-Nar (*Part I*) and Wadi Suq (*Part II*) cultures. There is a brief presentation of their archaeological data - their funerary material, ceramic material, trade links and settlements. This was followed by a critical analysis of societal models which are currently applicable to both the Umm an-Nar and Wadi Suq cultures. It illustrates how the collapse of the Umm an-Nar culture was the result of a combination of environmental and social factors. The chapter also highlights how the Wadi Suq culture may have been defined by regional variation: the nature of their settlements invariably depended on whether they were located in the northern coastal zones or the interior oasis regions.

The next chapter provided an introduction to the geography and climate of the Bat region (Chapter 2). This section also detailed the various archaeological components to the UNESCO world heritage site.

The third chapter catalogued and analysed the domestic architectural data and forms the main basis for my paper (Chapter 3). This consists of three parts: the first was focused on a single domestic site from the interior of Oman: the 'Settlement Slope', discovered within the archaeological site at Bat, and is a presentation of the architectural data uncovered during the first two seasons of excavation (*Part I*). The following section used excavation reports to bring together the domestic structures from published contemporary sites (*Part II*). Although the total quantity of data is rather limited, it was possible to use this information to identify a number of provisional architectural trends (*Part III*): namely, wall construction styles and

house layout plans. This provides a useful contextual element for the architectural data from the Settlement Slope presented in the opening section of Chapter 3.

In Chapter 4 a catalogue was produced of the diagnostic pottery found at the Settlement Slope and a set of provisional 'types' were identified and approximately dated. In the subsequent 'Results' section (Chapter 5), by using the stratigraphic architectural information, associated radiocarbon dates and diagnostic pottery types, a provisional sequence of construction phases for the Settlement Slope was proposed and phases corresponding to the Umm an-Nar, Wadi Suq and Late Bronze Age periods were identified.

The final objective was completed in the Discussion (Chapter 6). Here, the sequence of construction phases from the Settlement Slope and the architectural evidence from other contemporary domestic sites were used to present a model of development for a single Bronze Age domestic site. The initial Umm an-Nar structures at the Settlement Slope were found to conform with the majority of other well documented sites, each displaying signs of social complexity and high levels of occupational intensity during this period. Interestingly, the architectural evidence associated with the subsequent 'transition period' implied that a sedentary population continued to occupy the Settlement Slope and that any change in settlement patterns were not as dramatic as have traditionally been argued. Yet, there did appear to be a gradual decline in the size of this population and in the level of occupational intensity. The lack of any architectural evidence from the final occupation phase suggests that in the Late Bronze Age period this site perhaps became an ancestral landscape, occupied on a seasonal basis by semi-nomadic groups.

To date, the majority of the archaeological research that has been carried out at Umm an-Nar sites has been focused on monumental round tower structures or large collective tombs; as a result, the domestic structures themselves have traditionally been ignored. For the subsequent Wadi Suq and Late Bronze Age periods, there is an observable discrepancy between the handful of identified settlement sites discovered within northern coastal regions and the paucity of settlement sites discovered within the interior regions. The possible discovery of a sedentary Early Wadi Suq population at the Settlement Slope, however, may indicate that the sparseness of settlements does not reflect a real situation, but is in fact a consequence of the limited archaeological excavation conducted in the region. The Settlement Slope is a hugely important archaeological site; not only does it present a complex of well-preserved domestic structures, these also appear to represent a largely uninterrupted occupation sequence which transpired over 1000 years, from the mid-3rd millennium BC to the mid-2nd millennium BC. This site, therefore, provides an excellent opportunity in which to study the architectural changes that occurred during the course of three very different cultural periods, including the little-known Umm an-Nar/Wadi Suq 'transition period'.

There were, however, difficulties experienced in dating many architectural aspects of the Settlement Slope: the sequence at the site was not consistent enough to allow a full stratigraphic matrix (see Chapter 5). Further excavation, therefore, is undoubtedly required in order to more accurately interpret the occupation sequence at the Settlement Slope. Nonetheless, this dissertation does present significant new architectural and ceramic data and, by recording the occupation of a single complex of domestic structures through the Umm

an-Nar, 'transition' and Wadi Suq & Late Bronze Age periods, represents an original contribution to the study of a Bronze Age domestic site. It is hoped that the initial findings presented in this dissertation will encourage further study of domestic structures from the Umm an-Nar, Wadi Suq and Late Bronze Age periods, especially within the interior regions of southeast Arabia.

References

- Abraham, S. A. et al. 2013, *Connections and Complexity: New Approaches to the Archaeology of South Asia*, Left Coast Press
- Azzara, V. M. 2009, Domestic architecture at the Early Bronze Age site HD-6 and RJ-2. *Proceedings of the Seminar for Arabian Studies* 39, pp. 1- 16
- Barker, D. 2002, Wadi Suq and Iron Age period ceramics from Sharm, Fujairah (U.A.E.). *Arabian Archaeology and Epigraphy* 13, pp. 1-94
- Benton, J. N. 1996, *Excavations at al Sufouh: a third millennium site in the Emirate of Dubai*, Turnhout: Brepols
- Biagi, P. et al. 1989, A preliminary report on the excavation of structure 5 at Ra's al'Junayz 1 (Sultanate of Oman). *Rivista Di Archeologia* 13, pp. 18-30
- Bibby, G. 1972, *Looking for Dilmun*, Knopf
- Blackman, M. J. et al. 1989, Production and Exchange of Ceramics on the Oman Peninsula from the Perspective of Hili. *Journal of Field Archaeology* 16, pp. 61-77
- Blau, S. 2001, Fragmentary endings: a discussion of 3rd millennium BC burial practices in the Oman peninsula. *Antiquity* 75(289), pp. 557-570
- Boehme, M. 2011, The Bat-Type: A Hafit period tomb construction in Oman. *Arabian Archaeology and Epigraphy* 22(1), pp. 23-31
- Boehme, M. and Al-Sabri, A. 2011, Umm an-Nar burial 401 at Bat, Oman: architecture and finds. *Arabian Archaeology and Epigraphy* 22, pp. 113–154
- Bondiolo, L. et al. 1998, From the coast to the oasis in prehistoric Arabia: what do the human osteo dental remains tell us about the transition from a foraging to an exchange economy? Evidence from Ra's al-Hamra (Oman) and Hili North (UAE). In: Tosi, M. (ed.)

Proceedings of the XIII Congress 8-14 September, 1996, International Union of Prehistoric and Protohistoric Sciences, Forli, pp. 229-234

Brunswick, R. H. 1989, Culture, History, Environment and Economy as seen from an Umm an-Nar Settlement: Evidence from test excavations at Bat, Oman, 1977/78. *Journal of Oman Studies* 10, pp. 9-50

Cable, C. M. 2012, *A Multitude of Monuments: finding and defending access to resources in third millennium BC Oman*. Michigan State University (PhD thesis)

Cable, C. M. and Thornton, C. 2012, Monumentality and the Third Millennium "Towers" of the Oman Peninsula. In: Abraham, S. A. et al. eds. *Connections and Complexity: New Approaches to the Archaeology of South Asia*, Left Coast Press, 375-399

Carter, R. 1997, *Defining the Late Bronze Age in Southeast Arabia: ceramic evolution and settlement during the second millennium BC* (PhD thesis)

Carter, R. 2002, Preliminary report on Unar 2 and its ceramics. *Bulletin of the Society for Arabian Studies* 7, pp. 5-14.

Carter, R. 2003, Tracing Bronze Age Trade in the Arabian Gulf: Evidence for Way-stations of the Merchants of Dilmun between Bahrain and the Northern Emirates. In: Potts, D. T. et al. eds. *Proceedings of the First International Conference on the Archaeology of the U.A.E*, Trident Press, pp. 123-131

Cartwright, C. 1998, Seasonal Aspects of Bronze and Iron Age Communities at Ra's al-Hadd, Oman. *Environmental Archaeology* 3(1), pp. 97-102

Cartwright, C. 2004, Reconstructing the use of coastal resources at Ra's al-Hadd, Oman, in the third millennium BC. *Proceedings of the Seminar for Arabian Studies* 34, pp. 45-51

Cleuziou, S. 1979, French archaeological mission at Hili 8: report of the 1st and 2nd seasons: December 1977/March 1978 and December 1978/March 1979. *Archaeology in the United Arab Emirates* 2/3, pp. 19-65

Cleuziou, S. 1980, Three seasons at Hili: towards a chronology and cultural history of the Oman peninsula in the 3rd millennium BC. *Proceedings of the Seminar for Arabian Studies*, 10, pp. 19-32

- Cleuziou, S. 1984, Oman peninsula and its relations eastward during the third millennium. In: Lai, B. and Gupta, S. P. (eds.) *Frontiers of the Indus Civilization*, New Dehli, pp. 371-394
- Cleuziou, S. 1989, Excavations at Hili 8: A preliminary report on the 4th to 7th campaigns. *Archaeology in the UAE* 5, pp. 61-88
- Cleuziou, S. 1996, The emergence of oases and towns in eastern and southern Arabia. In: Cleuziou, S. et al. (eds.) *The Prehistory of Asia and Oceania*, Forli, pp. 159-165
- Cleuziou, S. 1998, The foundation of Early Bronze Age Oases in the Oman Peninsula. In: Pearce, M. and Tosi, M. (eds.) *Papers from the EAA Third Annual Meeting at Ravenna 1997. Pre- and Protohistory*, Oxford, pp. 59-70
- Cleuziou, S. 2002, The early Bronze Age of the Oman Peninsula from chronology to the dialectics of tribe and state formation. In: Cleuziou, S. et al. (eds.) *Essays on the late prehistory of the Arabian Peninsula*, Rome, pp. 191- 236
- Cleuziou, S. 2007, Evolution towards complexity in a coastal desert environment: Early bronze Age in the Ja'alan, Sultanate of Oman. In: Kohler, T. and Van Der Leeuw, S. E. (eds.) *The model-based archaeology of socionatural systems*, School of American Research Press, Santa Fe, pp. 213- 231
- Cleuziou, S. 2009, Extracting wealth from a land of starvation by creating social complexity: a dialogue between archaeology and climate. *C. R. Geoscience* 341, pp. 726-738
- Cleuziou, S. and Vogt, B. 1983, Umm an-Nar Burial Customs: New Evidence from Tomb A at Hili North. *Proceedings of the Seminar for Arabian Studies* 13, pp. 37-52
- Cleuziou, S. and Tosi, M. 1985, *The Joint Hadd Project Summary Report on the First Season, December 1985*, Napoli
- Cleuziou, S. and Tosi, M. 1988, *The Joint Hadd Project Summary Report on the Second Season, November 1986 - January 1987*, Napoli

- Cleuziou, S. and Tosi, M. 1990, The Third Campaign at RJ-2: A Preliminary Report. In: S. Cleuziou, J. Reade and Tosi, M. eds. *The Joint Hadd Project Summary Report on the Third Season, (October 1987 - February 1988)*, Napoli, pp. 1-65
- Cleuziou, S. and Tosi, M. 2000, Ra's al-Jinz and the prehistoric coastal cultures of the Ja'alan. *Journal of Oman Studies* 11, pp. 19-74
- Cleuziou, S. and Tosi, M. 2007, *In the Shadow of the Ancestors, the prehistoric foundations of the Early Arabian Civilization*, Ministry of Heritage and Culture, Muscat
- Cleuziou, S. et al. 2011. *Protohistoire de l'oasis d'al-Aïn, travaux de la mission archéologique française à Abou Dhabi (Emirats arabes unis): les sépultures de l'âge du Bronze*. Oxford
- Constantini, L. and Audisio, P. 2001, Plant and Insect Remains from the Bronze Age site of Ra's al-Jinz (RJ-2), Sultanate of Oman. *Paleorient* 26 (1), pp. 143-156
- Cope, J. M. et al. 2005, Robusticity and osteoarthritis at the trapeziometacarpal joint in a Bronze Age population from Tell Abraaq, United Arab Emirates. *American Journal of Physical Anthropology* 126, pp. 391-400
- Costa, P. M. and Wilkinson, T. 1987, The hinterland of Sohar: archaeological surveys and excavations within the region of an Omani seafaring city. *Journal of Oman Studies* 9, pp. 1-238
- Crawford, H. 1998, *Dilmun and its Gulf Neighbours*, Cambridge University Press
- David, H. 1996, Styles and evolution: soft stone vessels during the Bronze Age in the Oman Peninsula. *Proceedings of the Seminar for Arabian Studies* 26, pp. 31-46
- de Cardi, B. 1985, Further archaeological survey in Ras al-Khaimah, UAE, 1977. *Oriens Antiquus* 24, pp. 163-240
- de Cardi, B. 1988, The Grave Goods from Shimal Tomb in Ras al-Khaimah, UAE In: Potts, D. T. (ed.) *ARABY the BLEST, Studies in Arabian Archaeology*. University of Copenhagen, pp. 44-71

- de Cardi, B. 1997, Third Millennium and Later Pottery from Abu Dhabi Airport. *Arabian Archaeology and Epigraphy* 8, pp. 161-173
- de Cardi, B. et al. 1976, Excavations and survey in Oman, 1974-1975. *Journal of Oman Studies* 2, pp. 101-199
- de Cardi, B. et al. 1979, Excavations at Tawi Silaim and Tawi Sa'id in the Sharqiya, 1978. *Journal of Oman Studies* 5, pp. 61-94
- de Cardi, B. et al. 1994, Five thousand years of settlement at Khatt, UAE. *Proceedings of the Seminar for Arabian Studies* 24, pp. 35-95
- Deadman, W. 2012, *Interpreting Early Complexity in the Early Bronze Age Oman Peninsula: the archaeology and socio-political organisation of Umm an-Nar society* (unpublished MA dissertation)
- Donaldson, P. 1984, Prehistoric Tombs of Ras al-Khaimah. *Oriens Antiquus* 23 (3-4), pp. 191-312
- Eddisford, D and Phillips, C. S. 2009, Kalba in the third millennium (Emirate of Sharjah, UAE). *Proceedings of the Seminar for Arabian Studies* 39, pp. 111-124
- Edens, C. 1992, Dynamics of trade in the ancient Mesopotamian 'World System'. *American Anthropology* 94, pp. 118-134
- Ellison, E. R. 1978, *A Study of Diet in Mesopotamia (c. 3000 - 600 BC) and Associated Agricultural Techniques and Methods of Food Preparation* (PhD Thesis)
- Frifelt, K. 1969, Archaeological investigations in the Oman Peninsula. *Kuml* 1968, pp. 170-175
- Frifelt, K. 1975, On prehistoric settlement and chronology of the Oman Peninsula. *East and West* 25, pp. 359-424
- Frifelt, K. 1976, Evidence of a third millennium BC town in Oman. *Journal of Oman Studies* 2, pp. 57-73

- Frifelt, K. 1979, Oman during the third millennium BC: urban development of fighting/farming communities? In: Taddei, M. (ed.) *South Asian Archaeology 1977*, Naples, pp. 567-587
- Frifelt, K. 1985, Further evidence of a third millennium town at Bat in Oman. *Journal of Oman Studies* 7, pp. 89-104
- Frifelt, K. 1991, *The Island of Umm an-Nar vol. 1: The Third Millennium Graves*, Moesgaard, Aarhus
- Frifelt, K. 1995, *The Island of Umm an-Nar vol. 2: The Third Millennium Settlement*, Moesgaard, Aarhus
- Frifelt, K. 2002, Bat, a centre in third millennium Oman. In: Cleuziou, S. et al. (eds.) *Essays on the late prehistory of the Arabian Peninsula*, Rome, pp. 101- 110
- Gentelle, P. and Frifelt, K. 1989, About the distribution of third millennium graves and settlements in the Ibri area of Oman. In: Costa, P. M. and Tosi, M. (eds.) *Oman Studies: Papers on the Archaeology and History of Oman*, Rome, pp. 119-126
- al-Ghafri, A. 2006, *Aflaj Irrigation Water Demands/Supply Ratio: two case studies*. *Agricultural and Marine Sciences* 11, pp. 85-92
- Ghazal, R. O. and Thornton, C. 2014, *Typological and Chronological Consideration of the Ceramics at Bat, Oman* (unpublished)
- Giraud, J. and Cleuziou, S. 2009, Funerary landscape as part of the social landscape and its perceptions: three thousand early Bronze Age burials in the eastern Ja'alan (Sultanate of Oman). *Proceedings of the Seminar for Arabian Studies* 39, pp. 107-124
- Giraud, J. et al. 2010, The first three campaigns (2007-2009) of the survey at Adam. *Proceedings of the Seminar for Arabian Studies* 40, pp. 175-184
- Glassner, J. -J. 1989, Mesopotamian textual evidence on Magan/Makan in the late 3rd millennium B.C. In: Costa, P. M. and Tosi, M. eds. *Oman Studies*, Rome, pp. 181-191
- Gorsdorf, J. and Vogt, B. 2001, Asimah: neue 14C-datierungen zum spatem 3 vorchristlichen Jahrtausend auf Halbinsel Oman. *Arabian Archaeology and Epigraphy* 12, pp. 1-9

- Gregoricka, L. A. 2011, *Mobility, Exchange and Tomb Membership in Bronze Age Arabia: A Biochemical Investigation* (PhD Thesis)
- Gregoricka, L. A. 2013, Geographic Origins and Dietary Transitions During the Bronze Age in the Oman Peninsula. *American Journal of Physical Anthropology* 152, pp. 353-369
- Gregoricka, L. A. 2014, Human Response to Climate Change during the Umm an-Nar/Wadi Suq Transition in the United Arab Emirates. *International Journal of Osteoarchaeology*
- Guy, H. and Munoz, O. 2007, Tomb 1 at Ra's Al-Jinz RJ-1 and its associated bone pits. In: Cleuziou, S. and Tosi, M. eds. *In the Shadow of the Ancestors, the prehistoric foundations of the Early Arabian Civilization*, Ministry of Heritage and Culture, Muscat. pp. 133-136
- Hauptmann, A. and Wesigerber, G. 1981, Third millennium BC copper production in Oman. *Revue d'Archeometrie* 1, pp. 131-138
- Hauptmann, A. 1985, *5000 Jahre Kupfer in Oman*, Bochum
- Hastings, A. et al. 1975, Oman in the third millennium BCE. *Journal of Oman Studies* 1, pp. 9-55
- Hilbert, Y. and Azzara, V. 2012, Lithic technology and spatial distribution of artefacts at the Early Bronze Age site HD-6 (Sharqiyya Region, Sultanate of Oman). *Arabian Archaeology and Epigraphy* 23, pp. 7- 25
- Hoch, E. 1979, Reflections of prehistoric life at Umm an-Nar (Trucial Oman) based on faunal remains from the third millennium BC. In: Taddei, M. (ed.) *South Asian Archaeology 1977*, Naples, pp. 589-638
- al-Jahwari, N. S. 2008, *Settlement Patterns, Development and Cultural Change in Northern Oman Peninsula: a multi-tiered approach to the analysis of long-term settlement trends*, Durham (PhD Thesis)
- al-Jahwari, N. S. 2009, The agricultural basis of Umm an-Nar society in the northern Oman peninsula (2500-2000 BC). *Arabian Archaeology and Epigraphy* 20(2), pp. 122-133

- al-Jahwari, N. S. and Kennet, D. 2008, A field methodology for the quantification of ancient settlement in an Arabian context. *Proceedings of the Seminar for Arabian Studies* 38, pp. 201-214
- Jasim, S. A. 2000, A second millennium settlement at Khor Fakkan, the Emirate of Sharjah, UAE. *Isimu III*, pp. 145-184
- Jasim, S. A. 2003, Third millennium culture in the emirate of Sharjah. In: Potts, D. et al. (eds.) *Archaeology of the United Arab Emirates*, London, pp. 85-100
- Jasim, S. A. 2012, Jebel al-Buhais 2008: A year in review. In: Potts, D. and Hellyer, P. (eds.) *Fifty Years of Emirates Archaeology*, Dubai, pp. 122-131
- Jorgensen, D. G. and al-Tikriti, W. Y. 2003, A hydrologic and archaeologic study of climate change in Al Ain, United Arab Emirates. *Global and Planetary Change* 35(1), pp. 37-49
- Kohl, P. L. 1979, The "World Economy" of West Asia in the third millennium BC. In: Taddei, M. (ed.) *South Asian Archaeology 1977*, Naples, pp. 55-85
- Kennet, D. and Velde, C. 1995, Third and early second-millennium occupation at Nud Ziba, Khatt (UAE). *Arabian Archaeology and Epigraphy* 6(2), pp. 81-99
- Kennet, D. and al-Jahwari, N. 2010, Umm an-Nar settlement in the Wadi Andam. *Proceedings of the Seminar for Arabian Studies* 40, pp. 201-212
- al-Khalifa, S. H. A. and Rice, M. 1986, *Bahrain through the Ages: the Archaeology*, London
- Lancaster, W. and Lancaster, F. 1992, Tribal formations in the Arabian Peninsula. *Arabian Archaeology and Epigraphy* 3, pp. 145-172
- Laursen, S. T. 2009, The decline of Magan and the rise of Dilmun: Umm an-Nar ceramics from the burial mounds of Bahrain, c. 2250-2000 BC. *Arabian Archaeology and Epigraphy* 20(2), pp. 134-155

- Magee, P. 2014, *The Archaeology of Prehistoric Arabia: Adaptation and Social Formation from the Neolithic to the Iron Age*, Cambridge University Press
- Magee, P., Mortensen, A-M., Potts, D. T. & Velde, C. 1994, *Preliminary Phasing of Tell Abraq* (unpublished)
- Magee, P. et al. 2009, Multidisciplinary research on the past human ecology of the east Arabian coast: excavations at Hamriya and Tell Abraq (Emirate of Sharjah, United Arab Emirates). *Arabian Archaeology and Epigraphy* 20(1), pp. 18-29
- Mariani, L. 1985, Surface Study of Settlement Site RJ-1. In: Cleuziou, S. and Tosi, M. eds. *The Joint Hadd Project Summary Report on the First Season, December 1985*
- McSweeney, K. et al 2008, Rewriting the end of the Early Bronze Age in the United Arab Emirates through the anthropological and artefactual evaluation of two collective Umm an-Nar graves at Hili (eastern region of Abu Dhabi). *Arabian Archaeology and Epigraphy* 19, pp. 1-14
- McSweeney, K., Mery, S. and al-Tikriti, W. Y. 2010, Results, limits and potential: burial practices and Early Bronze Age societies in the Oman Peninsula. In: Weeks, L. R. (ed.) *Death and Burial in Arabia and Beyond: Multidisciplinary Perspective*, Oxford, pp. 33- 43
- Mery, S. 1987, Notes on the Wadi-Suq pottery from Shimal. In: Vogt, B. and Franke-Vogt, U. eds. *Shimal 1985/1986: excavations of the German Archaeological Mission in Ras Al-Khaimah, UAE: a preliminary report*, Berlin, pp. 96-102
- Mery, S. 1997, A funerary assemblage from the Umm an-Nar period: the ceramics from Tomb A at Hili North, UAE. *Proceedings of the Seminar for Arabian Studies* 27, pp. 171-191
- Mery, S. 2000, *Les ceramiques d'Oman et l'Asie moyenne*. Paris
- Méry, S. 2013, The first oases in Eastern Arabia: society and craft technology, in the 3rd millennium BC at Hili, United Arab Emirates. *Revue d'ethnoécologie* 4, pp. 2-17
- Méry S. and G. Schneider 1996, Mesopotamian pottery wares in Eastern Arabia from the 5th to the 2nd millennium BC: a contribution of archaeometry to the economic history. *Proceedings of the Seminar for Arabian Studies* 26, pp. 79-95

- Mery, S. and Marquis, P. 1998, First campaign of excavation at Khor Bani Bu Ali SWY-3, Sultanate of Oman. *Proceedings of the Seminar for Arabian Studies* 28, pp. 215-228
- Monchablon, C. et al 2003, Excavations at Ra's al-Jinz RJ-1: Stratigraphy without tells. *Proceedings of the Seminar for Arabian Studies* 33, pp. 31-47
- Munoz, O., Ghazal, R.O. and Guy, H. 2012, Use of ossuary pits during the Umm an-Nar Period: New insights on the complexity of burial practices from the site of Ra's al-Jinz (RJ-1), Oman. In: Giraud, J. and Gernez, G. eds. *Aux marges de l'archéologie, Hommage à Serge Cleuziou, Travaux de la maison René-Ginouvès, De Boccard, Paris*. pp. 451-467
- Oppenheim, A. L. 1954, Seafaring merchants of Ur. *Journal of the American Oriental Society* 74, pp. 6-17
- Orchard, J. 2000, Oasis Town or Tower Hamlets? Bisya during the Al-Hajar period. *Proceedings of the Seminar for Arabian Studies* 30, pp. 165-175
- Orchard, J. and Stranger, G. 1994, Third millennium oasis towns and environmental constraints in the Al-Hajar region. *Iraq* 56, pp. 63-100
- Parker, A. G., Goudie, A. S., Stokes, S., White, K., Hodson, M. J., Kennet, D and Manning, M. 2006, A record of Holocene climate change from lake geochemical analyses in southeastern Arabia. *Quaternary Research* 66 (3), pp. 465 - 476
- Phillips, C. S. 1997, The pattern of settlement in the Wadi al-Qawr. *Proceedings of the Seminar for Arabian Studies* 27, pp. 205-218
- Phillips, C. S. 2007, The third millennium tombs and settlement at Mowaihat in the Emirate of Ajman, UAE. *Arabian Archaeology and Epigraphy* 7, pp. 1-7
- Possehl, G., Thornton, C. P. and Cable, C. M. 2010, *Bat: A Report from the American Team for the Ministry of Heritage and Culture*
- Possehl, G., Thornton, C. P. and Cable, C. M. 2011, *Bat: A Report from the American Team for the Ministry of Heritage and Culture*

- Postgate, N. 1992, *Early Mesopotamia: society and economy at the dawn of history*, London
- Potts, D. T. 1990, *A prehistoric mound in the Emirate of Umm al-Qaiwain, U.A.E: Excavations at Tell Abraq in 1989*, Copenhagen
- Potts, D. T. 1991, *Further excavations at Tell Abraq: The 1990 season*, Copenhagen
- Potts, D. T. 1993a, Four Seasons of Excavations at Tell Abraq (1989-1993). *Proceedings of the Seminar for Arabian Studies* 23, pp. 117-126
- Potts, D. T. 1993b, The late prehistoric, protohistoric, and early historic periods in Eastern Arabia (ca. 5000–1200 BC). *Journal of World Prehistory* 7, pp. 163-212
- Potts, D. T. 1997, Rewriting the late prehistory of south-eastern Arabia: A reply to Jocelyn Orchard. *Iraq* 59, pp. 63-71
- Potts, D. T. 2000, *Ancient Magan: the secrets of Tell Abraq*, Trident Press
- Potts, D.T. 2001, Before the Emirates: an Archaeological and Historical Account of Developments in the Region c. 5000 BC to 676 AD. In: Al Abed, I. and Hellyer, Peter eds. *United Arab Emirates: A New Perspective*. London, Trident Press, pp. 28–69.
- Potts, D. T. 2003a, Tepe Yahya, Tell Abraq and the chronology of the Bampur sequence, *Iranica Antiqua* 38, pp. 1-24
- Potts, D. T. 2003b, Four Seasons of Excavation at Tell Abraq (1989-1993). *Proceedings for the Seminar for Arabian Studies* 23, pp. 117-126
- Potts, D. T. 2008, Arabian Peninsula. *Encyclopedia of Archaeology*, pp. 827- 834
- Potts, D. T. 2009, The archaeology and early history of the Persian Gulf. In: Potter, L. G. (ed.) *The Persian Gulf in History*, Palgrave MacMillan, pp. 27-56
- Potts, D. T. 2012, *In the Land of the Emirates: the archaeology and history of the UAE*, Trident Press

Potts, D. 2012, *A Companion to the Archaeology of the Ancient Near East*, New York

Potts, D. T, Hellyer, P. and al-Naboodah, H. 2003, *Proceedings of the First International Conference on the Archaeology of the U.A.E*, Trident Press

Preston, G. W. et al. 2012, From nomadic herder-hunters to sedentary farmers: The relationship between climate change and ancient subsistence strategies in south-eastern Arabia. *Ancient Agriculture in the Middle East* 86, pp. 122-130

Ravetz, A. 1959, Notes on the Work of V. Gordon Childe. *The New Reasoner* 10, pp. 57-66

Rouse, L. and Weeks, L. 2011, Specialization and social inequality in Bronze Age SE Arabia: analyzing the development of production strategies and economic networks using agent-based modelling. *Journal of Archaeological Science* 38(7), pp. 1583-1590

Righetti, S. 2015, *Les cultures du Wadi Suq et de Shimal dans la péninsule omanaise au deuxième millénaire avant notre ère. Évolution des sociétés du Bronze moyen et du Bronze récent* (PhD Thesis)

Righetti, S. and Cleuziou, S. 2010, The Wadi Suq pottery: a typological study of the pottery assemblage at Hili 8 (UAE). *Proceedings of the Seminar for Arabian Studies* 40, pp. 283-292

Schmidt, C. 2011, *German Expedition to Bat and Al-Ayn*, Tübingen: Institute for Near Eastern Studies

Schreiber, J. 2005, Archaeological survey at Ibra in the Sharqiyah, Sultanate of Oman. *Proceedings of the Seminar for Arabian Studies* 35, pp. 255-270

Schreiber, J. 2007, "Transformation processes in oasis settlements in Oman" 2005 archaeological survey at the oasis of Nizwa: a preliminary report. *Proceedings of the Seminar for Arabian Studies* 37, pp. 1-13

Schreiber, J. and Haser, J. 2004, Archaeological Survey at Tiwi and its hinterland (Central Oman). *Proceedings of the Seminar for Arabian Studies* 34, pp. 319-329

Tainter, J. A. 1988, *The Collapse of Complex Societies*, Cambridge University Press

- Thornton, C. P. 2013, *Excavations on the Settlement Slope at Bat in 2013*, American-Japanese Bat Archaeological Project
- Thornton, C. P. and Mortimer, A. 2012, *The 2011-2012 Season at Bat*
- Thornton, C. P., Cable, C. M. and Possehl, G. 2013, Three Seasons at Kasr al-Khafaji (Tower 1146) at Bat, Oman. In: Frenez, D. and Tosi, M. eds. *South Asian Archaeology 2007: Proceedings of the Nineteenth International Conference of the European Association of South Asian Archaeology, Ravenna, Italy, 2-6 July 2007*, Oxford, UK: Archaeopress, pp. 255-268
- Thornton, C. P. and Cable, C. M. 2014, *The Bat Archaeological Project 2014 Season Report*, American-Japanese Bat Archaeological Project
- Thorvildsen, K. 1962, Burial Cairns on Umm an-Nar. *Kuml*, pp. 191-219
- al-Tikriti, W. Y. 1981, *Reconsideration of the Late Fourth and Third Millennium BC in the Arabian Gulf with special reference to the United Arab Emirates*, University of Cambridge (PhD Thesis)
- al-Tikriti, W. Y. 1983, Archaeology in the UAE – The Fourth and Third Millennium BC. *Bulletin of the Emirates Natural History Group* 20, pp. 13-15
- al-Tikriti, W. Y. 1985, The Archaeological Investigations on Ghanadha Island 1982-1984: Further Evidence for the Coastal Umm an-Nar Culture. *Archaeology in the United Arab Emirates* 4, pp. 9-19
- al-Tikriti, W. Y. 1989a, The excavations at Bidya, Fujairah: the 3rd and 2nd millennia BC culture. *Archaeology in the United Arab Emirates* 5, pp. 101-114
- al-Tikriti, W. Y. 1989b, Umm an-Nar culture in the Northern Emirates: Third Millennium BC tombs at Ajman. *Archaeology in the United Arab Emirates* 5, pp. 89-99
- al-Tikriti, W. Y. 2011, Archaeology of Umm an-Nar island (Abu Dhabi Culture and Heritage). In: Potts, B. T. and Hellyer, P. eds. 2012, *Fifty Years of Emirates Archaeology*. Motivate Publishing, pp. 86-99

- al-Tikriti, W. Y. and Mery, S. 2000, Tomb N at Hili and the question of subterranean graves during the Umm an-Nar period. *Proceedings of the Seminar for Arabian Studies* 30, pp. 207-219
- Tosi, M. 1989, Protohistoric Archaeology in Oman: the First Thirty Years (1956-1985). In: Costa, P. and Tosi, M. eds. *Oman Studies: Papers on the Archaeology and History of Oman*, Serie Orientale Roma, pp. 135-161
- Uerpmann, H.-P., Uerpmann, M. and Jasim, S. A. 2006, *The Archaeology of Jebel al-Buhais, Volume 1 – Funeral Monuments and Human Remains from Jebel al-Buhais*, Sharjah, Tübingen
- Velde, C. 1992, *Die spätbronzezeitliche und früheisenzeitliche Siedlung und ihre Keramik in Shimal/Ras al-Khaimah (Vereinigte Arabische Emirate)*. Göttingen. (unpublished MA Thesis)
- Velde, C. 2003, Wadi-Suq and Late Bronze Age in the Oman Peninsula. In: Potts, D. T. et al. eds. *Proceedings of the First International Conference on the Archaeology of the United Arab Emirates*, Trident Press, pp. 101-114
- Vogt, B. 1985, The Umm an-Nar Tomb A at Hili North: a preliminary report on three seasons of excavation, 1982-1984. *Archaeology in the United Arab Emirate* 4, pp. 20-38
- Vogt, B. 1994, *Asimah: an account of a two month rescue excavation in the mountains of Ras al-Khaimah, UAE*, Dubai
- Vogt, B. 1996, Bronze Age Maritime Trade in the Indian Ocean: Harappan Traits on the Oman Peninsula. In: Reade, J. (ed.) *The Indian Ocean in Antiquity*, London and New York, pp. 107-132
- Vogt, B. and Franke-Vogt, U. 1987, *Shimal 1985/1986: excavations of the German Archaeological Mission in Ras Al-Khaimah, UAE: a preliminary report*, Berlin
- de Vreeze, M. 2016, The social significance of ceramic change at the start of the Wadi Suq period. Rethinking ceramic continuity and change based on recent evidence from the tombs at Qarn al-Harf. *Proceedings of the Seminar of Arabian Studies* 46, pp. 63-80

Weeks, L. 1997, Prehistoric Metallurgy at Tell Abraç, UAE. *Arabian Archaeology and Epigraphy* 8, pp. 11-85

Weeks, L. 1999, Lead isotope analyses from Tell Abraç, United Arab Emirates: new data regarding the 'tin problem' in Western Asia. *Antiquity* 73, pp. 49-64

Weeks, L. 2003, *Early Metallurgy of the Arabian Gulf: Technology, Trade and the Bronze Age World*, Boston

Weeks, L. 2007, Coals to Newcastle, Copper to Magan? Isotopic Analyses and the Persian Gulf metal trade. In: LaNiece, S., Hook, D and Craddock, P. T. (eds.) *Metals and Mines: Studies in Archaeometallurgy*, pp. 89-96. London

Weeks, L. 2012, Metallurgy. In: Potts, D. (ed.), *A Companion to the Archaeology of the Ancient Near East*, pp. 295-316. New York

Weisgerber, G. 1980, und Kupfer in Oman – da Oman-Projekt des Deutschen Bergbau-Museums. *Der Anschnitt* 32, pp. 62-110

Weisgerber, G. 1981, Mehr als Kupfer in Oman - Ergebnisse der Expedition 1981. *Der Anschnitt* 33, pp. 174-263

Weisgerber, G. 1983, Copper production during the third millennium BC in Oman and the question of Makran. *Journal of Oman Studies* 6, pp. 269–276

Weisgerber, G. 2007, Copper production as seen from Al-Moyassar-1. In: Cleuziou, S. and Tosi, M. eds. *In the Shadow of the Ancestors: The Prehistoric Foundations of the Early Arabian Civilization of Oman*. Oman: Ministry of Heritage and Culture, pp. 251–4

Weiss, H. et al. 1993, The Genesis and Collapse of Third Millennium North Mesopotamian Civilization. *Science* 261, pp. 995-1004

Wilkinson, J. C. 1977, *Water and Tribal Settlement in Oman: A Study of the Aflaj of Oman*, Oxford

- Wilkinson, T. 2003, *Archaeological Landscapes of the Near East*. University of Arizona Press
- Williams, K. and Gregoricka, L. 2013, *SOBO 2012-2013: A Report for the Ministry of Heritage and Culture, Oman*
- Yule, P. 1993, Excavations at Samad al Shan 1987-1991: Summary. *Proceedings of the Seminar for Arabian Studies* 23, pp. 141-153
- Yule, P. 2001, Die Gräberfelder in Samad al-Shan (Sultanate Oman) Materialien zu einer Kulturgeschichte. *Orient-Archäologie* 4, Rahden
- Yule, P. and Wesigerber, G. 1998, Prehistoric Tower Tombs at Shir/Jaylah, Sultanate of Oman. *Archaologie* 18, pp. 183-242
- Yule, P. and Wagner, G. 2008, Thermoluminescence dating of early ceramics from Oman. *Journal of Oman Studies*, 1-15