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The Wādī Sūq archaeological landscape of Bāt (Dhahirah Governorate, Oman) and its interregional significance

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Summary
Conventional archaeological studies have reported that the Wādī Sūq societies of the Trans-Ḥajar region in the central and south-eastern sectors (to the east of Al-Ain/Buraimi and Wādī Jizzī) are characterized by the deterioration of complex social organization, transformation towards a mobility-oriented society, and collective burial practices. This view has been questioned by recent archaeological evidence relating to several parts of the aforementioned sectors, but it is influenced by the substantial amount of burials and the lack of micro-geographical-scale variability. In order to gain an understanding of the regional aspects of the Wādī Sūq landscapes, a re-examination of the UNESCO World Heritage site of Bāt, Dhahirah Governorate, in the central interior sector, provides evidence relating to mortuary and occupational aspects and a framework for understanding the local transformation of archaeological landscapes on a limited regional scale. This paper discusses the archaeological landscape of Bāt during the Wādī Sūq period, based on various available datasets. We identified seventy-one Wādī Sūq tombs including reused ones, four residential structures, and three non-occupational structures including walls. These multifaceted features indicated the presence of a seasonally settled community at the site despite the social change due to aridification on a regional scale. The archaeological evidence suggests regional aspects in the central interior of south-east Arabia during the Wādī Sūq period, which is represented by the continued but downscaled population and activities at Bāt.

Keywords: archaeological landscape, Bāt, cemetery, settlement, Wādī Sūq period

Introduction

The regional variability of archaeological landscapes in the Trans-Ḥajar region of south-east Arabia (corresponding to modern eastern UAE and northern Oman) during the Wādī Sūq period (Middle Bronze Age; c.2000–1600 BC) is less well understood than that of the previous Early Bronze Age (Ḥafīt and Umm an-Nār periods; c.3300–2000 BC) (Righetti 2015) due to the scarcity of archaeological evidence. Nevertheless, scholars have argued that the archaeological landscapes of the Wādī Sūq period indicate the transition from oasis-based sedentary lifestyle to mobile subsistence strategies (Cleuziou 1981; Righetti 2015). This sociocultural transformation is archaeologically attested by: 1) the resumption of individual burial customs; 2) the emergence of a variety of new tomb types; 3) the dominance of cemeteries among identified archaeological sites; 4) a decrease in the construction of solid occupational structures; 5) an increase of artefact scatters; and 6) a change of distributional patterns of sites.

These changes are particularly observed in the central and south-eastern sectors — corresponding to the area east of Wādī al-Jizzī up to the Indian Ocean coast — of the Trans-Ḥajar region (Fig. 1),[1] while cultural continuations in collective burial practices (e.g. Shimāl), continuous use of Umm an-Nār towers (e.g. Al-Hīlī), and retention of oasis and coastal settlements (e.g. Tall Abraq) have been observed in the north-western sector, an area north-west of Wādī al-Jizzī.[2] This indicates regional variations in subsistence and mortuary customs, despite a general cohesion of artefacts (Righetti 2015). Some researchers have assumed that the less drastic cultural change in the north-western sector was related to the higher availability of rainfed water and maritime resources (Righetti 2015; Velde 2009).

[1] Corresponding to Al-Batinah North to the south of Wādī al-Jizzī, Batinah South, Dhahirah, Dakhiliyah, Muscat, Sharqiyah North, and Sharqiyah South Governorates of Oman.
[2] Corresponding to eastern UAE and Batinah North to the north of Wādī al-Jizzī, Buraimi, and Musandam Governorates of Oman.

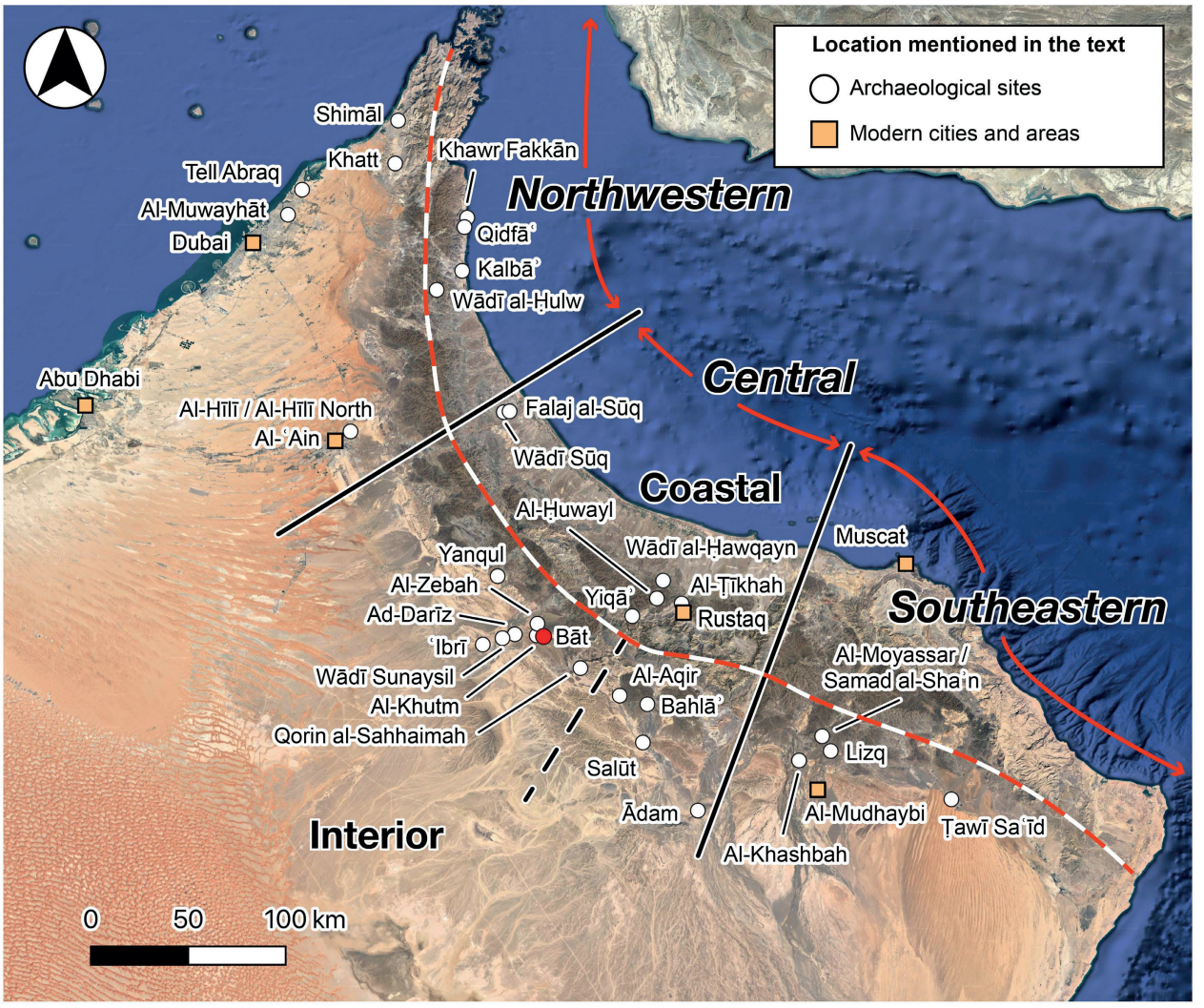

Figure 1. *The location of the site of Bāt, with other archaeological sites, geographical sectors, and major modern cities in south-east Arabia (basemap: Google Maps applied with QGIS).*

However, recent archaeological investigations revealed the presence of collective burial tombs in the central and south-eastern interior sectors (corresponding to modern Dakhiliyah and Sharqiyah North Governorates), exemplified in Salūt (particularly in Areas JS2, 4, and 6) (Condoluci & Degli Esposti 2015; Degli Esposti, Brandolini & Zerboni 2021; Degli Esposti et al. 2018; 2021), Al-Khashbah (Döpper 2021a; Schmidt & Walter 2021), and possibly Izkī (Schreiber 2007). Such collective burial tombs were possibly built and used by the sedentary communities in the oasis settlement (Döpper 2021a). Additionally, there was continuous use of Umm an-Nār towers in Al-Khashbah Building IV (Döpper 2021a; Döpper, Maier & Kirchhoff 2021), Yanqul/As-Safri Tower A (Schreiber 1998), and Al-Khutm (Bernardini et al. 2020; Cocca et al. 2019). Döpper also assumed that the continued use of the tower indicated the presence of socially complex sedentary populations (Döpper 2021a: 325). It is therefore necessary to review the currently known Wādī Sūq evidence in the central and south-eastern sectors of the Trans-Ḥajar region, to update our understanding of the changes and continuations of archaeological landscapes from the previous Umm an-Nār period.

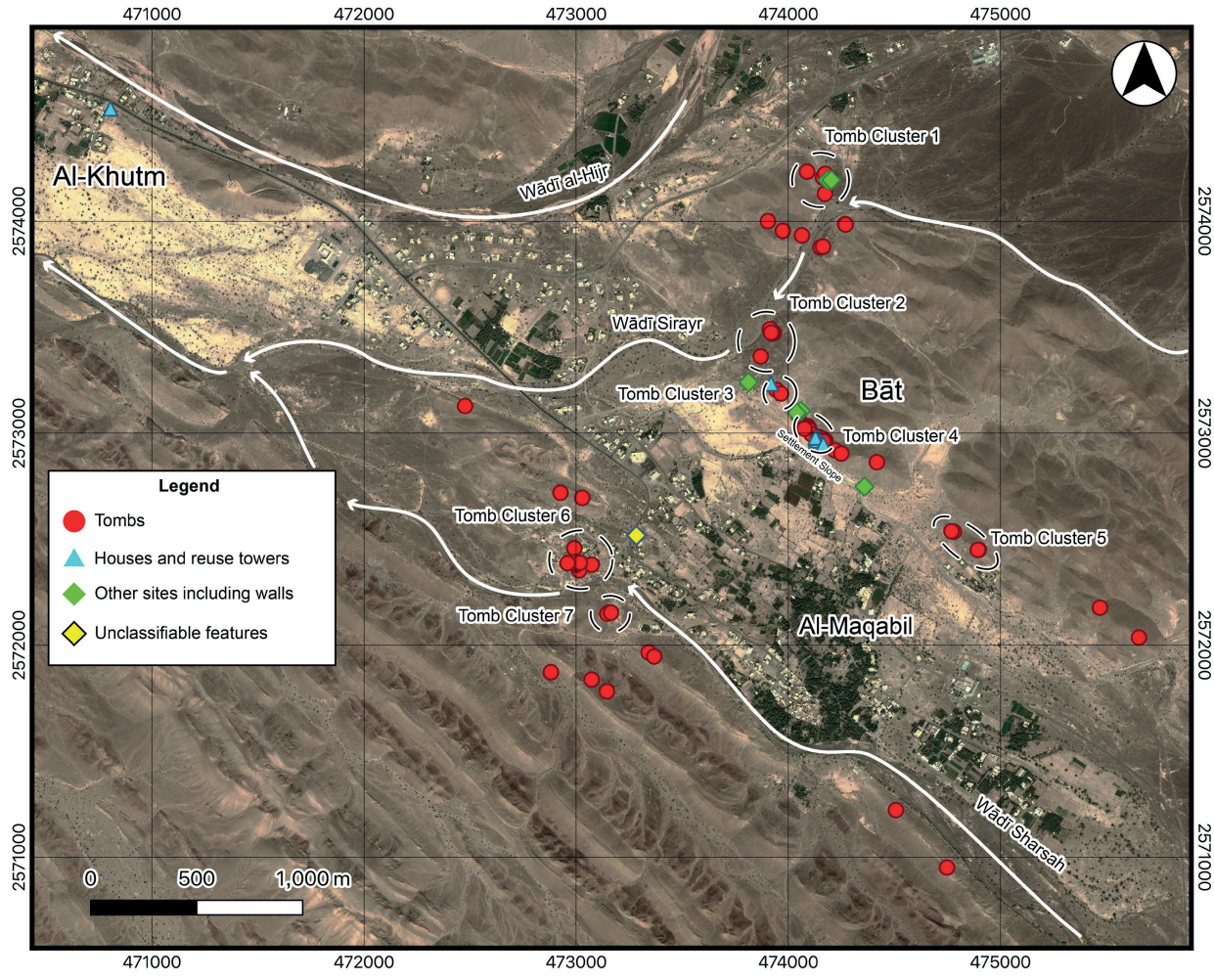

Figure 2. *Distributions of the identified Wādī Sūq features, with relevant toponyms (basemap: Google Maps applied with QGIS).*

We shall revisit the archaeological sites that have evidence relating to Umm an-Nār, along with identified Wādī Sūq examples. Such attempts have already been made in the Al-Mudhaybi region, in Al-Moyassar and Samad al-Shaʾn, Lizq, Ṭawī Saʿīd in the south-eastern interior sector, Ādam and Salūt in the eastern part of the central interior sector, and the Rustaq Region in the central coastal sector (Beuzen-Waller et al. 2018; Döpper 2021a; Döpper & Schmidt 2020; Kennet, Deadman & Al-Jahwari 2016). However, the Wādī Sūq landscape in the western part of the central interior sector, corresponding to the present-day Dhahirah Governorate of Oman, has not been fully understood. Except for notable examples in Bāt, Al-Khutm, and Wādī Sunaysil, the currently known published Wādī Sūq evidence is relatively scarce in this area, despite acknowledging the importance of bridging the desert fringe of modern Abu Dhabi Emirate (Al-Ain), Dakhiliyah, and Sharqiyah with an interior transportation corridor.

In order to bridge this gap, this paper reassesses the evidence in the western part of the central interior sector and facilitates our understanding of the regional aspects relating to commonality and differences in the archaeological landscapes of the Wādī Sūq period within the interior sectors of the Trans-Ḥajar region. For this purpose, we focus on the site of Bāt in Wilāyat ʿIbrī in Dhahirah Governorate (Figs 1 & 2). Based on the meta-analysis of the mortuary and occupational evidence, we

have reconstructed the Wādī Sūq landscapes of Bāt, and assessed their regional characteristics in comparison with the previous Umm an-Nār period.

Methodology

Archaeological site of Bāt and history of fieldwork

Bāt is one of the largest Early Bronze Age sites in south-east Arabia, situated between Wādī al-Hijr and Wādī Sharsah. The site is represented by the extensive Early Bronze Age cemetery containing contemporaneous remains of occupation. Due to its comparable importance with the sites of Al-Hīlī and Umm an-Nār, this site has been intensively investigated since the 1970s. However, the Wādī Sūq evidence has long been overlooked, except for a few studies mentioned below.

The archaeological remains at Bāt were first mentioned by Anthony Witheridge who visited the site in 1966. Subsequently, Karen Frifelt intermittently carried out investigations between 1972 and 1989, and this pioneering work has shed light on the Early Bronze Age subsistence strategy, settlement patterns, and relevant cultural practices, including mortuary customs in inner south-east Arabia; this was followed by her campaigns in Al-Hīlī, Wādī Sūq, ʿIbrī, and other sites (Frifelt 1968; 1975a; 1975b; 1976; 1985; 2002; Gentelle & Frifelt 1989). Although Frifelt discussed the second-millennium BC evidence in Wādī Sunaysil, the contemporaneous evidence in Bāt was not extensively discussed (Frifelt 1975a).

Other work was also carried out at the initial stages. Although Beatrice de Cardi recorded tombs and structures, no specific Wādī Sūq evidence was reported (de Cardi, Collier & Doe 1976: 172–173). In 1977 and 1978, Robert Brunswig opened test trenches along the so-called Settlement Slope and stratigraphically identified the probable establishment of Wall 1162 during the Wādī Sūq period (Brunswig 1989: 12–17).

Decades later, after the inscription of Bāt in the UNESCO World Heritage Site list in 1988, Gerd Weisgerber and Manfred Böhme investigated this site between 2004 and 2008 (Böhme 2011; Böhme & Al-Sabri 2011), and reported the Wādī Sūq reuse in Umm an-Nār Tomb 154 (Böhme 2012: 116).

The American team (Bat Archaeological Project), led by Christopher Thornton, Charlotte Cable, and the late Gregory Possehl, excavated the Early Bronze towers and settlements between 2007 and 2015. Wādī Sūq occupational phases were found in several buildings on the Settlement Slope (Swerida 2017; Swerida & Thornton 2019), and some Wādī Sūq intrusive tombs were confirmed in Tower 1156 (Mortimer 2016). Two of the tombs were excavated by Kimberly Williams and Lesley Gregoricka from the Social, Spatial, and Bioarchaeological Histories Project (Williams & Gregoricka 2016). In addition, Cable conducted a full-coverage survey in the Wādī al-Hijr basin from Bāt to Ad-Darīz in 2010 and 2011, and discovered Wādī Sūq evidence in Ad-Darīz South, Bāt, and Al-Khutm (Cable 2012).

Alongside the American team, the German team coordinated by Conrad Schmidt and Stephanie Döpper, excavated the tower Operation II, Umm an-Nār Tombs 155 and 156, and two secondary burial pits (A-Inst. 0006 and 0025) between 2010 and 2015 (Döpper 2021b; Schmidt 2020). They reported some Wādī Sūq artefacts from the contexts of later reuse in Tombs 155 and 156, as well as A-Inst. 0006 (Döpper 2021b; Schmidt 2020).

More recently, Enzo Cocca, Giacomo Vinci, and their colleagues excavated the tower of Al-Khutm between 2016 and 2018 (Bernardini et al. 2020; Cocca et al. 2019). They found a large amount of Wādī Sūq evidence indicating continuous use of this tower compared to Al-Khashbah (Döpper 2021a; Döpper, Maier & Kirchhoff 2021), Yanqul/As-Safri Tower A (Schreiber 1998), Tall Abraq (Potts 1990; 1991; 2000; Magee et al. 2017), Al-Hīlī 8 (Cleuziou 1989), or Kalbāʾ 4 (Carter 1997).

The Japanese team led by Yasuhisa Kondo carried out full-coverage surveys from 2013 to 2017 under the Bāt Digital Heritage Inventory (BātDHI) Project to modify the UNESCO boundary (Kondo et al. 2016; Miki, Kuronuma & Kondo 2019). The team identified 605 archaeological features from the possible Palaeolithic to the pre-modern age, including evidence from Wādī Sūq as discussed below.

As previously mentioned, the Wādī Sūq evidence has been reported sporadically without any extensive reviews. It is therefore necessary to reassess the known Wādī Sūq evidence to define the archaeological landscapes in the Bāt oasis during that period. In this regard, the results of our survey might be able to add to the fragmented information for a better understanding of the Wādī Sūq landscape of the site.

Data collection

For this study, we treated the various data sources as follows. The core component is our BātDHI, which mainly covers the right bank of Wādī Sharsah. Additionally, we collected data from previous publications about Early Bronze Age tombs by Böhme (2012: 116) and Döpper (2021b), burial pits by Schmidt (2020), Wādī Sūq tomb excavations on Tower 1156 by Williams and Gregoricka (2016), mortuary and non-mortuary evidence on the Settlement Slope (Kerr 2016; Mortimer 2016; Swerida 2017; Swerida & Thornton 2019), and Tower 1145 (Kasr al-Rojoom) (Frifelt 1976). The data from excavations were given precedence, as they provided the underground evidence that is difficult to detect through ground surveys.

The data outside our survey area were collected from Cable's (2012) survey results. As Cable also surveyed the UNESCO boundary prior to our own work, we rechecked her survey records (Cable 2012) and generally prioritized our data when Cable's evaluation differed from ours on the identification of features. The Wādī Sūq evidence in nearby Al-Khutm is also discussed in this paper (Cable 2012; Cocca et al. 2019). The survey of the eastern outskirts of the UNESCO boundary (Dollarhide 2019) was excluded because no Wādī Sūq structures were reported there.

The locality was categorized as cemetery, settlement, and others. The collected data was plotted on a single distribution map according to the categories. To identify the tomb typology at Bāt, we applied the recent and comprehensive system devised by Sabrina Righetti (2015).

The numbering system of features on the site of Bāt varies because of past independent archaeological investigations. As a way of unifying the system, we applied the identifier registered by the BātDHI Project. Numbers from the other systems are indicated in brackets after the BātDHI ID.

Results: Wādī Sūq evidence at Bāt

Mortuary evidence

Seventy-one tombs were confirmed that included presumed examples in and around the UNESCO boundary and the left bank of Wādī Sharsah in Bāt, as well as at least one tomb near Al-Khutm (Fig. 2). They were heterogeneously distributed in Bāt, and some major clusters were confirmed in the north-central and central parts (Clusters 1 and 2) and around the Settlement Slope (Clusters 3 and 4) inside the UNESCO boundary. In addition, there is a cluster around the eastern boundary border (Cluster 5). On the opposite side of the present oasis of Al-Maqabil, there are two clusters (Clusters 6 and 7). Furthermore, some minor concentrations and possible isolated examples were confirmed in the remainder of the study area.

The mortuary characteristics differ among the clusters. Clusters 1, 3, 5, 6, and 7 mainly include the newly built free-standing tombs for individual burials[3] (Fig. 3), while in Clusters 2 and 4, reuse of Early Bronze Age features was also confirmed from the excavated examples.

Cluster 1 comprised eight newly built tombs (DHI 265–266 and 269–274) (Fig. 3/A). Among these tombs, DHI 266 and 269–271 are concentrated at the nucleus. Tombs DHI 269–271 are aligned side by side running north-west–south-east (Figs 3/A & 4). All tombs except DHI 274 are situated on alluvial plains, just on the northern border of the site boundary. There are various types of tombs in this cluster, and the subterranean and above-ground types have been confirmed. DHI 269–270 (Righetti's IS1a), DHI 273 (IS1b), and DHI 271–272 (IS2b) are the subterranean types, while DHI 265–266 and 274 (IG1) are the above-ground type. DHI 265 might have been built on a pre-existing structure.

Cluster 2 comprised four cases of the reuse of Umm an-Nār tombs (Fig. 3/B). They are DHI 96 (German ID 154), DHI 97 (155), DHI 98 (156), and DHI 19 (Danish ID 1142) (see Döpper 2015: 90). C. Schmidt reported that the secondary burial pit A-Inst. 0006 also yielded a stone vessel sherd, which is an intrusion from DHI 96 (Schmidt 2020: 240) where Böhme also indicated its reuse during the Wādī Sūq period (Böhme 2012: 116). In addition, Döpper reported the discovery of stone vessel sherds from DHI 97 and 98 (Döpper 2021b).

Cluster 3 consists of four newly built tombs (DHI 75–78) (Fig. 3/C). They are distributed at the northern foot of a very low ridge, which runs north-west–south-east. Their type is IS1a.

[3] The definition of an individual burial indicates a non-recurrent collective burial rather than a simple single burial. Thus, in principle, multiple burials without recurrent collective burial practices are included.

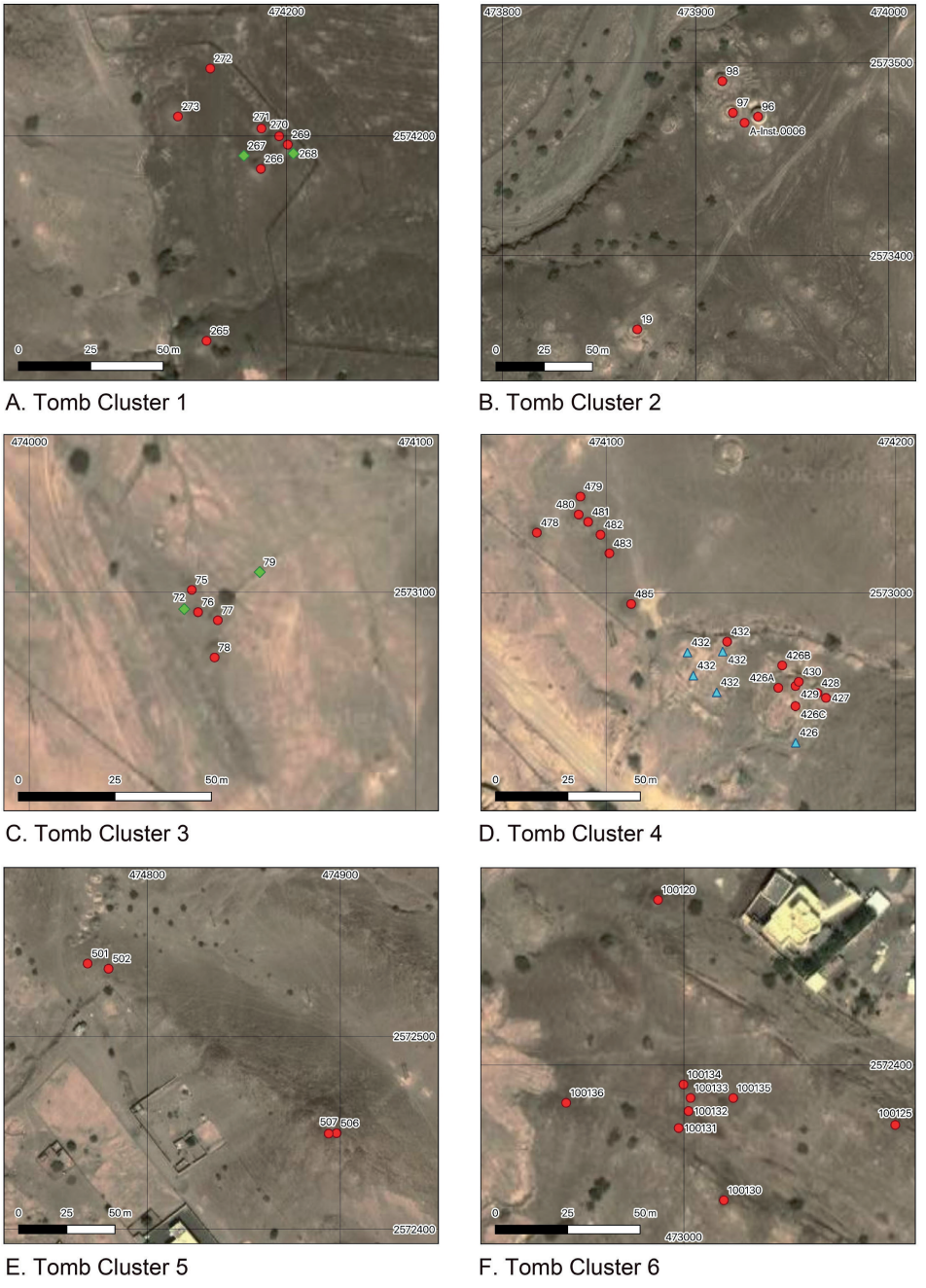

Figure 3. *Details of Wādī Sūq tombs by clusters. Tomb Cluster 7 is not indicated due to its recent destruction (basemap: Google Maps applied with QGIS; the legend types are the same as those given in Figure 2).*

Cluster 4 consists of fifteen newly built tombs (DHI 426A–430, 432–433, 478–483 and 485) (Fig. 3/D) in and around the settlement slope.[4] These tombs were divided into northern (N) and southern (S) sub-clusters. Cluster 4N contained DHI 478–483 and 485, which are situated on the alluvial plains. Except for DHI 478, they are aligned side by side running north-west–south-east. Each of these tombs is presumed to be a largely destroyed IS1a type. Cluster 4S contained eight tombs which were built inside or on the buildings, mostly by reusing pre-existing structures. Tomb DHI 432 was found inside

[4] Tombs DHI 426A, 426B, and 426C were geo-referenced and post-registered by us based on the report (Mortimer 2016).

Figure 4. *DHI 269 and 270 in Cluster 1 from the east.*

a structural complex, SS4+ Phase VII, excavated by the Bat Archaeological Project (Kerr 2016; Swerida 2017; Swerida & Thornton 2019). DHI 426A–426C and 427–430 were built after the abandonment of Tower DHI 426 (Danish ID 1156). DHI 427 (American Nomenclature Feature A) and 428 (Feature B) were excavated by the Social, Spatial, and Bioarchaeological Histories Project (Williams & Gregoricka 2016). Cluster 4S consisted of IS1a (DHI 426B, 430) and IS1b (DHI 426A, 426C, 429) tomb types, as well as irregular types (DHI 427 and 428). DHI 427 was typologically comparable to IS1b although its eastern part was modified for another two possibly non-funerary purpose chambers (Williams & Gregoricka 2016). Tomb DHI 428 had a concentric outline, which is comparable with IG3 type (Righetti 2015). The tombs in Cluster 4S are randomly distributed and highly restricted due to the location of older structures.

Cluster 5, composed of four newly built tombs, was divided into sub-clusters 5N (DHI 501–502) and 5S (DHI 506–507) (Fig. 3/E). They are distributed on a ridge which runs north-west–south-east and are presumably IS1a tomb types, despite being largely collapsed.

Cluster 6, in the hills between Wādī Sirayr and Wādī Sharsah, comprised nine tombs surveyed and reported by Cable (tombs 100120, 100125, 100130–100136) (Cable 2012: 227–228) (Fig. 3/F). The tombs are randomly distributed, and tombs 100131–100135 form a nucleus cluster. The other tombs are randomly distributed on some of the ridges. No details about these tombs have been provided by Cable (2012), but they are probably of type IS1a or IS1b.

Cluster 7 is situated on the left bank of Wādī Sharsah and consists of three tombs (100220–100222) (Cable 2012: 232). These are closely clustered, although the satellite imagery survey conducted by us indicates destruction due to urbanization after May 2014. Cable reports that tomb 100220 was built on the top of an Umm an-Nār tomb (Cable 2012: 232) as is presumed in the case of DHI

Figure 5. *DHI 157 from the west.*

265 in Cluster 1. No details have been provided by Cable (2012), although it is possible that tomb 100220 is an IG1 type, and the other tombs are IS1a or IS1b type.

The remaining tombs are mostly isolated or presumed examples. However, some examples are noteworthy. DHI 121 and 147 are probably Wādī Sūq tombs built over Umm an-Nār tombs used as platforms. Cable also suggested the reuse of Ḥafīt tombs in the cases of tombs 100223–100224 and 100246–100247 (Cable 2012: 232–233). DHI 157 consists of two parallel chambers (Fig. 5) whose northern part is later than the southern one, according to the vertical relationships of the walls.

Occupational and other evidence

The alluvial plain to the south of Tomb Cluster 2 and around the Settlement Slope where Tomb Cluster 4 lies, provides occupational evidence. Occupation during the Wādī Sūq period was confirmed by excavations. At the Settlement Slope, Phases VI–VII in the four structures of DHI 432 (American nomenclature SS1, SS3, SS4+, SS10) are archaeological and radiometrically suggested as phases of occupational use during the Wādī Sūq period (Kerr 2016; Swerida 2017; Swerida & Thornton 2019). The American team confirmed another piece of Wādī Sūq occupational evidence in a structure on the southern part of DHI 426 (Tower 1156) (American nomenclature SS2) at Phases VI–VII (Mortimer 2016; Swerida 2017; Swerida & Thornton 2019). This represented residential reuse of a pre-existing Early Bronze Age tower.

Frifelt published what appears to be a Wādī Sūq style stone vessel (David 1996) from the excavations of DHI 425 (Kasr al-Rojoom) (Frifelt 1976: fig. 4), which would suggest the use of this tower during the Wādī Sūq period. In addition, our survey identified DHI 65, registered as a house datable to the Umm an-Nār and Wādī Sūq periods.

Additionally, there are four stone alignment structures (DHI 62, 72, 79, and 446) and two stone accumulations (DHI 267 and 268). Among them, DHI 72 (Danish ID 1162) was stratigraphically confirmed as a Wādī Sūq period construction (Brunswig 1989). The other structures were apparently built in the Umm an-Nār period, but might have been in use during the Wādī Sūq. Cable considers the two walls DHI 62 (Cable ID 111291) and DHI 79 (111356) as dam-like structures (Cable 2012: 294, 298), although the BātDHI team suggests these walls were originally built during the Umm an-Nār period, as they have a bifacial structure. Continuous use of bifacial walls is confirmed at Bāt (Kerr 2016), making the dating of the Wādī Sūq period plausible. We registered the DHI 267 and 268 as stone accumulations, although these two features may be buried and heavily deteriorated graves. This is due to their positions in the rows of tombs DHI 266 and 269–271 (Fig. 3/A). Finally, Cable mentioned an unknown feature 111477 amid the modern oasis of Al-Maqabil (Cable 2012: 306).

Discussions

The results described above indicate that the Wādī Sūq archaeological landscapes at Bāt are characterized by a combination of mortuary, occupational, and other features. This combination is further enhanced by the findings in Al-Khutm of continuous and extensive use of the Umm an-Nār tower (Cocca et al. 2019). From these results, archaeological landscapes from the Umm an-Nār to the Wādī Sūq period in Bāt can be interpreted as follows.

Transformations of archaeological landscapes

Obvious changes were observed in the mortuary sphere. These are characterized by the dispersed tombs in seven clusters and isolated examples around the valley of Wādī Sharsah. The tombs are distributed not only in the same area as the Early Bronze Age tombs or occupations, but also in previously vacant places. Proportionately, most of the tombs are distributed in the newly established area as indicated above. This indicates that the construction of tombs did not necessarily depend on the Early Bronze Age tomb distributions, and may be indicative of different principles. However, neither chronological nor social differences can be assumed on the basis of the current evidence. The identified tomb types are generally common in the Wādī Sūq period, and the collected artefacts suggest that there is no specific chronological difference. Furthermore, no extraordinary tombs were found, suggesting that the hierarchical difference is either not visible or not present. However, the distribution patterns of the tombs confirmed in the new cemetery areas may provide clues regarding social relationships between the buried individuals. For example, the alignment of tombs side by side, partially seen in Cluster 1 or DHI 157, could theoretically imply social relationships such as lineage (cf. Parker Pearson 1999).

The Wādī Sūq burials reusing previous Early Bronze Age tombs, as seen in Cluster 2, can be considered as a case of the convenient usage of existing tombs. Such cases are probably not related to the intention to create a new cemetery space, but may have resulted due to energy saving during burial activities. The symbolic meanings and ancestral worship of the ancient tombs for Wādī Sūq people are plausible, but this is barely confirmed by tangible archaeological evidence. The minimal Wādī Sūq artefacts found during excavation of such tombs most likely indicate convenient and simple usage of the existing ancient tombs. Similar cases without newly built Wādī Sūq tombs have been reported in Al-Hīlī North (Vogt 1985a; 1985b), Al-Muwayhāt (Al-Tikriti 1989), and Jabal Ḥafīt (Madsen 2017).

Some tombs that reused the occupational structures of the Early Bronze Age indicate the gaps of the previous period in terms of the archaeological landscapes. Such cases are probably indicative of the availability of building stones and consideration of structural features such as stability by using an already existing base structure. It can therefore be assumed that the Wādī Sūq population at Bāt created their own mortuary archaeological landscape with occasional reuse of existing structures.[5] The mortuary landscape at Bāt indicates a general trend in the transformation of new mortuary practices as well as the partial maintenance of previous graveyards without collective burial habits.

[5] We consider that the condition of reuse is heavily influenced by various matters in terms of the mortuary perspective, such as energy expenditure for the preparation and selection of a burial place. The differences in the existing structures also affect the typology of the tombs and therefore, the categorization of cases of reuse needs to be explored further.

The occupational evidence relating to archaeological landscapes shows continuities and diachronic differences. As the American team revealed, occupational activity was maintained in the Settlement Slope that has continued since the third millennium BC (Kerr 2016; Swerida 2017; Swerida & Thornton 2019). Furthermore, the tower of Al-Khutm was extensively occupied and reused during the Wādī Sūq period (Cocca et al. 2019).

In addition, in the case of DHI 72 (Brunswig 1989) water management that began in the Early Bronze Age was probably continued around the Settlement Slope. These characteristics are associated with the continuous function of Wādī Sharsah during the Wādī Sūq period reported in the palaeo-environmental studies around Tower DHI 441 (Kasr al-Khafaji) (Desruelles et al. 2016a; 2016b). Nevertheless, there is less occupational and other non-mortuary evidence from the Wādī Sūq than from the Umm an-Nār period.

Considering these points, it can be inferred that mortuary and occupational activities declined at Bāt during the Wādī Sūq period. This may be attributed to a population decrease at Bāt. With respect to mortuary-related practices, the number of tombs inside the UNESCO boundary decreased from sixty-three in the Umm an-Nār period to forty in the Wādī Sūq. This comparison is complex in terms of the contemporaneous destruction and reconstruction of the Umm an-Nār tombs (Döpper 2015; Miki, Kuronuma & Kondo 2019) and in terms of the difference in burial practices between the Umm an-Nār collective and the Wādī Sūq individual burial customs. Nevertheless, we observed an apparent decrease in the number of buried individuals. This is also supported by the limited mortuary evidence around the tower of Al-Khutm (Cable 2012). The discussion above supports the idea of a population decrease.

It is clear, therefore, that the Wādī Sūq evidence at Bāt indicates the continuity of activities and population, although it does not necessarily reflect a maintained population size. The activities including seasonal pastoralism or nomadism reflected in the diverse archaeological evidence at Bāt are indicative of a population decrease.[6] We can assume that the Wādī Sūq community at Bāt possibly experienced less social change compared to the other sites in the south-eastern interior sector of the Trans-Ḥajar region, and partially maintained a way of life during the Umm an-Nār period with newly introduced cultural elements.

[6] In Al-Zebah near Bāt, Umm an-Nār pastoral nomadism was suggested (Schmidt 2018).

Regional and interregional relativization

Considering the diversity of the archaeological evidence at Bāt, the combination of mortuary and occupational evidence in a single site is rare for the central and south-eastern interior sectors of the Trans-Ḥajar region during the Wādī Sūq period. The coexistence of mortuary with occupational remains has been reported at the sites of the north-western sector in Al-Hīlī (Cleuziou 1989), Khatt (de Cardi, Kennet & Stocks 1994), Khawr Fakkān (Jasim 2000), Qidfāʿ (Pfeiffer et al. 2017), Wādī al-Ḥulw (Kutterer 2014; Uerpmann, Uerpmann & Jasim 2018), Falaj al-Sūq (Laurenza, Bianchi & di Michele 2020), and probably Shimāl (Vogt & Franke-Vogt 1987). Thus, Bāt and Al-Khutm provide an exceptional example of the archaeological landscape in the central interior sector.

Moreover, in terms of the size of the site, we gathered information on Wādī Sūq evidence around the site of Bāt within a 50 km radius. We found sites in Ad-Darīz (Cable 2012), Wādī Sunaysil (Frifelt 1975a), Qorin al-Sahhaimah (Yule 2001; Yule & Weisgerber 1996), and Yanqul (Harrower et al. 2021; Schreiber 1998), albeit with no combined evidence comparable to Bāt. Cemeteries were discovered in Al-Aqir and Bahla (Weisgerber & Yule 2003), but the sites had different drainage systems (Wādī Salfayn and Wādī Bahla). There are also some large-scale sites in the central coastal sectors, such as Wādī al-Ḥawqayn (160 tombs) and Al-Ṭīkhah (36–47 tombs) as well as possible collective burials in Yiqāʾ and Al-Ḥuwayl around Rustaq (Kennet, Deadman & Al-Jahwari 2016), although the details are yet to be published. Nevertheless, the palaeo-environmental and topographical differences between the north and the south of the Ḥajar Mountains need attention in order to avoid a simple inter-piedmont comparison in relation to the size of the site. Taking these points into account, the Bāt and Al-Khutm sites have regional importance in the western part of the central interior sector, where Wādī Sūq evidence is relatively scarce compared to the other sectors of the Trans-Ḥajar region.

Conclusions

The balanced and multifaceted evidence from the Bāt site suggests a continued but downscaled population and activities in a part of the central interior of the Trans-Ḥajar region during the Wādī Sūq period. This evidence sheds new light on the transformation process of the Bronze Age landscape in the desert fringe since the Umm an-Nār period. The transformation of the archaeological landscape of this site can be contrasted with that of contemporaneous sites in Al-Mudhaybi in the south-eastern interior, where the mortuary evidence exceeds the remains of occupation. Although there were differences in the distributional patterns of Al-Mudhaybi in the Early and Middle Bronze Ages (Döpper & Schmidt 2020), the same evidence was not obtained in the case of the Bāt site.

Bāt is characterized by the continuation of human activity within the same boundary, with minor differences with respect to the third and second millennia BC. This may indicate variety in adapting to aridification. Site distribution patterns between the Umm an-Nār and Wādī Sūq periods were probably affected by the availability of water in local areas. The continuity in annual water resources was confirmed at Bāt (Desruelles et al. 2016a; 2016b), and the ancient settlers were able to maintain their way of life despite aridification in the region.

However, evidence on collective burials that are as closely related to sedentary life as those in the north-western sector, such as Shimāl, Khatt, or Kalbāʾ (e.g. Carter 1997; de Cardi, Kennet & Stocks 1994; Vogt & Franke-Vogt 1987), is not available. The sites of Salūt and Al-Khashbah characterized by collective burials may indicate the possible presence of sedentary or semi-sedentary settlements, despite evidence being currently lacking. Interestingly, these two sites are examples of large sites from the Umm an-Nār period. In comparison, the Bāt site is historically similar but shows reduced features in the absence of collective burials, albeit with a certain number of individual tombs that show evidence of residential occupation. Thus, in the western part of the central sector, collective burial was not always practised, despite the relevant environmental suitability.

Although the Bāt site is a relatively large one in the region, at least until the Wādī Sūq period, it is possible that there are more undetected Wādī Sūq structures. Excavations and ground-penetrating radar can resolve this issue. Additional evidence will enrich our understanding of the archaeological landscapes at Bāt during the Wādī Sūq period.

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