

# DAI



## Orient Department

South Qatar Survey Project

2012 - 2017

Qatar Museums

Orient Department

Deutsches Archäologisches Institut





- 1 Simaisma
- 2 Doha
- 3 al-Wakra
- 4 Umm al Houl
- 5 Mesaieed
- 6 Khawr al Udayd
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- 8 Khālmāt al Khabaib
- 9 Gebel Tuwar
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In 2012 Qatar Museums (QM) and the German Archaeological Institute (DAI) agreed to launch joint archaeological fieldwork in the southern half of the State of Qatar. Systematic surface surveys were intended to divulge the region's archaeological potential and to furnish data for the reconstruction of ancient cultural landscapes in this arid region. The project was already underway in the same year. Fieldwork, which was carried out annually during spring and fall, lasted until 2016, and since is being evaluated. With this brochure we intend to impart the preliminary outcomes, whereas a detailed publication of the final results is already in preparation.

An array of different survey methods and multidisciplinary investigation techniques were applied during the archaeological fieldwork to detect the topographic peculiarities of existing but yet hardly apparent cultural landscapes. Both the survey methods as well as the nature of the sites and the finds repeatedly raised discussions and led to reassessments of the implications of the discoveries. One of the issues concerned our actual perception of 'cultural heritage' which, considering that even Bedouin life of the 19<sup>th</sup> and 20<sup>th</sup> centuries is now only partially traceable through archaeology alone, is also to include recent objects and architectural remains. In this respect, coins and bottles from the 20<sup>th</sup> century were looked upon as useful markers for dating campsites. Taking into account recent find contexts furthermore proved meaningful for shedding light on other remarkable cultural facts. Among them was the increased occurrence of soft drink bottles as of the 1970s, possibly linked to altered consumer behaviours during the general economic upturn following Qatar's proclamation of independence in 1971.

The work carried out so far essentially revealed that Southern Qatar was inhabited along the ancient coastal zones during the Neolithic Period (8<sup>th</sup> to 5<sup>th</sup> millennia BCE). In this period the human communities benefited from favourable climatic conditions, higher precipitation rates than today, a lush vegetation, as well as more extensive ground water tables. Due to altered environmental conditions, the study area no longer served as a cultural landscape in the subsequent period, even though there is some archaeological evidence from single finds dating to the

2<sup>nd</sup> and 1<sup>st</sup> millennia BCE. The settlement activity had manifestly shifted to more northern regions of the Qatari Peninsula where groundwater resources were more reliable. It is only with the Early Islamic Period that communities noticeably began to settle in the south, where pottery finds and campsites testify to former mobile populations at few, naturally privileged locations.

The data obtained from the archaeological survey proved to be highly instructive, but at the same time it is also limited as to its informative value. On the one hand it divulges a possible cultural transfer from the Levant and North-Western Arabia to Eastern Arabia in the Neolithic Period, and it even hints to the forms of landscape use in later periods. On the other hand, however, it does not account for any additional assumptions with regard to the socio-cultural imprint of the concerned societies. Ideally, archaeological excavations may contribute to the resolving of this dilemma, but suitable locations with intact deposits and promising stratigraphic sequences remain as yet unidentified. Even in abandoned sites dating to the 19<sup>th</sup> and the early 20<sup>th</sup> century, architectural remains are preserved to heights of only few decimetres, as for example at Umm al-Houl where, due to the dangers from modern development projects, the site's structural remains were given a full topographic recording, and excavation soundings were carried out.

The data collected during the survey was fed into the central database of Qatar Museums (QCHIMS), which holds the emirate's archaeological inventory and reflects its cultural diversity.

The research project would have been impossible without the support of many institutions and personalities.

We first would like to thank the Chairperson of the Board of Trustees for Qatar Museums, H. E. Sheikha Al Mayassa bint Hamad bin Khalifa Al-Thani, and the Vice-Chairperson of the Board of Trustees for Qatar Museums, H. E. Sheikh Hassan bin Mohammed bin Ali Al-Thani, for their support and considerable funding, without which the numerous seasons of the South Qatar Survey Project would have been impossible. We also acknowledge the help and support by the Chief Executive Officer of Qatar Museums, Mansoor bin Ebrahim Al Mahmoud.

We further express our sincere gratitude to Mr. Ali Al Kubaisi, Chief Archaeology Officer at Qatar Museums and Professor Thomas Leisten, Senior Advisor for Cultural Heritage at Qatar Museums, Faisal Al-Naimi, Director of Archaeology at Qatar Museums, and Professor Sultan Muhesen, Senior Archaeology Advisor at QM, for their great help and continuous support, as well as for their unequalled cooperation. Our special thanks go to Dr. Fatima Al-Sulaiti for her dedication in the field and Dr. Alice Bianchi and Dr. Ferhan Sakal for being so cooperative and particularly helpful colleagues who introduced the QCHIMS database to us with limitless patience and open-mindedness. We would also like to thank Murtada Al-Kodi who provided fundamental support in the field. Many thanks are not least due to the staff of QM, especially to Saif Al-Naimi, Sonia Barchiche, and Fatima Merekhan, for their strong support and great teamwork before and during the season.

Finally, big thanks are going to the individual contributors for their cooperation, to Paul Larsen and Christin Keller for editing the texts, and to Lisa Klisch for formatting the booklet. Without their support, this booklet could not have been completed in time.







## *Introduction*



## Field Survey Implementation and Cultural Heritage



The field surveys of the South Qatar Survey Project were conceived as a first documentation of historic and prehistoric human activities in Southern Qatar. The aim was to record all discovered archaeological locations and remains, but not to comprehensively study the singular sites, which may form the topic of future research programs. This report can therefore only provide an overview of important and characteristic locations recorded during our surveys.

The general survey area is the southern part of Qatar, whose northern border is the highway between Doha and Dukhan. Here, several archaeological locations had already been discovered by Qatari citizens and local guides. These locations were used as starting points for further research (Fig. 1). New sites were discovered on the way to these sites, in their surroundings, and during excursions to topographically conspicuous features. All kinds of archaeological locations have been referred to as „sites“. These included single stone structures or finds as well as large cairn fields (Fig. 2), settlements (Fig. 3), and single artefact scatters in so-called *riyadh* (plural form of „*rawdah*“), being the highly characteristic flat depressions of Southern Qatar’s topography. The concept of „background scatter“ was defined during the 2014 season and was applied to both single flint flakes and single pottery sherds lacking diagnostic features. The almost ubiquitous presence of such stray finds made this distinction necessary. Sherds of a single pot were nonetheless recorded as

„pottery findspots“. The documentation of the lithic and pottery finds was mostly done in the field, while the diagnostic pieces were collected and handed in to Qatar Museums for storage. At the beginning, some find categories seemed too recent and unworthy of registration. One of these categories was ammunition, found in large amounts in the area of Diyab. They witness to area's military purpose prior to 1992. Falcon hunting sites were another feature recognised during the field surveys, and likewise considered worth documenting, as falconry is still practiced today. Even so-called *geocaches* are typical modern features that leave their mark in the landscape.

The considerable amount of sites dating to the current or the last century raised the question: „What is heritage? Where does heritage begin and where does it end?“ If a camp-site from the 1970s is part of the heritage, is this also valid for a glass bottle from the same period. More than once, clusters of abandoned beverage bottles were discovered in the desert. The same was also the case for clusters of beverage cans that might represent the remains of some weekend leisure. They represent the function of a cultural landscape during a certain period. The „youngest“ find was an assemblage of four tea glasses together with a glass ashtray. They had evidently been used on the spot. Had this assemblage dated some centuries back, nobody would have questioned the archaeological importance of this location.



2. Asaila: Cairn field





This perspective helps to understand heritage: The situation with the beverage bottles may be the same as that of sherd scatters from one single pot. Pottery sherds originating from singular vessels were frequently found in isolated position devoid of any other material context. They may be regarded as pots discarded after use or breakage. As it were, the materials of the beverage containers changed over time. Pottery vessels were replaced by glass bottles, and glass bottles were replaced by aluminium cans. The use of glass is declining today. By the time aluminium cans will have disappeared in a possibly near future, finding them may again raise the question as their significance for culture heritage. From the perspective of cultural anthropology and material studies, there is no reason to exclude modern period artefacts from archaeological research, especially if written sources about dwelling and travelling in arid regions are lacking or require verification.

**3.** *Groon Baida:  
Middle Neolithic  
site (area in  
between the  
individuals),  
looking east*



## Geoarchaeological Research

Max Engel

Tim Kühlem

Stefanie Rückmann

Helmut Brückner

The geoarchaeological component of the South Qatar Survey Project was established in order to analyse landscape diversity in Qatar and to reconstruct late Quarternary landscape changes by focussing on areas of archaeological relevance. The Qatar Peninsula offers a broad spectrum of different arid landscapes, despite its rather flat topography and uniform geology formed by sub-horizontal strata of mostly Tertiary limestones, dolomites, marls, chalks, and shales.

Major parts of the peninsula are occupied by *hamadas*, i.e. plains covered by angular limestone gravel mostly resulting from *in situ* limestone weathering. The gravel concentrates at the surface, where finer sediment is removed by wind activity (deflation). Along the two main, roughly N–S-trending arch-like folds, the resistant limestone forms rocky ridges, mesas, and buttes. Further important landscape units comprise *wadis*, *sabkhas*, and dune fields. *Riyadh* of varying size are highly characteristic geomorphic features of the southern part of Qatar, resulting from subterranean chemical solution and collapse processes. They usually exhibit two generations of sedimentary infills: A brownish silty sand, partly cemented by calcium carbonate, which is covered by thinner drapes of light yellowish, loose sand. Before the mid- to late Holocene aridisation of the Arabian Peninsula intensified the aeolian mobilisation of sand, the *rawdah* provided moister soil conditions suitable for rudimentary agricultural activities. Even today, they host denser vegetation

1. Drilling the centre  
of the Asaila basin

and provide protection from strong winds. These are certainly reasons why the number of archaeological finds is considerably higher within the *rawdah* than on the surrounding *hamadas*.

One of the largest topographic depressions in Southern Qatar, the Asaila basin, also results from large-scale, long-term limestone weathering and collapse along a major, roughly E-W running fault system. The rich archaeological heritage documented on the basin's surface is causally associated with favourable location factors, such as a very shallow groundwater table and low salinities. The sedimentary infill consists of many metres of aeolian sand. Based on an 8 m-long sediment core and a sequence of optically stimulated luminescence (OSL) data, flooding during the early to mid-Holocene humid period in Arabia can be excluded. However, a rising groundwater table at that time, driven by both potentially more humid conditions and a rising relative sea level in the Gulf area, may have provided more suitable conditions for grazing of both domesticated and wild animals. After the relative sea level dropped during the mid-Holocene, the groundwater level fell as well. When also the climate became more arid, deflation set in; thus, archaeological evidence of human occupation of the Asaila depression becomes sparse.

The Holocene evolution of coastal environments represents another focus of research. So far, radiocarbon ( $^{14}\text{C}$ ) dated geomorphic and biogenic sea-level indicators (e.g. remnants of shell-rich shallow marine deposits at Khor al-Adaid) point to a highstand of +2–3 m c. 6000–4500 years ago. The transgressive



2. Sediment core from the central Asaila basin, showing 8 m of uniform aeolian deposits



3. Overview of the spit system at Umm al-Houl, showing the spit of the historical settlement (foreground), the intertidal to supratidal mangrove and salt marsh environment, as well as the recent beach and Arabian Gulf

process until the onset of the highstand led to significant landward shifts in the coastline all around Qatar for hundreds up to thousands of metres.

Between al-Wakra and Mesaieed, a case study aims at reconstructing in detail the regressive formation of a *spit-and-sabkha* complex with one of the country's rare mangrove populations. One of the spits hosts the late 19<sup>th</sup> to early 20<sup>th</sup> century settlement of Umm al-Houl, the remains of which are now completely surrounded by Qatar's New Port Project. So far, it was possible to decipher spit growth in space and time since c. 6000 BP, and the evolution of the spaces in between from shallow marine to intertidal *sabkha*, salt marsh, and mangrove environments. The beachrock underlying the spits was identified as the main rock source for the construction of the settlement, and sites where this beachrock was quarried were precisely located.



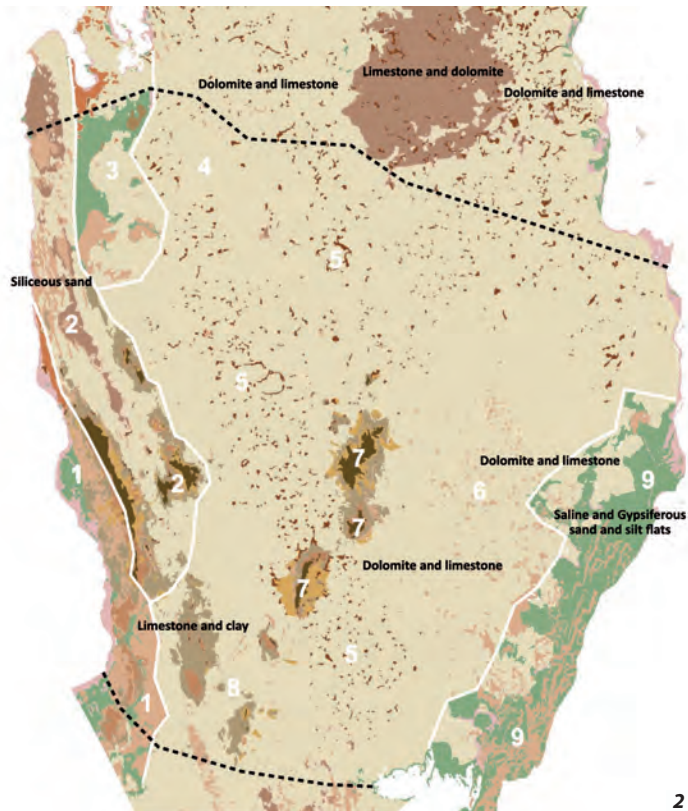
## Topographical Units of Southern Qatar

The southern half of the Qatar Peninsula can be divided into nine distinct topographic areas. Each area shows different specific human activities and land uses, which are listed as follows (Fig. 1): The western coastal region (1) is the strip of low land west of the Dukhan ridge widening from north to south. It witnesses most of the archaeological periods revealed by the SQSP fieldwork: Small sites of the Middle Neolithic Period (associated with the Mesopotamian Ubaid culture, 5<sup>th</sup> mill. BCE) are located along the former shore line. Numerous pottery sherds, cairns, and other stone structures reflect archaeological remains from different periods. The buildings of Jaow al Nasla comprise some single-room houses and one extended building with a large courtyard that can be tentatively dated to the Early / Middle Islamic Period. The southern part of this region, characterised by large *sabkhas* is today a desert and almost devoid of archaeological remains even with regard to mobile Bedouin groups.

The Dukhan ridge (2) is largely disturbed by the contemporary exploitation of petroleum gas (mainly between Umm Bab and Dukhan). The large area south of Umm Bab is currently used by mobile groups, e.g. camel herders, only. Remains of ammunition witness the area's former military function.

East of the Dukhan ridge, an inland *sabkha* reaching the surroundings of Umm Bab (3) in the south dominates the landscape (Fig. 2). Along the eastern edge of this *sabkha* are

1. View from Gebel Tuwar towards southeast



2

several Middle / Late Neolithic sites with bifacial tool industries, some of them with pottery sherds displaying decoration types and wares similar to those of the Mesopotamian Ubaid culture. On the higher terrain immediately to the east, abundant small Early Neolithic sites with Qatar-B tool industries occur. The central plateau represents the largest region in Southern Qatar. Its surface is more or less flat and topographically characterised by low ridges and some fertile depressions called *riyadh* (sing. *rawdah*). In the north (4) single cairns, cairn clusters, and large cairn fields are the main anthropogenic remains found in this region. Large parts of the plateau display small *riyadh* (5). These are not only a topographic feature, but also an important archaeological particularity. The eastern part is almost void of *riyadh* and characterised by sand dunes (6).

2. Map showing the regions described in the text. Illustration with geological map background from QCHIMS



The Gebel Tuwar ridge (7) transverses the southern part of the central plateau. This ridge is characterised by an extremely arid environment and did not display any anthropogenic remains. It was hence only randomly surveyed.

The south-western area connecting the Qatari Peninsula with the Arabian Peninsula (8) is a highly specific region. It is topographically diverse and not easily accessed, due to the lack of modern settlements and the presence of restricted military zones. Temporary settlements and lithic sites including workshops and flint knapping sites are attested here. Palaeolithic sites are assumed to occur here as well, but no typical tools of this early period have so far been identified by the survey project.

The eastern coastal region (9) has a very low gradient. Thus, this area dominated by *sabkhas* is by far wider than the west coast region. This applies also for the eastern shore, which is much shallower than the western shore. Therefore, natural ports such as in al-Wakra and Umm al-Houl are rather exceptional. Since the prehistoric settlements of the Middle / Late Neolithic Period, as indicated by bifacial lithic industry and *Ubaid pottery*, are located much more inland than in the west coast region, it may be assumed that the sea level changes had a stronger impact in the eastern coast region than in the western one. In the south the surface is mostly covered by sand dunes, thus covering and concealing most of the evidence from human activity (Fig. 3).



3. South-western Isthmus Area: View to the south with Khor al Udayd and sand dunes in the far background



## Survey Methods

Stefanie Tiltmann

The South Qatar Survey Project used and customised different methods for fieldwork adapted to the variety of archaeological questions, landscapes, areas of interest, and archaeological phenomena it had to deal with. The sites were documented according to state-of-the-art standards defined by DAI and QM. Each site is assigned to a HAR (Heritage Area) number, whereas the different survey activities are identified through HAC (Heritage Activities) numbers. During the five seasons of field survey in South Qatar, a total number of 808 new sites was recorded, documented, and entered to the QCHIMS database. Consequently, the SQSP made an important contribution to the overarching goal of the Qatar Museums Authority to carry out the pilot project of establishing a nationwide record of archaeological sites. The field recording method was changed in 2014 after QM had introduced the „parent and child site“ system. A “parent heritage area” may include several structures, finds or artefact scatters, while a “child” site is a single stone structure (e.g. a *qibla*-wall) or artefact within the parent site. Some features like topographical peculiarities or anthropogenic structures such as landmarks or dumps could hence be recorded as well, without overloading the data base.

In accordance with both the type of the site and the goal of the survey, specific survey methods were chosen and applied.

For the survey of the *riyadh*, the quadrant method was used, because *riyadh* are generally roundish or oval in shape. For this

1. Field walking in transects (in Asaila)





method, either a central point is determined arbitrarily or if available, the well was chosen as starting point. Quadrants were established from this centre and ranging poles were placed at the cardinal points. Then, each quadrant was surveyed by a survey team up to the edge of the depression. In elongated sites, all survey teams worked together walking in parallel corridors at a distance of about 5 to 10 m between each surveyor. This method was also applied to cairn clusters, which allowed to localise and record features in the space between single cairns.

In addition, the surroundings of the survey areas were surveyed by car in order to record any information about possible network connections between the *riyadh* resp. different sites. With these methods it was guaranteed that all the needed information was collected.

As an amendment to the quadrant method, the so-called star method was used for larger sites. According to this method, each survey team started from an arbitrary central point walking straight in one predetermined direction. Thus, the team spread apart in a star-like pattern. This method was used for getting detailed information about the site and general information about its surroundings.



For the Asaila Survey, the method of transect walking was applied (Fig. 1). In predefined survey units of 500 x 500 m, a team of four surveyors, each equipped with handheld GPS to track the paths, walked in predefined transects at 10 m intervals. The aim of the Asaila Survey was to find small flint working places. This method was also utilised in the General Survey in 2015, when it focused on small Neolithic sites in the coastal region between Dukhan and Umm Bab.

The car survey method was applied for rescue surveys. These were taken into consideration from 2013 onwards, when the SQSP was asked to survey areas affected by road works or industrial construction sites. The car survey was seen as most appropriate, since it enables a swift first record within large endangered zones. While driving slowly along the planned construction areas, every spotted structure was recorded in a pedestrian survey.





## ***Archaeological Fieldwork***





## 28 | Philipp Drechsler Survey in the Asaila Area

Archaeological surveys in the Asaila area, in the south-western part of the Qatar Peninsula and east of the Dukhan *sabkha*, were aimed at identifying changes of settlement patterns in connection with the presence of local natural resources and changing environmental conditions. Field work in Asaila was carried out under the South Qatar Survey Project between 2014 and 2016.

The archaeological wealth of the Asaila area has been well-known ever since the early surveys carried out by Danish archaeologists between 1954 and 1968, as well as the later investigations by a French team between 1976 and 1982. The present Asaila survey aimed to broaden the knowledge of human land use patterns and settlement dynamics during the Holocene. To reach this goal, systematic pedestrian surveys at 10 m intervals were carried out in selected areas of the Asaila area. At first, a survey area of 50 square kilometres was defined that covered different parts of the landscape, including the Asaila basin, a generally flat and closed depression filled with aeolian sands of Pleistocene and Early Holocene age, the surrounding cliff lines and limestone plateaus, as well as the extensions of the Dukhan *sabkha*. Within this area, a total of 18 survey units were deliberately selected and studied in detail.

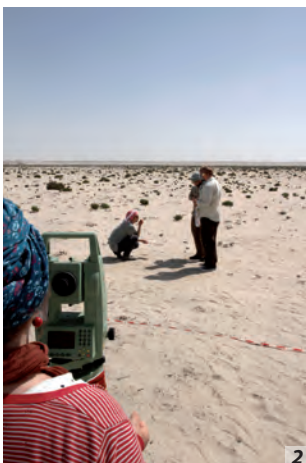
This research design led to the identification of more than 200 sites with remains of past human activities. Among them, the remains associated with the Neolithic Period are the

1. The Asaila fort on top of a small hillock overlooking the surrounding landscape

most common ones. A total of 14 sites were found that are characterised by bidirectional naviform blade cores, primary and secondary crested blades, and other core preparation flakes. These assemblages can be assigned to the Qatar-B lithic industry, presumably dating to the Early Holocene. All Qatar-B assemblages were found close to natural outcrops of high quality flint along the edges of the Asaila basin, thus suggesting that the production of flint artefacts was a major activity.

Small-scale excavations at the site HAR 5251 on top of a terrace and overlooking a small enclosed depression outside the Asaila basin, led to the discovery of few flint tools, among them blade arrowheads, borers, and one scraper. Technological and typological similarities of the Qatar-B assemblages studied in Asaila with PPNB flint artefact inventories assemblages in the Southern Levant are an indicator for an intrusion of Levantine Neolithic populations into Eastern Arabia during the Early Neolithic.

By contrast to the technologically well-defined Qatar-B flint industry, Middle Neolithic assemblages are characterised by a broad spectrum of flint tools, among them bifacially chipped arrowheads, bifacial foliates, and tile knives. Such artefacts were documented in very high numbers in the centre of the Asaila depression: Fine-grained sediment and a high ground water



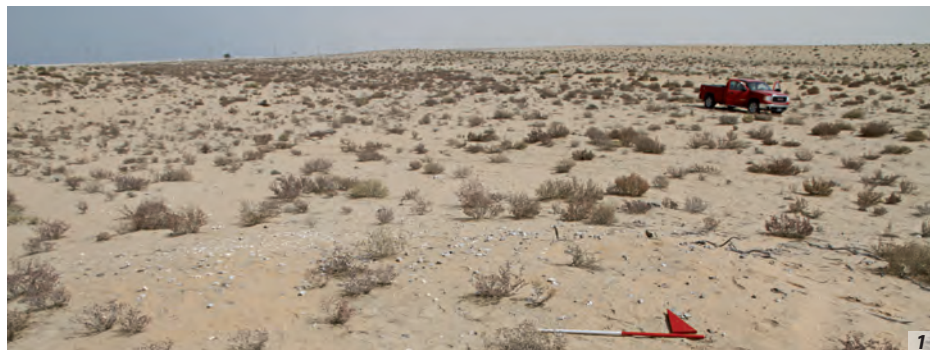
2. Recording of finds with a total station

3. Spectrum of flint artefacts found in the centre of the Asaila depression: arrowheads, hoe, bifacial foliate, and scraper

level, especially during the moister periods of the Early and Mid-Holocene, provided excellent conditions for plant growth, and thus for the pasture for wild and domesticated animals. But not only evidence for domestic activities was documented. At site HAR 5800, more than 7000 flint artefacts were recorded together with few marine snail shells and ostrich eggshell fragments. The predominance of chips and thinning flakes as well as broken preforms indicates an on-site production of bifacial foliates from diverse, non-local flint raw material. In addition, diverse scrapers and one grinding stone also suggest domestic activities. The excavation of a combustion feature, most likely a fireplace, verifies a more substantial occupation within this area. Therefore, significant changes in the economic activities and land use patterns can be observed in Asaila during the Neolithic between the 8<sup>th</sup> and the 5<sup>th</sup> millennium BCE.

Only very few sites in the Asaila area reveal evidence for human activities between the Middle Neolithic and modern times. Few pieces of pottery as well as several burial cairns that possibly belong to this time range were found along the edges of the limestone plateau. It is not before the Late Islamic Period that an intensification of activities can be documented. Stone covered burials and extended camps with characteristic pottery and fragments from glass bangles are the hallmarks of this period. A hill fort overlooking a small oasis at the eastern part of the Asaila basin clearly demonstrates the importance of the area for the local population. But since the middle of the last century, Asaila has been sparsely populated. Oasis agriculture had become no longer worthwhile, and today only herdsman roam the area with small droves of sheep, goats, horses, or camels.





## An Update on Ubaid Sites in the Gulf

Christine Kainert

Four sites assumed to date to the 6<sup>th</sup> and 5<sup>th</sup> millennia BCE were rediscovered during five survey seasons carried out by the SQSP between 2012 and 2016. This dating is based on a specific type of *Black-on-Buff Ware* that was found on the surface of the findspots. The ware is known from numerous contemporaneous sites in the Gulf as well as from Mesopotamia, where it is commonly termed *Ubaid Ware*. In the Gulf region, *Black-on-Buff* pottery usually occurs in combination with specific flint tools which are described as typical for the Middle Neolithic of Eastern Arabia.

In addition to the four rediscovered SQSP-sites, nine other sites from that period have been discovered in Qatar over the past 50 years and subsequently identified and published through different international projects. Archaeometric analyses reveal that the raw material of the majority of *Black-on-Buff* pottery from a total of 13 sites in Qatar, all located close to the country's modern shores in the west, north, and east most likely originates in Southern Mesopotamia. A small amount may nevertheless come from South-western Iran as well.

The presence of Mesopotamian *Black-on-Buff* ceramics has been reported from all countries bordering the Arabian Gulf, from Kuwait in the north to the United Arab Emirates in the south. Additionally, several sites in the Central Gulf area north and west of Qatar, in Kuwait and Saudi Arabia, have alongside the *Black-on-Buff Ware* yielded another, presumably local type of pottery

1. Shell midden





called *Coarse Ware*. At Da`asa, close to modern Dukhan, small quantities of fragments belonging to the *Coarse Ware* were identified during an excavation in 1973. Furthermore, to the east of Qatar, the sites at Marawah and Dalma (both located on separate islands of the Emirate Abu Dhabi), have been identified to have yet another characteristic and a locally manufactured pottery type, referred to as *Plaster Ware*, which commonly is interpreted to be an imitation of the Mesopotamian *Black-on-Buff Ware*. Interestingly, this third type of pottery is not made of clay but of a gypsum-like material. In Qatar, *Plaster Ware* was identified in 2013 in Simaisma on the eastern coast.

So far, Qatar is the only known country in the Arabian Gulf to furnish all three concurrent pottery types from the 6<sup>th</sup> and the 5<sup>th</sup> millennium BCE. In addition, the number of sites in Qatar with pottery from the Middle Neolithic increases continuously, due to on-going research. This evidence highlights Qatar's significance for the study of the Neolithic Period in the Arabian Peninsula. In fact, the current situation offers a rare opportunity to intensify research on the interplay between various imported and presumably local pottery traditions, as well as on their role in the social exchange between different communities from an ill-known period.



## The *Rawdah* as an Archaeological Site

Christoph Gerber

South Qatar's topography is characterised by flat depressions called *riyadh* (sing. *rawdah*), which resulted from collapsing cavities in the limestone underground. Such depressions can be regarded as catchment basins for rain water and alluvial soil. They show several specific features: (1) alluviation forming a deep layer of soil; (2) soil that is regularly fed by rain water and that retains humidity throughout the year; (3) favourable conditions for the cultivation of plants and trees: The depressions not only have moist soil, but also provide a natural shelter against the heavy winds which mostly come from the northeast. Hence, it is not surprising that remains from human activities can be found in most of the *riyadh*. Thus, the *rawdah* can be regarded as a topographic feature which indicates human activities.

The finds in a *rawdah* are the result of erosion: Remains of different periods are found together on the surface. These are washed in from the surroundings and exposed to the surface by the strong winds. By excavating one of them it became evident that there are no clear layers allowing for the establishment of stratigraphic sequences. Underneath the 0.8 m deep sediment, the pure rock surface was reached.

The risk of flooding after heavy rains is present in every *rawdah*. Thus, the temporary settlements and camps are situated mainly either on the slope towards a *rawdah* or on top of or along the surrounding plateau. Wells built in a *rawdah* are generally located on slightly elevated, rocky outcrops in order to prevent the rainwater from draining into the well.

1. Trees and shrubs in the rawdah of Kharrara with qibla-wall

The low areas of a *rawdah* are generally either partially covered with sand or are deflated. Artefacts were found lying on the hard deflated surface and covered by sand (Fig. 1).

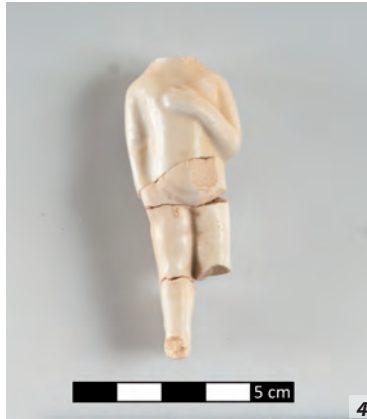
Our research revealed that building structures or tent remains were regularly located in specific, functionally distinguished parts of a *rawdah*. The sites can hence be composed of different spaces. Besides a domestic area, another special place was used exclusively for worship. In cases that there was a nearby burial ground, it was always located at a clear distance to the domestic units. Animal shelters were often located inside the *rawdah* at short distance to the tents, thus enabling the herdsmen to keep an eye on them. The locations of the particular functional spaces may differ, depending on the characteristics of each *rawdah*.

Larger *riyadh* today form the centres of important villages, as in the case at Karaana and Kharrara. The *rawdah* of Kharrara provides abundant water, since there are several larger trees and also more plant species than in other *riyadh* (Fig. 1). The only stone structures inside this *rawdah* are, besides two wells, four different *qibla*-walls. A temporary settlement was recorded at the northern border and just outside of the *rawdah*.

In another *rawdah*, some stone alignments are visible on the surface. They represent walls consisting of two stone rows



2. Porcelain from  
al-Thelaim



that belong to rectangular buildings. Nevertheless, the visible parts of the ground plan are very fragmentary and incomplete. The remains attracted our attention, since two coins dating to about 200 years earlier had allegedly been found there. Even if this remains unverified, the walls' state of preservation may also indicate to an age of one to two centuries.

Some *riyadh* display clearly discernible stone structures such as tent places, fireplaces, and field mosques, but also severely disturbed stone arrangements, whose original layouts remain unknown. The *rawdah* of al-Thelaim yielded some of the most spectacular porcelain finds (Fig. 2, 4) and ethnographical items of the SQSP surface surveys. It was visited after members of Qatar Museums had found fragments of a porcelain figurine by accident. The systematic survey revealed occupation evidence from different periods: Ethnographic finds may date back to the end of the 19<sup>th</sup> century (coin of Muscat/Oman) or/and to the 1970s (*Pepsi-Cola* soft drink bottle among other finds). Pottery and/or coins also furnish hints to further occupation periods. The site seems to have been favourable because the freshwater table is still just about 1 m below the surface and is thus accessible without having to construct a well.

3. Typical finds made at a *rawdah*: Pottery, glass bangles, sometimes fossils
4. Porcelain figurine from al-Thelaim

## Stone Cairns



The most common features recorded during the surveys were round structures of stones, so called cairns. Cairns are stone or rock piles that vary in size, shape, and construction and are located at noticeable locations in the landscape. They vary a lot and show distinct patterns of distribution throughout the surveyed areas. Generally, stone cairns were thought of as being graves, but as the number of the documented cairns grew, it became evident that they also must have other functions such as landmarks. With some exceptions, cairns are generally located on ridges or elevated topographic features. Some had actually been refurbished to be used as landmarks (Fig. 1), and it is conceivable that many of the ancient cairns may also have been used as such, even if their original purpose may have been entirely different.

Burial cairns are difficult to identify and even harder to date. Most of them may belong to the 1<sup>st</sup> mill. BCE and the 1<sup>st</sup> mill. CE. The ones that have excavated had most cases already been looted, and the evidence from human remains not to mention finds is very scarce. If pottery sherds are found around them, they are so severely weathered that they hardly ever reveal traces significant for chronology.

In general, the diameters of the cairns vary between 5 and 11 m, while the structures themselves are preserved to heights of about 1 m. Differences in the conditions of preservation may be indicative of differences in age, but without the diagnostic

1. Burial cairn  
reused as modern  
landmark

finds, their chronology remains blurred. In the surroundings of the Asaila oasis (Jaow al-Bahath), several cairn clusters and fields overlooking the depression and the bordering *wadi* inlets may hint to formal burial grounds of mobile groups. No other area so far visited, has displayed so many diverging types of cairns. The different locations and the specific characteristics of these cairn groups seem to suggest a dating to several periods.

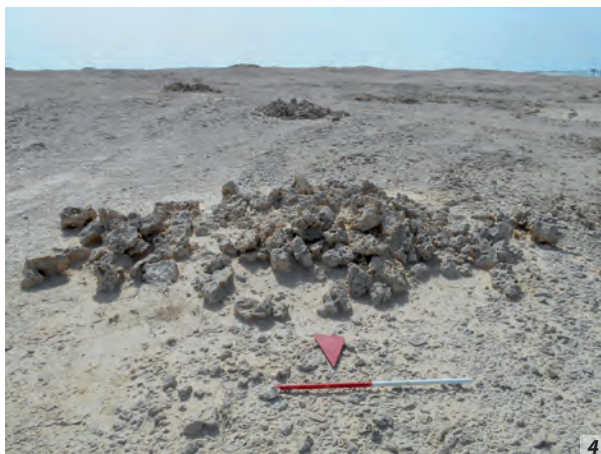
A group of three cairns located near the Asaila oasis was investigated by the SQSP team. The two northern cairns were cleared completely. They turned out to have a circular layout with a small central chamber (Fig. 2). The preserved heights are equal three to four stone layers, which corresponds approximately to 80 cm above the supporting bedrock. A single small bead and some weathered pottery sherds were the only finds recovered from the otherwise empty chambers. The cairns seem to have been disturbed a long time ago, and they fail to provide any datable archaeological contexts.

Two pairs of cairns are located at the border of a prominent terrace (Fig. 3). All four cairns have a diameter of 8 m and are preserved to a height of 1.5 m. The pairs are located about 80 m away from each other, whereas the cairns are separated by about 15 m. The cairns display a corridor-like attachment from fairly large rocks at their southern extremities .



2. Asaila: cairns after excavation





Near the former prehistoric site of Da`asa (south of Dukhan), some of the cairns documented in 1978 have survived until today. These cairns were located not on the ridge itself, but at its western foot (Fig. 4). This unusual location probably possibly establishes some connection between them and the meanwhile destroyed site of Da`asa from the Middle Neolithic / Ubaid Period. At Barqa al-Hamla, there is a remarkable feature consisting of a line of piled up stones warning drivers of the nearby cliff. The *rawdah* at Feleiha is also delimited by a dense line of small stone piles as a warning for drivers, as the depression is filled with sand and thus too dangerous for car traffic. Stone piles as property markers of were not only observed in the nearby villages, they are also a feature of current land use.

3. Eastern cairn pair showing attached chamber(?) of northern cairn

4. Cairns at Da`asa



## The Wells and Their Environment

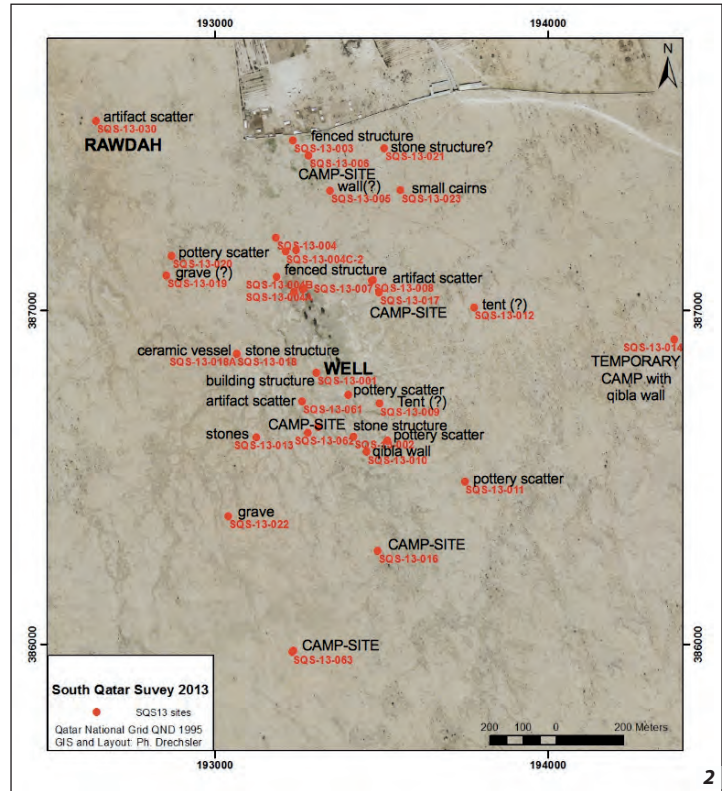
Christoph Gerber

The "archaeology of water in semiarid and arid areas" is one of the research topics of the DAI. In the framework of the SQSP, the environments of several wells were surveyed in order to collect information about the use of these wells. Consequently, wells in different topographical settings previously documented by members of Qatar Museums were selected for our research.

Qatar is located mainly on a limestone plateau without superficial springs and no permanent superficial water courses. In order to perennially secure the water supply the past, wells needed to be dug through the limestone underground. Today, this is accomplished through drilling wells and building power-fed pump stations. Well-fed irrigation culminated in the 1970s, as several former plantations testify. Before the 1950s, deep wells had to be broken through thick limestone layers until the ground water was reached. Some of the wells are more than 40–50 m deep (Fig. 1). They give an idea of how much workforce was necessary to gain access to water in these dry areas. Wells have constantly to be kept in good condition, otherwise they would soon be covered by sand deposits. Many wells have therefore a concrete wellhead, which documents their usage into the most recent past. The traditional wells became obsolete with the implementation of drilled wells with pump stations that reached deeper into groundwater layers. It is still unknown, when exactly wells had been introduced to Qatar.

1. View into the well of Felaiha





The well of al-Ghafat is set within a typical landscape topography of Qatar's central plateau. The surroundings are flat with low undulations and have a rocky or stony surface with very little vegetation. An area of about 1 km<sup>2</sup> centred around the well was surveyed. The typical sites found in the surrounding of the well consisted of (Fig. 2):

- the remains of built stone structures in the immediate vicinity of the well,
- several small campsites with remains of tent structures,
- a temporary camp with a *qibla*-wall about 800 m east of the well,
- several artefact scatters, one of them only with pottery,
- a single grave 500 m to the southwest of the well, and
- a group of very small cairns 600 m to the northeast of the well.

2. Satellite imagery (Google Earth) of the surrounding of the Well Bir al-Ghafat and the sites recorded

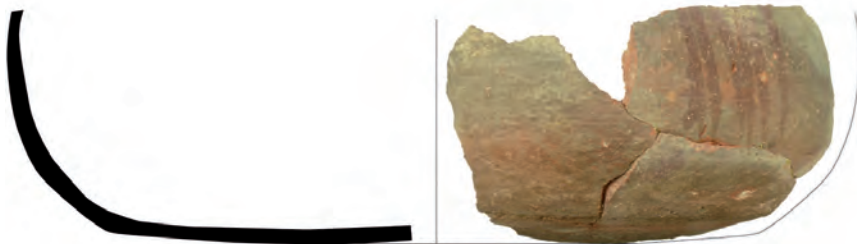


A large plantation is located to the north of the well and its enclosure wall reveals the former size of the cultivated zone, presumably in the 1970s; today the irrigated area is much smaller. The wells at the site of Khalmat al Khabaib (Fig. 3) are two drilled wells with a pump station about 800 m apart from each other. A third well to the south is out of use. The wells are located at and near a *rawdah* with typically associated features, such as several temporary camp sites (Fig. 3). Whereas one of the temporary camp sites is associated with an artefact scatter and a graveyard, another camp site includes a *qibla*-wall and some hearths made of concrete. A fenced structure and a pottery scatter belong to the abandoned third well in the south.

A unique water-related feature is situated in the far south at the site of Bir al-Qaseera (Fig. 4). It is a cistern-like basin which collects rain water from the surroundings. The basin measures approx. 30 x 22 m; the surrounding curb walls are stepped inwards. A proper access to the water table in the basin was not detected. As impressive as this construction may seem, there were almost no settlement remains surrounding it: Only some temporary camps and single tent places scattered in the adjacent areas were recorded, as well as *qibla*-walls and some graves.

During the field surveys, further wells were discovered that had not yet been listed or mapped. They are filled with sand and may derive from previous centuries (Fig. 5).

3. Khalmat al Khabaib: Remains of a temporary camp with pump station in the background
4. Bir al-Qaseera; View from the East
5. Well at Sidri Rawdah with wooden cover (out of use) and concrete wellhead



QNHER 5187-SQS 12-109



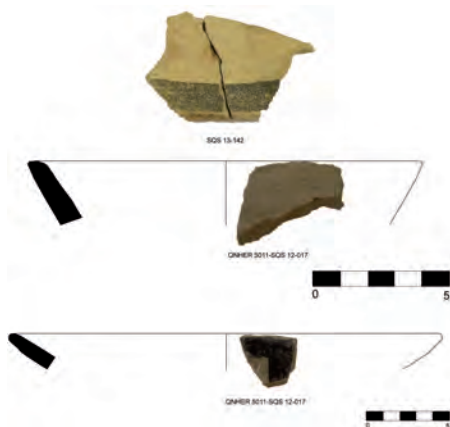
## Pottery Finds in South Qatar

Due to the lack of previous publications on pottery from the Qatar Peninsula, the initial identification of ceramic groups proved to be challenging. Every sherd was recorded through macroscopic analysis according to specific characteristics like fabric, surface treatment, and shaping technique. The ceramic assemblage is therefore divided into four main groups like coarse, chaff, sandy, and glazed wares with a total of 38 different wares identified.

The designation of the wares either follows a previously established form like for example *Julfar Ware*, *A`ali Ware*, otherwise it is descriptive, as in *Pale Yellow Sandy Ware*, or *Gritty/Shell Ware*.

The collection and study of these various ceramic wares contribute to the unfolding of Qatar's rich history and the tracing of its cultural development as far back as to the Neolithic. In fact, the most ancient sherds belong to the so-called *Ubaid style* and date to the 6<sup>th</sup>–5<sup>th</sup> millennia BCE. These finds come from the site HAR 5011 located in the Western Coastal Qatar, which comprises the area to the west of the Dukhan anticline, south of Umm Bab. The most recent sherds date to the Islamic Period, which ranges from the end of the Early Islamic Period (11<sup>th</sup> century CE) to the present (late 20<sup>th</sup> century CE).

Moreover, the study of some ware groups pointed to the presence of imported pottery that had probably been produced in neighbouring regions. For example, the *Manganese Purple*



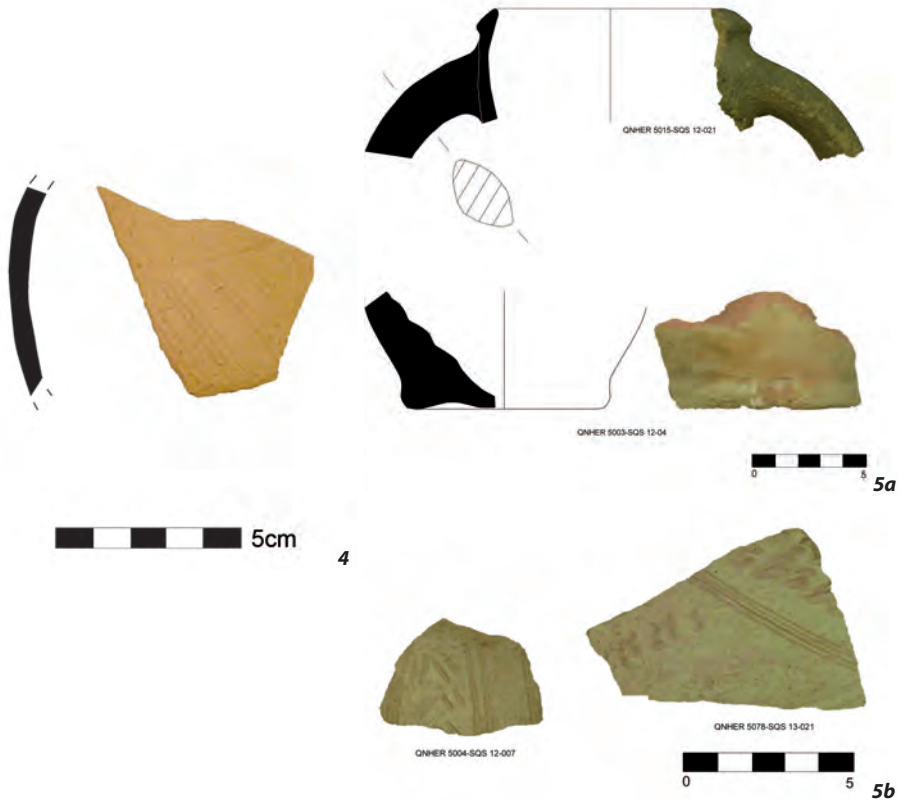
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*Underglaze Painted Ware* which occurs in the Asaila area, at Al-Karrana, in the Shaqra area, and at Umm al-Houl, is characterised by high contents of manganese in the painted decoration under a clear or green/yellow tinted glaze on a thick pale-yellow body. Its manufacture was either located in Iran or Iraq. *Manganese Purple Ware* is common in the Gulf area and it is generally dated between the 11<sup>th</sup> and the early 20<sup>th</sup> century.

Another type of imported pottery is the *Julfar Ware*, which usually comprises cooking pots. According to Kennett, the earliest recorded examples of this ware date from the Sasanian Period to the 13<sup>th</sup> century. The production of *Julfar Ware* at that specific site can be dated between the 18<sup>th</sup> and the mid 20<sup>th</sup> century CE. *Julfar Ware* has been manufactured at the site of Julfar, northeast of the city of Ras al-Khaimah. This ware is particularly widespread throughout the Gulf area and has been located at sites in Saudi Arabia, Bahrain, Yemen, the UAE, Tanzania, and along the southern coast of Iran. The *Julfar Ware* collected in Qatar usually concentrated in depressions or around the architectural structures at Umm al-Houl. It includes several types that are either painted or plain.

The *A`ali Ware* is another example of imported wares and is generally dated to the 18<sup>th</sup> century, but its production probably lasted until the middle of the 20<sup>th</sup> century. The production centre is the village of A`ali in Bahrain, where the pottery is still being

- 2. Ubaid style ware
- 3. Manganese Purple Underglaze Painted Ware



produced in a traditional style. It occurs in the Asaila area, at Samriye, and at Al-Karrana.

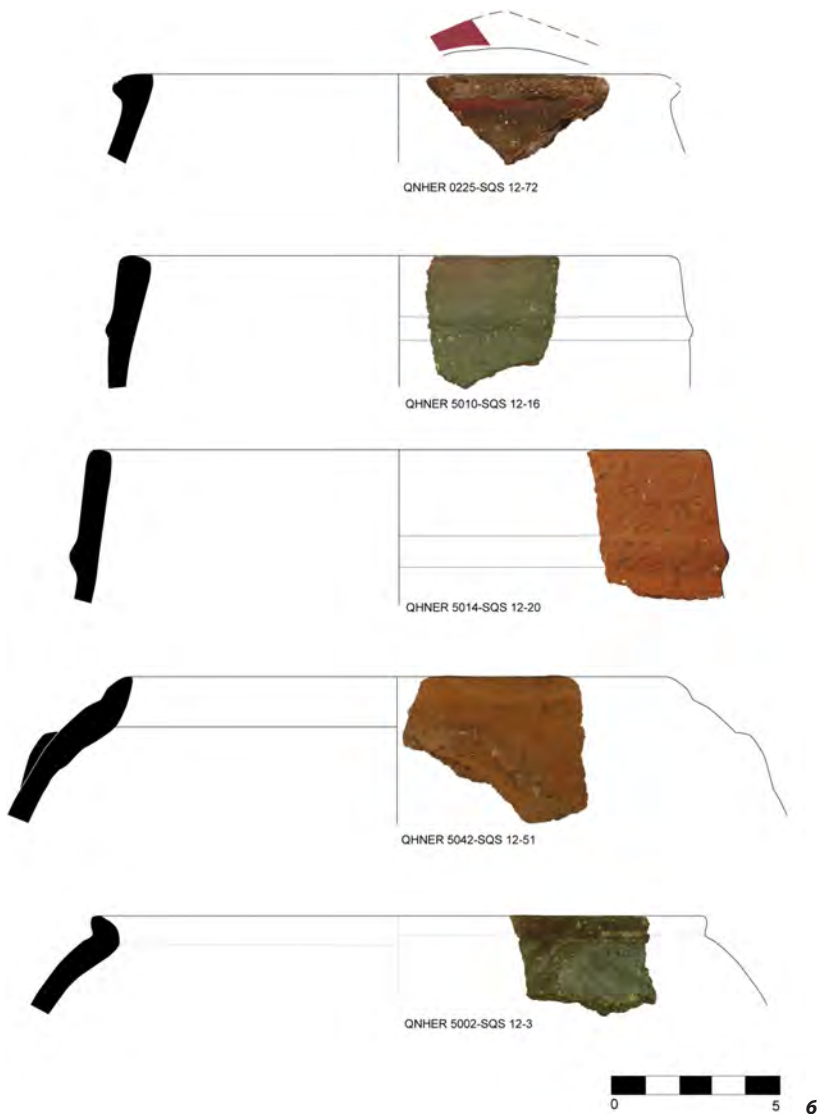
The so-called *Pale Yellow Gritty/Sandy Ware* is the most common ware among the pottery recorded during the survey, and it was presumably used as water jars. This interpretation is based on the shapes of its rim, neck, and handles and also on the high number of samples which were documented in all surveyed depression areas in the Jenanina al tamna, Umm al Ghulban, and Kharrara regions. Jars of this ware are found quite often in a complete form. The suggested dating is between the 19<sup>th</sup> and the 20<sup>th</sup> century CE.

4. A`ali Ware

5a/b. Pale Yellow  
Gritty/Sandy Ware

The study of the pottery collected during the SQSP outlines the long and rich cultural development which took place in Qatar since the Ubaid Period and from the Early Islamic Period to the





present time. The identification of several imported wares helped to shed light on Qatar's position as one of the central spheres of interaction between the regions of the Gulf area and beyond during the different evidenced periods.

## Fire Installations in the Archaeological Record – the Reflection of Daily Life



1. Fireplace in a rawdah used by resting herders over longer period. Note the heavily sooted limestones and modern artefacts in and around the installation

Since the intentional use of fire involves both social and technological aspects, it engages many activities of daily life. The ubiquity of fire installations in almost all surveyed sites in Qatar demonstrates the central role of fire in the investigated societies. Fire can be used for many different purposes, such as heating, protection against wild animals and insects, preparation and conservation of food, and signalling at for instance landmarks. In the archaeological record fire installations can be used to identify certain activity zones within the landscape. Within architectural contexts, fire installations may in addition provide information about the durations of examined temporary settlements. They reveal the changes and continuities in cultural pyrotechnology. Furthermore, whereas fuel analyses help to reconstruct past environments, charcoal can be used for determining the sites' dates as well as clearing issues linked to archaeobotany.

Fire installations are intentionally chosen places that often had been arranged for the lighting-up and preservation of combustions. The various types of fire installations are directly connected to their specific purposes. Fireplaces, hearths, ovens, and kilns can be distinguished at almost all archaeological sites and cultural contexts. The complexity of the feature may be indicative as to the duration of the device's functional period – for example, simple fireplaces would point to a shorter use in comparison to elaborately built ovens.



During the SQSP General Survey, the majority of fire installations recorded are open fireplaces that are located in so-called *riyadh*, on elevated positions or within temporary settlements. In many *riyadh*, fireplaces were found in connection with animal tracks and modern artefacts such as pottery, glass bottles, plastic objects, and cans. Interpreted as resting places for herders, the layout of the fireplaces may either be simple arrangements consisting of no or few limestone rocks, or more complex ones with many stones, indicating a long-term use by either the same or several groups (Fig. 1).

Some of the fireplaces were located on elevated positions, e.g. on hills with cairns (landmarks) where they could be seen from a long distance during both, daylight (smoke) and night-time (light). Such fireplaces were often connected with middens containing modern artefacts. Many fire installations were found in connection with temporary settlements such as Bedouin campsites. In these contexts, they were either located in outdoor areas immediately next to the tents, or they were found directly inside the space occupied by the tents. Fireplaces could also be adjoined by rectangular hearths. They consisted of limestone walls with greyish-blue scorch marks and soot whereas modern objects and some charcoal were found inside.

The earliest known fire installations in Qatar date back to the Neolithic (8<sup>th</sup> – 5<sup>th</sup> millennium BCE). Dome-shaped structures (Fig. 2) were found in close proximity to Late Neolithic sites. We are dealing here with the remains of fire cracked limestones that formerly surrounded an ancient fireplace. Another large fireplace is connected to a flint-knapping workshop in the Asaila basin.

2. Dome shaped structure close to Neolithic sites indicating an ancient fireplace
3. Oval-shaped concrete hearth in the outside area of a former Bedouin campsite. The stone lining of the tent is visible in the background

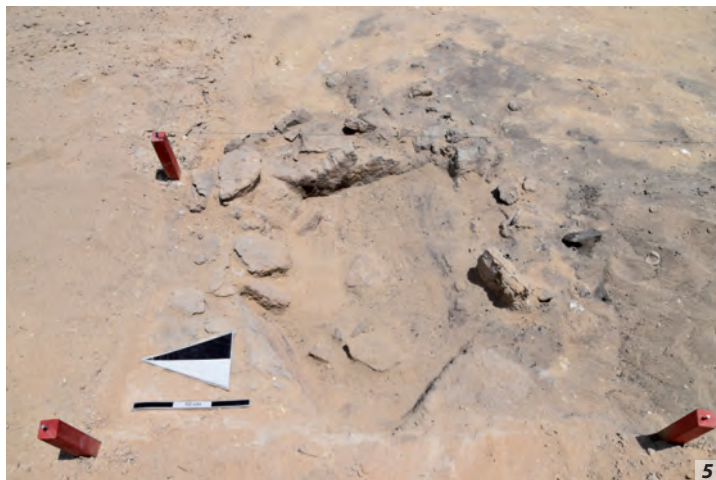


The distributional analysis of the flints suggests that the people were sitting around the fire while working.

Ethnographic research on the Qatar Bedouin culture carried out in 1959 shows that different kinds of fire installations were prepared by different members of the group. Depending on their location, these were used for different purposes. So, the ephemeral fireplaces outside the tents were mostly prepared by men and were used for coffee ceremonies, whereas the hearth was located inside the tent and used by women for cooking. The fuel consisted mostly of wood, thrift wood, and camel dung. The combination of both ethnological and archaeological data is very helpful for interpreting the documented sites.

For instance, one investigated campsite consisting of eight stone structures, one *qibla*-wall, six outdoor fireplaces, and an outdoor hearth (Fig. 3) was recorded that shows clear similarities to the famous Murwab camp inhabited by the Al Naim family. The SQSP documented two tent structures with niches at the southern edge: These contained hearths with the same shape and orientation. In both the ethnological as well as the archaeological examples, the indoor hearth is located inside the tent's niche („kitchen niche“). The ethnographic report shows that the kitchen niche was an open appendix that was integrated into the tent's structure to serve as an outlet for the fumes.

4. UAH, Trench 5: Rectangular herath in the corner of a room within a large courtyard building complex in Umm al-Houl. Note the opening in between the limestones for cleaning purposes and air supply



At the site of Umm al-Houl fire installations were documented in detail during the excavation as well as in the framework of an intra-settlement survey. In several trenches, hearths were found in both rooms and courtyards, as well as outside of the building structures. Circular or rectangular pits (Fig. 4) had been cut into the ground and then lined with limestones and / or beach rock. These installations served as cooking places. Voluminous ash accumulations and artefacts such as porcelain, pottery, bone, glass, and iron, corroded metal pieces, and wooden fragments were linked to the fire installations, thus connecting them with the daily practices in the settlement.

Located outside of a seaward facing courtyard house, a large hearth (or oven) was discovered. It was enclosed by large ashy and sandy layers containing also pottery and green glass as well as shells (such as *Hexaplex* and pearl oyster) and fragmented animal bones (Fig. 5). Two upright standing stones formed the interior of this feature, whereas the exterior shape was round, indicating a possible superstructure. It seems that this structure had served as a permanent device for incinerating the settlement's litter.

An overall survey of the remaining building structures of Umm al-Houl yielded 24 fire installations, mostly fireplaces located within the courtyards. The high abundance of these features clarifies the importance of fire in everyday life.

5. UAH, Trench 9:  
Rectangular  
interior of an oval  
hearth or oven for  
burning the trash  
of the village





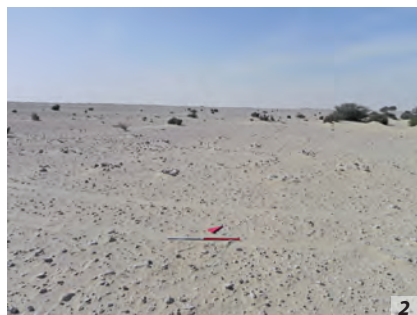
The most frequently documented remains of temporary settlements are stone structures of tent constructions which remained *in situ* after the tent communities had moved to another place. Camp sites are often associated to *riyadh*. Although the remains are often found in disturbed contexts, several campsites reveal very distinct general as well as individual tent layouts. A preliminary typology of three main tent types was developed with the SQSP records:

1. The rectangular tent is by far the most popular type (Fig. 4), the size varies from ca. 3 x 5 m to ca. 8 x 19 m. They may either be open to one side (mostly to the south) or have a gap in one of the long sides indicating the entrance.

2. The tent surrounded by stone piles. This type consists of a rectangular central stone structure surrounded by smaller stone piles (Fig. 2). They have diameters from 0.5 to 2 m and are situated at 1.5 to 6 m from the central structure. The function of the surrounding stone piles is connected with the tent's anchoring, since no tent pegs were associated with this type of tents. The use of tent pegs is often impossible, due to the rocky surface.

3. The tent with a central hearth. The hearth is placed in the front of one of the long sides of the tent (Fig. 3). In most cases, the stone structures of the tents are open to the hearth in front of them. In one exceptional example, a central court with a hearth is surrounded on three sides by rectangular tents, all open to the hearth.

1. Remains of a rectangular tent in Bir al Dawaweekh



A remarkable site north of Karaana is located some 400 m east of a *rawdah* and at the northern end of a small depression area. Its layout is unique: Five tent structures of almost the same layout form a west-east oriented row (Fig. 4), including a 3 m long stone platform in the same orientation. A fireplace consisting of a circular stone arrangement with fragments of burnt limestone is located nearby this platform. Both are surrounded by stone piles placed at a fair distance from each other in a more or less rectangular layout. The entrance was presumably south of the fireplace.

A small but nice arrangement of two tents, a *qibla*-wall, and an animal shelter was recorded in the far south, at some distance to the west of the well of Bir al-Qaseera. Here, two tents display a west-east orientation and are aligned from north to south. A small stone platform is located in between the tents and a *qibla*-wall north of them. A rectangular animal shelter indicated by a surface covered with animal dung was found to the east of the northern tent.

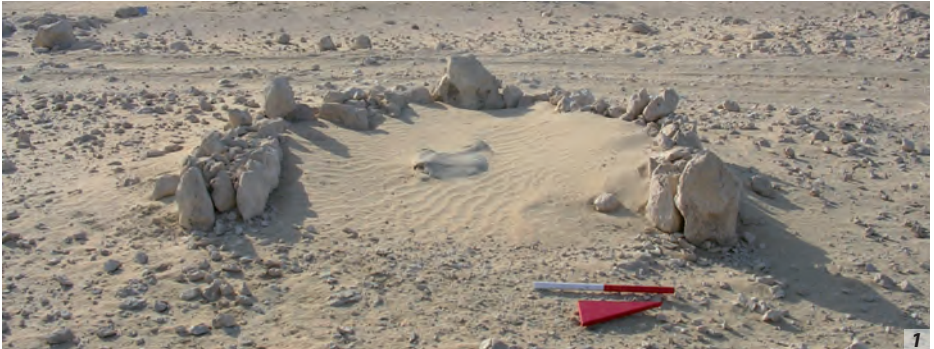
The largest camp site recorded so far lies south of Gebel Tuwar near Al Amiriyah. It consists of at least six stone structures of different shapes, since in addition to a round structure, there were also rectangular ones. These contained many finds, such as pottery fragments, small metal finds, glass bangles, and porcelain. One of the rectangular structures has a round hearth and a rectangular platform made of concrete. A half oval structure is associated with a hearth and a *qibla*-wall. Some lithic tools were scattered in between these dwellings.

2. Tent with surrounding stone piles
3. Tent layout, from North



A particular discovery at this site was a group of dark pebbles alien to the surrounding area. They must have been brought here from elsewhere, perhaps from pebble scatters in the southwest of the peninsula.

All recorded structures seem to be of quite recent date. This is not surprising, since stones were often reused, thereby destroying former camps. If not reused, stone structures deteriorate from human and animal herding activities, or simply from weathering. Therefore, this type of archaeological site is quite fragile and needs elaborated archaeological and also ethnographical recording.



## Where to Pray in the Desert?

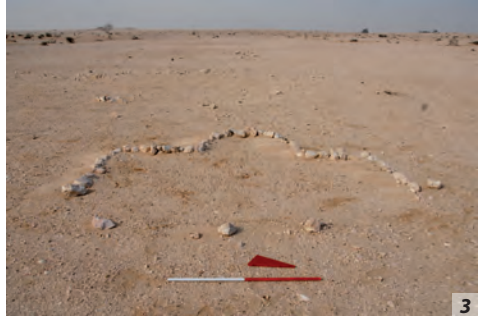
Rosa Reising

From the early beginnings of Islam, travellers built temporary mosques on the way. For this purpose, stones and pebbles from the surroundings served as building material to create an outline of a mosque with a *mihrab* oriented towards Mekka. These prayer niches are so-to-speak mosques reduced to their most essential constituents: The *mihrab* and the *qibla*.

The earliest known examples of those structures have been recorded in Southern Palestine. In the Negev highlands, several field mosques have been found in association with nomadic campsites. Pottery finds from those sites indicate to dates between the 6th and the 8th century CE. Further examples of those structures are known from Sinai, Jordan, Northern Arabia, and Yemen. Also within the vicinities of Qatar, as recorded on the UAE islands of Gagha, Yasat al-Ulya, and Abu 'Abu ladh, as well as Hawar island belonging to Bahrain, temporary mosques are a common phenomenon. Because it is known that even nowadays nomadic groups build field mosques, they have often been disregarded in archaeological surveys. Particularly with regard to the significance of praying as a key element in everyday life of Islamic culture, the study of structures used for praying promise interesting insights into the religious behaviour of a community.

During the South Qatar Survey Project, it was possible to document a number of 54 temporary mosques, which had been

1.Type I, SQS12-03  
(QNHER 5002)



built between the 1950s and 1970s. The layout and construction of those mosques was in many cases quite similar to the structures recorded in Palestine since the early days of Islam. Detailed observation and documentation enable to distinguish four types of temporary mosques:

Type I: *Mihrab*; this place of prayers consists only of a *mihrab*-niche (Fig. 1)

Type II: *Qibla*-wall; this type consists of a straight wall with a *mihrab* in its centre (Fig. 2)

Type III: Open room mosque; in this case the *qibla*-wall is extended by side walls (Fig. 3)

Type IV: Closed room mosque; this type has a closed layout (Fig. 4)

Prayer niches are a typical component of campsites that are usually found in fertile depressions called *rawdah*. At approximately 30 % of the recorded campsites, temporary mosques were recorded, while the location of the prayer niche within the camp can vary. Usually the *qibla*-walls do not face the camp, but they can be found in close proximity to tent structures. They were occasionally recorded on hilltops with a wide view over the landscape.

During the surveys of the SQSP, it was possible to identify a correspondence between the size of a camp and the size of the prayer niche: Large temporary mosques were commonly associated with the remains of a couple of large tent structures. At several campsites even more than one temporary mosque

2. Type II, SQS12-50 (QNHER 5041)

3. Type III, SQS13-14 (QNHER 5056)





was found. The dating of temporary mosques associated with campsites was often facilitated through chronologically significant artefacts from inside the camp. Temporary mosques are merely built of stone and difficult to date, if not associated by datable remains. Not all mosques were supplemented by a camp, some were found in the vicinity of modern streets. Trading networks connecting different settlements have a long tradition, just as in South Qatar, where modern streets were often re-built adjacent to, or on top of old roads.

Therefore, it is possible that the remains of temporary mosques, located near modern streets, give testimony to a trading network used during historic times. Hence, it cannot be excluded that those temporary mosques are of older age, and served the travellers in moments of spirituality.



The 1970s have played an important role in the settlement history of Southern Qatar. With regard to the surviving settlement and land use patterns, it appears to have been a period of expansion and intensive land use. This was triggered by irrigation pumps which allowed the extraction of water from deep below the surface. Several plantations were established. After the decline of the groundwater level, not only the landscape but also the wells desiccated. Large plantations like that in Jaow al-Bahath (Asaila) were completely abandoned, while others were considerably reduced with regard to the irrigated surfaces.

The human impact on the landscape of Qatar during the 1970s reflects the economic condition of the first years of unprecedented wealth following the discovery and exploitation of gas and oil. This period also saw the resignation from the traditional Bedouin way of life, which is hardly within today's scope of cultural heritage concepts. It indicates a remarkable change in the societies of the Gulf.

The dating of temporary camps and associated refuse dumps from this period can be clearly assessed through the presence of different categories of finds, such as coins, as well as soft drink bottles of brands like *Pepsi-Cola* and *7up*. Just north of Gebel Tuwar, in the waste middens of Mazraat al Sheikh Hasan, a *7up* cooling unit dating to the 1970s was recorded.

1. Asaila (Jaow al Bahath): Remains of plantation

The remains of the Asaila plantations (Fig. 1-2) were left untouched by SQSP. The hallmark of the site is an abandoned bus set down in the area. The surface of the site is scattered with remains of everyday objects, consisting of pieces of plastic, shoe soles, barbed wire, metal fragments from cans, oil drums, some pottery sherds, and so forth.

To the west of the village of Karaana, the remains of a modern settlement of the 1970s were found (Fig. 3-4). This settlement comprises 12 structures, of which nine are wooden hut dwellings with slightly varying dimension. They have floors plastered with concrete, in which slots indicate where wooden boards of the walls had been inserted. Numerous nails also point to the wooden superstructures. The mosque is one of the two structures built on a stone foundation. Surviving installations like hearths were also found. These were known already from different sites where they were built on the natural soil. The area around the settlement was scattered with modern artefacts. The richness and variety of finds found *in situ* was surprising. Only a few were collected and photographed in order to preserve the whole assemblage for the future. Like the abandoned plantation of Asaila, this site has a great potential for the reconstruction of Qatar's recent history. Of the two coins found at this site, one dates to 1957, and the other was minted in 1972. Further information about the abandonment of this settlement is the sherd of a *Pepsi-Cola* bottle. This is also dated to the 1970s, due to the peculiar glass-printing method and the use of very stable red pigments, which still retain their



2. Asaila (Jaow  
al Bahath):  
Abandoned bus



original vivid, red colour. Thus, the settlement seems to have been abandoned during the 1970s. The number of finds that can be recorded *in situ* after 40 years is quite remarkable.

Taking all the information into consideration, there seems to be ample evidence for a prospering period in the 1970s in Southern Qatar worthy of more elaborate research, which should not only include archaeological but also ethnographical issues, as long as witnesses of that time are still alive.

The remains of the recent period demonstrate how archaeological research works. Only the discarded objects remaining at the site provide the possibility to gain information about the *time* of a place and the *people* who once there. Today we have glass bottles of different brands that change their appearance every few years. From former times, it is foremost pottery vessels that, by changing their manufacture and shapes through time, furnish corresponding data. Like glass sherds, pottery sherds are virtually indestructible and without any material value, they remain at the sites and represent the most valuable indicators for archaeologists.

3. Karaana: View of the site towards the rawdah and the contemporary settlement in the background

4. Karaana: Structure J with concrete floor and hearth; in the background the trees of the rawdah



## Soft Drink Bottles—Diagnostic Finds in the Archaeology of the Modern Period

Adrian Lienig

During the 2013-2016 seasons of the South Qatar Survey Project, several dozens of temporary camp sites were recorded. The chronology of campsites can be very difficult, since characteristic artefacts or dating criteria are often missing. In several cases, however, soft drink bottles were found *in situ*, which indicates that the camps were of fairly recent date, and that they must have been used in the past few decades. Bottles can serve archaeologists as chronological markers, particularly when bottle shapes and logo scripts change over the years in short intervals. This information allows dating associated with pottery and small finds. Even if these bottles are a quite recent phenomenon, it is important to consider that *Pepsi*, *7up*, and other soft drink brands have been present in the Gulf and the Near East for more than 70 years. Therefore, these bottles represent a very important aspect of heritage studies.

Although examples of soft drinks as early as from the 1950s were found in Qatar, it is quite remarkable that the major amount of bottle finds were from the 1970s. One could conclude that this period shows a significant change in consumer behaviour and availability of imported goods. More than half of the recorded *7up* bottles and also *Pepsi* bottles represent the time between 1968 and 1979. Accordingly, a camp site at Al Aminyah can be dated with the help of a 1970s bottle. At Mazraat Al Shaikh Hasan a *7up* cooling unit was found, which must have been produced between 1969 and 1979, due to its logo (*Straight Script*).

1. Bottle finds in the field





2



3

Interestingly, this unit was imported and had been manufactured in Ohio (USA). Today, contemporary cooling units for the gulf market are produced in Doha / Qatar by the Ali bin Ali company. Being a global brand, *PepsiCo* always sought for new ways to represent itself as a dynamic and innovative company. Therefore, the logos changed every now and then and especially since the early 1990s, when this change occurred at an increased frequency. However, also in the older periods different logos and designs did mark certain eras. At least from 1969 onwards, *PepsiCo* products seem to be in production in Qatar. Before that, the bottles and cans are assumed to be imported, but which does not rule out the possibility of later imports.

When comparing soft drink containers of that period produced in Qatar with ones from the USA, the logos may be the same but the bottles differ as well as the location of the logos and possible embossing. On the other hand, the bottles changed with the logos, mostly through hardly perceptible details. These changes have now been systematically analysed in order to establish a reliable chronology that will help in the dating of archaeological sites.

2. 1970s bottle found  
at a camp site  
(SQS14-224)

3. 1970s Pepsi bottle  
from SQS14-210





2008  
LIAN 015 T6  
HAC 243 MAR 2  
C =

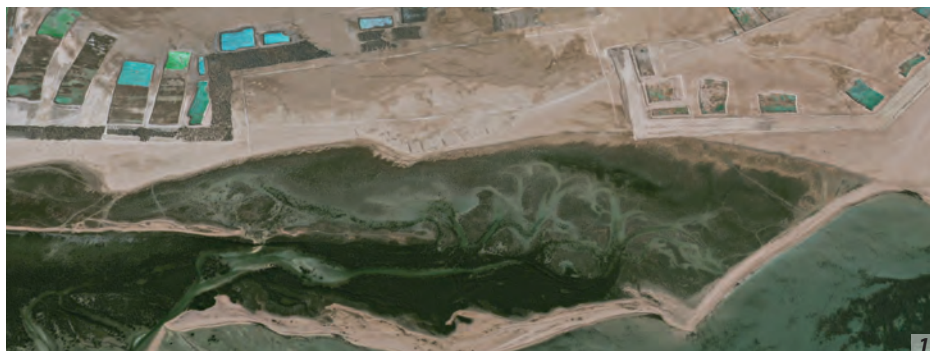




*Umm al-Houl*







## Umm al-Houl – Rescue Excavations at a Settlement from the 19<sup>th</sup> century CE

Kristina Pfeiffer

The settlement of Umm al-Houl is located c. 20 km south of Doha and can be dated between the mid-19<sup>th</sup> to the mid-20<sup>th</sup> century CE (Fig. 1). Recent construction activities had endangered the archaeological site, and therefore it was aimed to document the entire site with its current state of preservation. Being part of the joint Qatari-German project, these rescue works were carried out within two SQSP seasons in 2014 and 2015.

Umm al-Houl is a coastal settlement with an extension of c. 24 ha. The site is located about 600 m from the shore and is enclosed by a mangrove lagoon. While the eastern part of the settlement was built along a natural beach ridge, the western part was located on a *sabkha*.

The archaeological work at Umm al-Houl focused on the documentation of the ruins, stratigraphic studies, and the function and layout of the courtyard houses. Questions regarding subsistence and ethnography were also central parts of the work. Besides the main settlement area, hut structures and building remains were found on another beach ridge inside the mangrove zone between the settlement and the shore. Due to its location near the water channels running through the mangroves, it was suggested that these features may be interpreted as boathouses or fishermen huts belonging to the site (Fig. 2).

1. Detail of the coastal formation with the settlement located on a beach ridge. The site is enclosed by a sabkha and a city wall to the west, and a mangrove lagoon and the sea to the east. Note the enclosure wall of the large modern basin at the very left of the image



2. Remains of assumed fishermen huts on a beach ridge within the mangroves
3. Remains of a tower belonging to the city wall. The alternating ground water table leads to water erosion and salinization of the building material, which is thus threatened by complete decomposition. View towards north

The architectural remains consist of c. 20 large courtyard houses and a few smaller houses protected by an inland-facing city wall with round towers. Circular towers with diameters of around 8 meters are located in between the 100-150m long wall segments of the city wall. Beach rock, lime stone and clay plaster dominate the building material. As to the state of preservation of the buildings, it was surprising to note that it was quite variable, probably resulting from water erosion, soil composition, salinization and anthropogenic disturbances (Fig. 3). The remains of the courtyard houses cover surfaces of up to 900 m<sup>2</sup>, and their layouts reflect the characteristic house types of the Gulf Region during the 19<sup>th</sup> and 20<sup>th</sup> centuries CE. The house complexes each consist of up to five single rooms surrounding a large courtyard. Some building complexes are joined, and one building displays a circular tower which might be interpreted as a watchtower, since it is oriented towards the sea (Fig. 4).

On more than 20 locations within the settlement, fire installations and large ash patches reveal indoor and outdoor domestic activities, such as cooking and baking, and they also provide information about food residues and the diet: Burnt fish bones and heaps of shells let us assume that the major diet consisted of seafood. Several coins from Oman, the German East Africa Company, and ones of George VI, Emperor of India divulge the site's prime days, as well as its past economic and political environment (Fig. 5). Diagnostic porcelain sherds from China shed light on its supra-regional trade connections.

The site of Umm al-Houl is an important component of the Qatari cultural heritage, since to date it is the only settlement from that time at the east coast which was fortified through a city wall. From historical and ethnographic sources, it is known that the inhabitants belonged to the country's wealthiest families, whose subsistence was based on pearl fishing and sea trade. The settlement, which was inhabited for about 70 years only, was founded within the politically turbulent time of the 19<sup>th</sup> and 20<sup>th</sup> centuries, when ruling families and tribes were established in Qatar. According to ethnographic research, both the foundation and the abandonment of the site were connected to economic and political circumstances. Associations with the historically verified migration activities of tribes along the east coast can also be assumed.



Deutsche Ostafrikanische Gesellschaft  
(German East-African Company)  
1891 - 1 Pesa



2 Annas - 1947 - George VI King  
Emperor, India



Imperial British East Africa  
Company - 1888



Fessul Ben Turkee Imam of Muscat and  
Oman - 1/4 Anna Baisa - 1897



#### 4. Selection of Coins found at Umm al-Houl



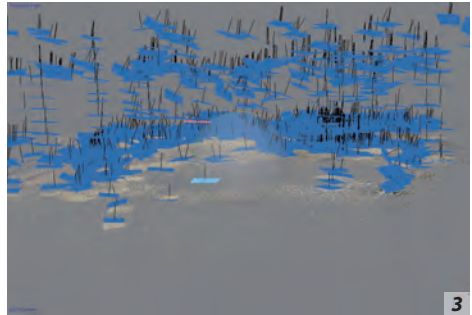
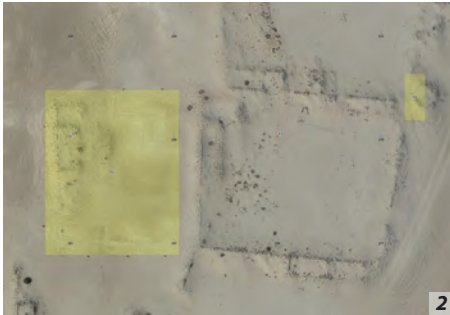
## Umm al-Houl: Aerial Imagery

The archaeological site of Umm al-Houl covers an area of more than 20 ha which has been surveyed with the help of aerial imagery. For this purpose, a team of surveyors set up a complete 40 x 40 m grid covering the entire site of Umm al-Houl. It was complemented by a more detailed 20 x 20 m grid in areas with a higher density of archaeological remains. Ten fixed benchmarks were set up with a DGPS to provide the geo-reference for this grid. Wooden poles that served as grid markers were then geo-referenced and used for ortho-photography, aerial imaging, and geomagnetic survey. Aerial imagery in Umm al-Houl was carried out by both an octocopter and a kite. The aim was to process images for a 3D model of the entire site and for geo-referenced images.

### *Octocopter*

Both the entire settlement area (24 ha) and the entire mangrove zone (0,8 ha) could be fully photographed by the octocopter. Altogether, 1500 pictures were taken from the air, 750 from a height of 100–110 m, and 750 from heights between 40 and 70 m (Fig. 1).

Each flying period of the GPS-controlled flight comprised a total of 40 minutes per day (4x10 minutes); the images were produced automatically, while the copter held its position above a grid point for about 20 seconds. The results of the images are astonishingly clear and give an extremely well-documented



aerial record (Fig. 2). They have been used to complete the architectural recording on site and have allowed the creation of a detailed architectural plan. As expected, the urban layouts could be identified, and “new” structures were also found in the northern and western parts of the site. Gaps in the images were closed by double or triple copter flights, whose increased picture series also provided a higher accuracy for geo-referencing.

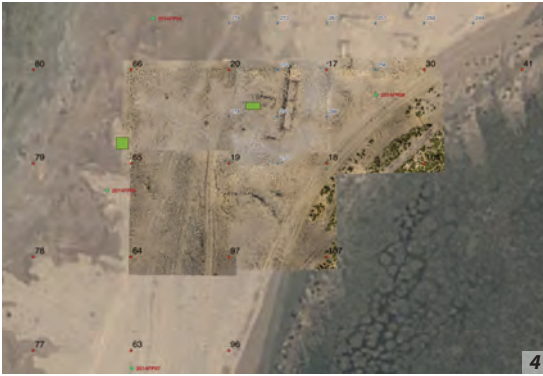
The aerial photography did not only provide detailed images from the site, but it was also used to process a complete geo-referenced 3D model of the entire area which can be linked directly to a GIS-based database. The model has been created by scatter plots that result from the image pixels (Fig. 3).

### *Ortho-Photography*

As an alternative to the GPS-based helicopter aerial photography and kite imagery, a method of over-sized photogrammetry was developed and applied. For this method, a camera was fixed to the end of a 4 m pole and each 40 x 40 m grid-square was photographed systematically at a height of 4 m above the ground. At first, four photogrammetric reference points were placed and measured. These provided the reference points for every picture within a grid-square. Secondly, the outline of the grid-square was photographed every three meters. This resulted in more than 160 photographs being taken from each 40 x 40 m grid-square.

2. Aerial image of the settlement with the definition of the excavation trenches in the settlement area (marked yellow). Image based on octocopter images from 100m height
3. Screenshot of the 3D-modelling process showing the evolving scatter plot (bright dots) and the different height positions of the octocopter (blue sheets) during photographing





The application of specific software enabled to produce and process scatter-plots from the images of each grid-square. These plots were then transferred into geo-referenced images (Fig. 4), and a 3D model of the archaeological topography was produced (Fig. 5). Furthermore, this method provided a high resolution photo-documentation that records the actual state of preservation of every surface structure, and the modelled data provides topographic and GIS-based mapping of the site.

Based on the different aerial imagery methods applied, complex GIS maps and ground plans are currently being produced. This procedure altogether replaces a terrestrial scanning of the site and shows even less distortion than a scan. The 3D model can be used for the reconstruction of the buildings, and in addition, it can be used as a database for a 3D print for exhibition purposes.

4. Processed images of five grids, geo-referenced and inserted into the grid-plan
5. A scatter-plot is created by matching pixels of each ortho-photo per grid-square. It is the basis for a 3D model of the archaeological topography



## Umm al-Houl: Geophysical Prospection

Jörg Faßbinder

For non-destructive and large-scale archaeological prospecting, geophysical science provides us with a multitude of different ground based methods. For large-scale prospecting of prehistoric sites in the open landscape and undisturbed environment such as the archaeological site of Umm al-Houl, consisting most probably of sandstone and concrete only in a sand and salty Laguna sediment, magnetic prospection is among the best suitable methods.

Magnetometry is among other geophysical methods a successful and cost-effective tool for detailed mapping of large areas within reasonable timeframes. Within the settlement of Umm al-Houl, the prospected area covers ca. 500 m in a north-south direction and ca. 280 m from east to west, in total ca. 8 ha. The area was scanned by a sampling interval of 12.5 x 50 cm (traverse interval).

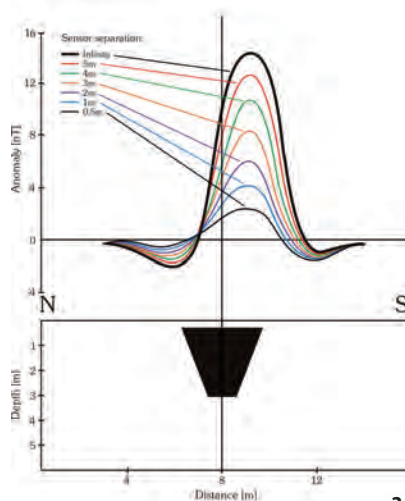
For our purpose and in order to reach the highest possible sensitivity combined with a maximum speed of prospection, the so-called "duo-sensor" configuration of the magnetometer probes was chosen (Fig. 1). The probes were mounted on a wooden frame and were carried in zigzag-mode 30 cm above the ground. The profiles were oriented in parallel orientation of the direction of the topographic situation, in order to minimise technical disturbance of the magnetometer probes.

*1. Prospecting with  
a "duo-sensor"  
Caesium-  
Magnetometer*

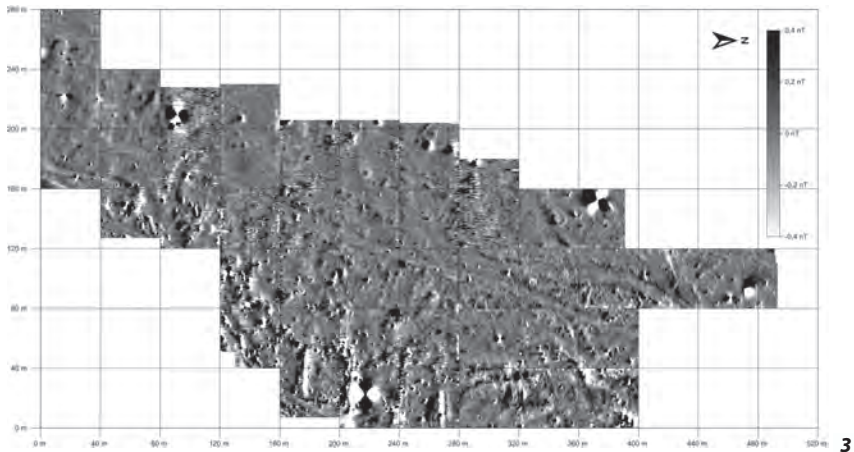
The sampling frequency of the magnetometer is 10 readings per second, maintaining the spatial resolution of approximately 10 – 15 cm at normal to fast walking speed.

In the special case of Umm al-Houl, more than 98% percent of the magnetometer data in a 40 m grid on archaeological sites vary in the range of only  $\pm 0.8$  nT from the corrected mean value of the geomagnetic field. All the stronger anomalies can be ascribed to pieces of iron containing slag or iron rubbish.

The application of the caesium-magnetometer *Smartmag* in the so-called “duo-sensor” configuration allows to set the reference value of the Earth’s magnetic field to infinity, therefore the magnetic anomalies can be measured with their full intensity (Fig. 2). The advantage of this configuration is that the resulting image gives more information also from the deeper parts of the archaeological structures. On the other hand, it is “disturbed” by geological features and very much by narrow technical installations. These disturbances however can be removed by the application of a high-pass filter to the data. The instrument allows us to measure the total Earth’s magnetic field by a sensitivity of  $\pm 10.0$  Picotesla with a sampling rate of 10 measurements per second. For comparison: The Earth’s magnetic field in Umm al-Houl varied in the range of  $43\,450 \pm 20.0$  nT.



2. Dependence of the intensity of a magnetic anomaly of a typical prehistoric feature such like a ditch on the sensor separation of two magnetometer probes



3

The visualisation as a greyscale image (Fig. 3) allows us to trace even the smallest anomalies generated by the shade of single posts and palisades beneath the surface. The application of a high-pass filter removes the deeper and mainly geological features and gives us supplemental information on the type of the anomalies.

For the integrated interpretation, we try to classify the findings by the shape of the feature (based on archaeological background knowledge), the intensity of the magnetic anomaly, the direction and intensity of the remanent magnetisation, and the induced magnetisation (volume magnetic susceptibility).

The geophysical results discussed above reveal several archaeological features that are distributed over the entire survey area. In addition, some ground plans of buildings, walls, roads, and fire installations were clearly identified. The shapes of the archaeological features however, are in general not specific. We are therefore unable of ascribing these structures to particular dates or periods. Archaeological excavations alone, may help to clarify such issues of research.

3. Magnetometry data in 40 m grids. Note: Strong bipolar contrasts mark magnetic anomalies

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