Cover Photo: A collection of beads, shells, stone and coper pieces from Qurayyah site, Tabuk Region (first season 2015 AD / 1437AH)
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Foreword

There are several publications on the history and culture of Arabian Peninsula, among most important publications and documentations is the results of field works, investigations and scientific research conducted by the specialized missions on the archaeology of the Kingdom of Saudi Arabia.

The Antiquities and Museums Section of the Saudi Commission for Tourism and National Heritage played an important role in the protection and highlighting the antiquities of the Kingdom by publications and all available sources such as the annually published bilingual journal of archaeology “Atfal”, that contains the results of ongoing survey and excavations carried out in the Kingdom and highlighting the ancient settlements and cultural heritage of the Arabian Peninsula.

In the hands of the readers is the 28th issue of Atfal, which no doubt shall provide new information on the ancient history and cultures of Saudi Arabia and shall reveal the hidden aspects of our civilization.

Rustam bin Maqbool Kheisi
Vice President Antiquities and Museums
Saudi Commission for Tourism and National Heritage.
Introduction

This 28th issue of Atal, the international journal of Saudi Arabian archaeology, contains several reports about ongoing archaeological survey and excavations carried out in different regions of the Kingdom. The reader will find the efforts of Saudi Commission for Tourism and National Heritage in enhancing and promoting the scientific researches and highlighting the plans and strategy regarding the protection and preservation of its past cultural entities.

This issue divided into two sections: First four reports on the archaeological excavations of Madain Saleh by Saudi-French team. It was the continuation of previous work that revealed a new Nabataean grave and some complete inscriptions but, the excavation could not be completed due to large area in the residential and military fortification around the site.

Second report consisted of the first season of the archaeological survey of Qariay in Tabuk region conducted by the Saudi-Austrian team. It found a large pottery fern and studied the way and style of manufacturing potter objects and decorations on it.

Third report included the first excavation of historic city of Faid carried out by the Saudi Commission of Tourism and National Heritage in co-operation with the University of Hail. It discovered important aspects of the history of the sites before Islam and the pilgrimage route. It was found that the history of the area date back to lower Palaeolithic period and could be attributed to the late Acheulean era about 250,000 years before present.

First section of the 28th issue of Atal ended with a report on the two seasons 6th and 7th of the excavations of ancient town of Jarash in which foundations of old buildings and large number of pottery shreds and objects are located. Some of the building restored and renovated.

The second section included reports on the archaeological survey carried out in south west of the Kingdom of Saudi Arabia in the Jazan and Asir region. We learned more on the Old Stone Age of the region, piles of ashes, volcanism and coral reefs as well old environment of the south Arabian Peninsula and its impact on prehistoric human settlements. It also included the report on the archaeological survey of al-Ula - al-Wajh area conducted by the combined Saud-French-Finland Mission concentrating on rock art and inscriptions sites between Madin Saleh and the Red Sea. The survey shall continue in the coming seasons to document more sites connecting al-Ula with the coastal areas.
Second season of survey of Wadi Hanifa in the Riyadh region continued for the second season confirming the results of previous season and locating additional flints, other stone artifacts and fossils.

The studies included earlier archaeological investigations by the combined Saudi-French team of Ar-Khabeel Farasan Islands carried out between 1425-1435 AH / 2005-2014 AD including settlements in al-Arkhbeel and valleys around it. The site has been chosen for excavation due to large scatter of pottery shreds and metal artifacts scattered in the area.

The excavations, surveys and intensive archaeological investigations shall continue further to know various aspects of Pre-historic, old Arabian Kingdoms and early Islamic civilizations that enlighten our land we are proud and honored to explore hidden secrets of our culture and history.

Chief Editor
Director General of Archaeological and Research Studies
Dr. Abdullah A. Al Zahrani
1. Introduction
Starting in the year 2014 the University of Vienna has signed an agreement with the Saudi Commission for Tourism and National Heritage (SCTH, formerly SCTA) for a joint Saudi-Arabian-Austrian research project at the site of Qurayyah, Tabuk province, KSA (Plate 2.1a).

Qurayyah is one of the major sites of the entire Hejaz region, and has been described several times by early travellers and explorers. It was surveyed twice: the first time for almost three weeks in 1968 and a second time within the frame of the Saudi Comprehensive Survey programme in 1980. Together with selective collection and publication of distinctive surface material – mostly pottery –, two first, admirable plans were produced by the surveyors in 1968 (Plate 2.1b). In 1980 single issues in the organisation of the settlement were investigated. Since then, however, no new investigations of the settlement have taken place.

2. Current Project
The current research project at Qurayyah started in 2014 with a three-month campaign, and was subsequently extended by three more months. The project is supported by the Augustus Foundation, and the Austrian Embassy in Riyadh. The project is directed by Marta Luciani, and Abdullah S. Alsaud serves as a consultant. The project is under the technical supervision of the German Archaeological Institute in Berlin.

The Augustus Foundation, to whom we are extremely grateful for its support, finances the work of the Austrian team. The Faculty and the Student Representation of the Faculty for Philological and Cultural Studies, University of Vienna offered precious support as well as in kind the HTW, Dresden (Prof. Dr. B.-D. Teichert and MSc (GIS) C. Richter). The Austrian Embassy and especially his Excellence Ambassador Mag. G.W. Kößler and before him G. Pöstinger are kindly acknowledged for their support dating back to the preparation phase of the project and for following attentively our progress in research.

The Orient Department of the German Archaeological Institute, Berlin, in the persons of its Director, Prof. Dr. Ricardo Eichmann as well as the Head of the Tayma team, PD Dr. Arnulf Hausleiter, have supported and aided the Qurayyah research project from its very conception in too many ways to be possible to acknowledge here. For the 2015 campaign specifically, besides having provided a total station and a camera, they have graciously agreed that their collaborator Dr. Andrea Intilia could take part in the Qurayyah expedition. It is therefore a pleasure to mention our wholehearted thanks to them for all their help over these years.

Prof. Dr. S.F. Said’s and M.C.A. Macdonald’s kind support and friendship also deserve to be mentioned here. All members of the Austrian team must be thanked for their dedication and personal commitment to all phases of the work in the field and its preparation in Europe.

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1 Department of Near Eastern Studies, University of Vienna.
2 Saudi Commission for Tourism and National Heritage (SCTH).
3 We wish to thank all authorities at the SCTH, especially its President HRH Prince Sultan bin Salman bin Abdulaziz and his Deputy Dr. Ali I. Al-Ghabban, Dr. Hussein Abu Al-Hasan, Vice President of SCTH for Museums and Antiquities Sector and last but no means least Dr. Abdullah S. Alsaud, Director General of Research and Archaeological Studies. Without their unstinting and generous support archaeological research on the site of Qurayyah would have never been possible. To them and the entire Qurayyah team goes our heartfelt gratitude. The two cars we used for the field campaign were provided by the SCTH. The rental of the excavation house has been organised by the SCTH and financed jointly. For all their efforts in furnishing the house and the supplying the expedition with everything needed, the Saudi component deserves our special appreciation.

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4 Moritz 1908 and Philby 1957.
further in depth comprehensive research has been ever been carried out on the site⁶.

The new joint project, after a preliminary survey of the settlement in February 2014, undertook a geo-magnetic survey of the site in the first two weeks of March 2015. While the latter survey already covered an area of ca. 40 ha, completion of the entire area is planned for future campaigns. A report will appear after conclusion of this work. The processing of the images is still preliminary but has already brought important clues to the structure of single parts of the site. Significantly, the area adjacent to the one

§ 8 will detail the results of the first radiometric analyses on stratified samples from the excavation areas covered in § 9 by a short description of the environmental investigations undertaken in 2015, general conclusions in § 10 and references in § 11.

Since Qurayyah had been surveyed before and some general information on its extension was published in the past, we decided that in order to change significantly the quality of our knowledge on the different occupations on the site we needed the resolution granted by stratigraphic excavation.

The first excavation campaign of the Saudi-Arabian-Austrian joint project has taken place between Nov. 14th and December 13th 2015⁹. Dealing with an over 400 ha large site¹⁰ presents serious challenges for the choice of the areas for in-depth investigations.

From previous preliminary surface research, the site was known to have only two major phases of occupation after the one evidenced by Neolithic remains¹¹ (see also below § 5 under “Find s”): an earlier one to be framed between the second half and the end of the 2nd millennium BCE, i.e., the Late Bronze Age, and a second millennium BCE one to Early Iron ages¹² and a significantly later one to be assigned to the Nabatean/Roman period with possible extensions into the entire Byzantine period¹³. While the latter was substantially not controversial in date¹⁴ the former remains disputed to this day.

Therefore, one of the major issues for comprehending the formation of the settlement, its further developments and period(s) of demise, is the precise dating of its material culture, in particular of that of the pottery found extensively on the entire territory of the site. This has been called “Midianite Pottery”¹⁶ in the past and in more recent years goes by the name of Qurayyah Painted Ware (hence abbreviated as QPW).

Because of the impending need of reliable chronological pegs, besides some single areas that have been surveyed (see below), work concentrated on excavation in four areas (Areas A-D). Preliminary to the digging were geodetic work both for establishing a local grid and geo-referencing the site.

§ 10 The Saudi team in 2015 was composed of: Dr. Abdullah S. Alsaud, Director, Riyadh I. Asiri, Abdulaziz A. Al- Madble, Mohammed Malki, Faisal Rashid and Mubarak al-Haji. The Austrian team in 2015 was composed of the following members: Prof. Dr. Marta Luciani, Director, Prof. Dr. Bernd (D.) Teichert, Geodesist, Dr. Andrea Intilia, Archaeologist, Laura Machel MA, Archaeologist, David Blattner BA, Archaeologist, Matthias Adelhofer, Archaeologist. The following workmen worked with us either in the field in Qurayyah or at home in Al‘Azainah for kitchen duty and pottery sherd washing: Nur Rahman, Nazir Ahmad, Abdullah, Mohammed Islam, Bazi Rahman (all Swat, Pakistan), Parar Shah, Shatihullah, Agibhar Jan, Arzat Shah, Nagibullah, Mohammed Alam (all Pakistan, Afghanistan), Muniruddin Abu Abdulatif (Nusaaykhalu, Bangladesh) and Assad Mia Asmatali (Nushendi, Bangladesh). Without their help we would never have accomplished the work we set out to do. They deserve to be greatly thanked for their input.

The actual figure is 435 ha for the area within the first modern fence set up by Saudi authorities, which includes the Rock Plateau and the sequence of outer city walls: Wall A, Wall J, Wall H, Wall G and Wall F. Because of the expanding agriculture, a second fence now includes also the area of ‘Fields’ NE of it, up to Walls K and N. This surface would count for an additional 200 ha. This is not considering the extensions to the S that are very likely to have belonged to the site as well. For an interpretation of the meaning of such an extensive occupation area in oasis contexts see Luciani 2016b, 48 fn. 166; for other Syrian contexts Wilkison et al. 2014.

10 The Saudi team in 2015 was composed of: Dr. Abdullah S. Alsaud, Director, Riyadh I. Asiri, Abdulaziz A. Al- Madble, Mohammed Malki, Faisal Rashid and Mubarak al-Haji. The Austrian team in 2015 was composed of the following members: Prof. Dr. Marta Luciani, Director, Prof. Dr. Bernd (D.) Teichert, Geodesist, Dr. Andrea Intilia, Archaeologist, Laura Machel MA, Archaeologist, David Blattner BA, Archaeologist, Matthias Adelhofer, Archaeologist. The following workmen worked with us either in the field in Qurayyah or at home in Al‘Azainah for kitchen duty and pottery sherd washing: Nur Rahman, Nazir Ahmad, Abdullah, Mohammed Islam, Bazi Rahman (all Swat, Pakistan), Parar Shah, Shatihullah, Agibhar Jan, Arzat Shah, Nagibullah, Mohammed Alam (all Pakistan, Afghanistan), Muniruddin Abu Abdulatif (Nusaaykhalu, Bangladesh) and Assad Mia Asmatali (Nushendi, Bangladesh). Without their help we would never have accomplished the work we set out to do. They deserve to be greatly thanked for their input.

11 The actual figure is 435 ha for the area within the first modern fence set up by Saudi authorities, which includes the Rock Plateau and the sequence of outer city walls: Wall A, Wall J, Wall H, Wall G and Wall F. Because of the expanding agriculture, a second fence now includes also the area of ‘Fields’ NE of it, up to Walls K and N. This surface would count for an additional 200 ha. This is not considering the extensions to the S that are very likely to have belonged to the site as well. For an interpretation of the meaning of such an extensive occupation area in oasis contexts see Luciani 2016b, 48 fn. 166; for other Syrian contexts Wilkison et al. 2014.


13 The first scholars to work on the site (Parr et al. 1970) rightly understood that the painted pottery found on the site must be a second millennium BCE phenomenon. However, because the same pottery is attested elsewhere in the Southern Levant and dated at times to the Iron Age, both Late Bronze and Iron Age dates may be found in previous references (recently Intilia 2016). See now Luciani 2016b and eadem in press for a discussion of the chronology of the site.


15 But for details see both Kose in Hanisch-Gräfe et al. 2008 and below § 7 fn. 51 on Area D and § 8 for radiocarbon dates.

16 See Intilia 2016 for a review of the history of research on this material.
2. Geodesy\(^\text{17}\) (Plate 2.2)

For the necessary geodetic work on the site MSc (GIS) C. Richter, HTW, Dresden has kindly prepared a series of maps of the site and its surroundings an overview in scale 1:10.000 and 56 maps in scale 1:2.000 based on ESRI- World Imagery.

Prof. Dr. B.-D. Teichert, HTW, Dresden after having measured an alignment by means of a differential GPS (DGPS), calculated the angle between the two points and the direction to the north on the WGS 84 ellipsoid. Thus he obtained preliminary UTM coordinates for our points at the site. These were calculated in a post-processing computation once back in Europe to the definitive ones. This work was done in the frame of the BA thesis of T. Hatton at the HTW, Dresden under the supervision of Prof. Dr. B.-D. Teichert.

All in all, during the campaign, 24 GPS control points were measured throughout the entire site. These points will be used for the basic geodetic grid of the site. Thirteen Ground Control Points have been measured with DGPS in order to rectify the satellite image that were later purchased. Furthermore, the coordinates of the local grid have also been measured with DGPS in order to transform the local coordinates system into the UTM coordinates system. All computed coordinates in the field are to be considered preliminary. The final UTM WGS 84 zone 37 N was obtained in a post-processing computation carried out in Europe.

While the entire site within the SCTH fence will be measured and geo-referenced, we have measured points also outside the immediate site area in order to reference GeoEye satellite images. The latter reach now a resolution of 50cm per pixel and will be essential for an accurate mapping and interpretation of such an extended site as Qurayyah.

For the post-processing calculations it would be very helpful to have the raw data of the MOMRA Geodetic Network (www. momracors.com). This institution has been contacted but has not replied at the time we completed this report.

3. Surveys

After the general reconnaissance and the geomagnetic surveys mentioned above, only two types of archaeological surface investigations were carried out on the site.

E-W transect survey (Plate 2.3a)

The first was the systematic surface survey of an E-W transect (60m x 20m) divided in three large adjacent 20m x 20m squares. The stripe is localised north of Wall D, and connects the area immediately east of excavation Area A (pottery kiln) and the segment where Wall D is cut by a wadi before connecting with the mud-brick wall of the Residential Area (Plate 2.1b) have revealed, dozens of thin, small, flat circular-shaped beads (QU.S.9019.1-158) (Plate 2.3b), even more numerous than in the above described transect survey. They seem to be made of ostrich egg, turquoise faience (two of them feature a double-ring barrel shape) and in at least one case, grey stone. Shells and some carnelian fragments were also among the finds in this area. Their presence here opens the question of the context of provenance, which is not likely to have been of residential type. Rather, it seems possible that they come from graves or a bead production area. Since similar beads have been found in the Area A excavation associated with human remains (see below § 4) their attribution to a funerary context seems probable though it must remain unproven until verified through excavation.

Non-comprehensive surveys (Plate 2.3c)

Furthermore, spotlight surveys were carried out in specific zones: the area of Wall D (SU 9002), the area of the so-called Pottery Dump (SU 9001) and N-E of it (SUs 9003 and SU 9016), the area in front of the city gate of the Residential Area (SU 9004 and 9005), the inner part of the Residential Area (SUs 9006, 9007 and 9008). Mostly Late Bronze Age pottery, including significant numbers of at time remarkable exemplars of so-called QPW were found in all areas with the exception of the Residential Area, where this material seems to be present in lesser quantities and more specimens of Nabatean age prevail. In the area of SU 9016 single sherds of a very coarse, handmade simple ware pottery were sampled. Their date is not known yet but may be more ancient than the middle of the 2nd millennium BCE material.
In the central part of the settlement, at the western corner of the area dubbed ‘Roman Site’, close to the SCTH excavation, we observed a hollow mud-brick structure within the SW-NE ridge belonging to the Roman Site, on whose surface (SU 9015) we collected some Roman period pottery. A fragment of stone column lay on the surface in the vicinity. Also the areas of the eastern tower on the outer wall (SU 9017), the SE tower/wall area of the outer wall (SU 9014) and the area of the largest kiln (SU 9013) were surveyed: in all instances the majority of pottery was QPW.

### 4. Excavations in Area A

(Plate 2.4-2.9)

Centred on the reddish remains of a kiln visible on the surface (from SW 10018/9987 to SE 10018/9999 and from NW 10030/9987 to NE 10030/9999), this excavation area (12m x 12m) was opened in order to check long-standing assumptions about handcraft production (especially of pottery) in Qurayyah. It has been hypothesised that the manufacture of the polychrome QPW must have occurred directly at the site. This can be actively checked by investigating this kiln and its by-products. It was also a declared goal to find and sample short-lived organic remains that may offer us reliable basis for a radiometric determination of these productive activities on the site and of the precise date of QPW pottery. Since on the Rock Plateau also remains of metal slag were found in the past excavating a kiln will help us define the different productive activities and their specific areas at the site.

#### Stratigraphy and architecture

Only one quarter of Area A was excavated to deeper levels. Preliminarily, it could be established that the main body of the kiln is rectangular in shape, measuring 2.80 x 3.05 m, with an oval inner chamber measuring approximately 1.50 x 2.50 m. The inner chamber was accessed from the north, and the entrance is flanked by two short walls (0.40 x 0.30 m and 0.52 x 0.60 m) which jut out from the northern façade of the main body. A rectangular chimney (SU 257) (0.520 x at least 0.68m) is attached to the southern end of the main body. It seems likely that the chimney continues inside the kiln’s inner chamber as the square ‘half- pillar’ (SU 264) which juts out from the chamber’s southern side, but it will be possible to confirm this only after the full excavation of the structure (Plate 2.4, 2.6a).

If this turns to be true, the kiln would have an up-draft structure. However, neither the construction level has been reached nor the entire body of the kiln exposed yet. Therefore, dimensions and duration of its operations still remain to be gauged precisely through completion of excavation of the entire structure.

Excavations in Area A also remain to be gauged precisely through completion of excavation of the entire structure.

### Finds

Besides the several hundred kilograms of technical ceramic fragments representing kiln walls and roofing (see above), as was to be expected, Area A was characterised by large amounts of slag, wasters and overfired sherds. We clearly have both undecorated...
Simple Ware and Qurayyah Painted Ware (QPW) specimens attested (Plate 2.7a). Therefore, already this first campaign has brought the definitive proof that QPW pottery was produced on the site of Qurayyah. And while this had been if not proven at least hypothesised before, additional finds from Area A and B both corroborate the local nature of this pottery production and possibly push this productive activity further back in time.

The finding of two halves [QU.A.1.F.1 and QU.A.6.F.2] of a slag, possibly a kiln wall that incorporated a Barbotine pottery sherd [Figs. 17 and 18] as well as an additional, strongly overfired Barbotine pottery sherd [QU.A.29.2] (Plate 2.7c) are evidence that, probably sometime before QPW was produced in the area, Barbotine pottery was manufactured and fired in the close vicinity. As the overfired material pointing to Barbotine production is not plenty and definitely much less in quantity than the QPW slag, wasters and overfired fragments found thus far, we are led to believe that those productive operations, though localised in the same general area, must have ceased by the time QPW production was in full swing and must be considered residual. This evidence both confirms our overall observation (see below) that QPW pottery predates Barbotine pottery. But more importantly, the overfired Barbotine sherds push back the date for the beginning of pottery production on the site of Qurayyah and confirms that local ceramic production had a long-lived tradition before and leading up to the manufacture of QPW.

The genetic link between Barbotine and QPW pottery as observable both in Tayma23 and Timna has been discussed elsewhere24 but the findings of a fragment with, at the same time, monochrome finger-painted decoration together with two white Barbotine appliqué bands from Area A [QU.A.33.1] (Plate 2.9k) and of two sherds from Area B [QU.B.51.2 and QU.B.51.3] (Plate 2.7c) imitating Barbotine pottery appliqué motifs through painted decoration seem to fully confirm that also in Qurayyah, QPW painted decoration originated locally by transforming appliqué Barbotine decoration into painted patterns. This painted decoration was later elaborated in polychromie. Therefore, in-depth archaeological and archaeometric25 investigation of this complex material will be crucial in explaining pottery production strategies in the oases of North Arabia throughout the Bronze Age.

The human remains are associated with hundreds (127 specimens only in SU 31) beads, mostly of faience, more seldom ostrich egg, glass paste or sandstone, occasionally found still strung together (Plate 2.6b).

The pottery repertory26 (Plate 2.8 and 2.9a-i-k)

Pottery repertory26 (Plate 2.8 and 2.9a-i-k)

Significant of the pottery assemblage from Area A is its substantial homogeneity. With the exception of the resident pieces discussed above [QU.A.1.F.1, QU.A.6.F.2, (Plate 2.7b); QU.A.29.2 (Plate 2.7c) and the potentially ‘transitional’ QU.A.33.1 (Plate 2.9k)] one, it is very uniform and displays a wide range of undecorated and decorated QPW shapes and motifs. A first sample of this pottery is presented on (Plate 2.8 and 2.9), however, these figures offer a selection of only the most interesting specimens but may not be taken to be representative either of the entire repertory of shapes or of decoration of Area A. Furthermore, non-decorated Simple Ware is seriously underrepresented in this display so that percentages of the different pottery classes remain to be assessed.

Closed shaped vessels (Plate 2.8) feature both monochrome and bichrome painted decoration, with typical QPW syntax elements – such as rows of red squares with dark dot in the middle, hanging semi-circles with concentric bands, vertical rows of dark rhombuses framed by red stripes, etc. – framing figurative motifs such as ibexes, lions, a horse? and plants.

Because we have similar shapes and fabrics both in painted and in undecorated specimens we have chosen to use the label QPW (Qurayyah Painted Ware) as a comprehensive term, even if partially contradictory for the undecorated exemplars. Moreover, the QPW assemblage is made of a variety of fabric types. Their detailed description is currently under study and will be defined in the future.

Open shaped vessels (Plate 2.9 a-d from Area A and Plate 2.9 b, c, e from the surface) feature monochrome and bichrome painted carinated bowls, both with small vertically pierced knob-handle and without. A wide series of simple bowls, painted with bichrome bands or with monochrome garlands and festoon hanging from the rim on the inside of the vessel, very well-known within the QPW repertory, and attested also elsewhere (e.g. Tayma27) are found in abundance in Area A but for reasons of space we chose not to depict them in this preliminary report.

Also storage vessels and cooking pots are present. Among the latter, the one [QU.A.10.8] (Plate 2.9 f) with deep vertical grooves is attested several times and might be found also in Khurayyah/Dadan28. The cooking pot with finger-impressed appliqué band [QU.A.22.2] (Plate 2.9 g) might be a development of the older, straight-sided cooking pot attested in the graves in Area B [QU.B.61.1] (Plate 2.13 k) and C (see below).

Because we are dealing with the assemblage from a production site, i.e. a pottery kiln, we would expect our repertory of wares, shapes and decorations to be particularly rich. However, since comprehensive evaluation of the pottery findings is still preliminary, the exact limits and characteristics of the

23 Luciani – Machell forth.
24 Luciani in press, fn. 126 and 127.
25 Fragments QU.A.29.2 (Fig. 19) and QU.A.33.1 (Fig. 22k) have been sampled and are under analysis by M. Donakiewicz, ARCHEA, Warszawa, Poland.
26 This text expands on the analysis of L. Machell.
27 Haasleiter 2014, Fig. 7.
28 Al-Shehry 2014, 270, No. 75.
phenomenon must remain unanswered for now.

5. Excavations in Area B

(Plate 2.10 - 2.13)
Slightly more than 40m to the south-east of Area A we opened a further excavation, Area B, 10m x 15m in extension (from SW 9974/10002 to SE 9974/10012 and from NW 9989/10001 [because of an additional 1m extension] to NE 9989/10012) (Plate 2.10). The spot was chosen because remains of stone walls were visible on the surface. The overall architecture is relatively well preserved and comparatively well understood but this area, and to lesser extent Area C (see below), was heavily looted. Both areas are generally thickly covered both by Aeolic sands and run-off deposits from the close-by Wall D, standing high above the level of the ancient landscape.

6. Stratigraphy and architecture

In Area B we brought to light a very elongated, rectangular two room building [B-B1], oriented SE-NW (Plate 2.11a). Its size up to now reaches 13.7 m in length, but as both northern walls continue under the N and E limits of the excavation we must expect this figure to increase. The interruption (SU 217) in the S part of wall SU 53 is neither a niche nor a door but most likely a small window. It must have stood at a height of more than 1.30 m above the floor level (absolute altitude 792.76 asl) within the building. In the S wall (SU 54) there are two small niches (SU 218 – 793.26 m asl – and SU 201 – 792.56 m asl –. Dimensions: 0.30 m wide and 0.20 m deep into the fabric of the wall). The 'floors' of both two small superimposed niches in the short, S wall SU 54 have a slight opening in the S part, just a small slit. However, they do not communicate with each other and were separate features (Plate 2.11b). This southern wall is preserved to a height of more than 1.85 m (since we are not close to the floor level this figure will increase) with an absolute altitude of 793.34 asl and was visible up to the present day just as the southern parts of walls SU 53 and 54.

For what concerns stratigraphy, (Plate 2.12a) we have identified at least three different phases of looting activities inside and outside building B-B1. All of these belong to the post-usage phase of the building. The latest one (SU 67-66), on the outside, SW area of the excavation, seems to have been deepened just to dig off sand.

A second, older looting phase features localised removal either outside (SU 207/75) or within the SW perimeter of the building (SU 216/94), slightly moves underlying material and does not reach very deep.

The third and earliest looting phase corresponds to 9 pits (SU 214/86, 65/61, 213/85, 206/74, 208/78, 209/79, 210/80, 211/81, 212/83), 1-2 m in length and reaching ca. 0.50 m in depth. The pits have allowed to uncovered numerous ecofacts and artefacts, such as a high number of human bones, large parts or complete vessels, bronze artefacts, different types of beads (see below finds) so that the interpretation of the structure as burial building seems granted.

As these numerous pits are all located within the walls of building B-B1, the looting seems to have knowingly targeted the edifice in order to obtain the goods associated with the graves and must have taken place while the building was still clearly recognisable as a burial site and potential ‘source’ of goods to be pillaged. As so often is the case, this extensive looting – that has not left readable traces behind and is therefore difficult or close to impossible for us to date – has significantly altered the original deposition of the burials. We will eventually be able to reach an estimate of the MNI only after intensive anthropological investigations.

For what concerns the layers deposited during the phase of usage of the building, as far as it is still preserved in the in-between areas spared by the pits, we have been able to identify the following stratigraphy (Plate 2.12a): a final layer of hardened sand present on the entire extension of the excavation area (SU 58, 59, 52 and 56). Underneath this sand layer we could identify a sequence of 0.2 m thick sand (SU 69, 87, 91, 60, 204, 78) deposits overlying a grey sandy layer filled with small bedrock chips or scales (SU 90, 93) overlying a previous layer (mixing both sand and bedrock scales: SUs 92, 89) which in turn overlays an additional deposit, rich in bedrock scales (SU 95). This is the deepest level reached but it does not constitute the floor of the building.

This depositional sequence, though thoroughly disturbed by the numerous pits, can be observed with a high degree of confidence. Furthermore, a better preserved virtually identical sequence can be observed within the building uncovered in Area C. In both buildings human bones are found in all of the above identified layers. However, in the better preserved patches of the building in Area C it may tentatively be observed that the grey bedrocks scales deposit covered the human bones.

Even if the complete stratigraphy of the building still remains to be investigated to the original floors, we would like to propose that the formal disposal of the human remains was covered by a layer of bedrock scales and...
possibly several medium-sized stone slabs (SUs 223, 224, 225 are however partially on different levels. Stone slabs have also been found partially overturned in the upper deposits). The existence of several such layers alternating phases where Aeolic or run-off sand accumulated on top of it indicate that the burial process was multiple and repeated throughout time. The disconnectedness of the human remains observed in Area B could be due to the later looting/disturbances. However, even in this case the comparison with the better preserved situation in the building in Area C is very instructive. There too, the bones are never articulated, thus possibly indicating secondary burial procedures from the onset.

The northern part of building B-B1 has been eroded to a much more consistent extent than the southern part (1.25 m lower, i.e., 792.10 m asl). In the former we have not yet reached the floor, either, and the above described sequence of sand and bedrock scales is not preserved but a more compact, brownish sandy deposit (SU 72/84; 77/88/100) came to light. The partially overturned medium-sized stone slabs are immediately under the sand. However, all findings confirm that also in this part of the building human remains and burials have been deposited. As far as the outside of the building is concerned, we have partially investigated the W flank. It features very thick accumulations of Aeolic and run-off sand, covered by the last stone slab debris stemming from the final collapse of the building. One phase of sand, particularly rich with macroscopic charcoal remains lays on top of the debris. All sands have been sampled and floated for macro and micro botanical remains.

Four buildings very similar to our building in Area B (and the one in Area C, see below) are attested elsewhere in North Arabia. Two were documented in the Tayma’ cemetery of Rujum Sarsa’ on Tell 2 and Tell 4. These are 5-chambered, very elongated rectangular buildings (12.7m x 2.8m and 12.5 x 3m) that both in size and masonry look very similar to building B-B1 in Qurayyah. The significant difference so far is that we cannot recognise the presence of the small chambers attested in Rujum Sarsa’. Two further buildings that may be compared with the Qurayyah and Tayma’ ones are those on the caim on Jabal al-Khramyat (Massif 22) in the area of Mada’in Salih excavated in 2014. They present a similar situation with two aligned, successive, very elongated, rectangular multi-chambered stone buildings. All four structures have been looted and display few remains beyond badly preserved human bones. However, the pottery in Tayma’ and Mada’in Salih seems similar to each other: coarse, reddish and with rows of incised dots. While single specimens of a very coarse simple ware are present in Qurayyah, the pottery attested in Tayma’ and Mada’in Salih has not been found yet and may be older than the assemblage attested in Area B (see below for details).

On the contrary, the marine shells uncovered in Qurayyah are very well comparable, if not identical to the ones attested both in Mada’in Salih and Tayma’ (see below). Since the excavation of building B-B1 has not been completed yet, it is difficult to speculate on the duration of its use. It seems likely that the burial buildings housed repeated burials that stretched over time. In Mada’in Salih a longer use is seen as likely on the basis of the constructional sequence of two separate building units. In Qurayyah the presence, next to burial building B-B1, of a very similar building in Area C (C-B1) and different 14C dates (see below § 8) may be a hint of a comparable situation.

**Find**

Before discussing the finds from burial building B-B1, we must mention one object that was found in Area B but must be considered residual. It is a fragmentary flint bowlet [QU.B.81.L.2] (Plate 2.12c-a), that our colleague S. Fujii has identified as dating to the PPNB and comparing with several specimens attested in the Levant, that he recently reviewed in an article. Apparently associated with cultic activities, this bowlet adds consistency to the evidence of a Neo lithic presence on the site.

The numerous ecofacts and artefacts associated with a high number of human bones found in the burial building B-B1 must be interpreted as the remains of the grave goods placed in the burials. They include: large parts or complete vessels (see below under pottery); metal artefacts (one dagger, several fragments of rods) and different types of beads (carnelein, different marine shells, stone, ostrich egg?).

The human remains will be studied in the next campaign. From a sample of one adult humerus was obtained the 14C date discussed below (§ 8).

As for the grave goods, the copper-alloy dagger with double rivets [QU.B.87.F.1] (Plate 2.12b) finds its best comparisons with type P 2.C ‘simple dagger with tang and two rivets’ in G. Gernez’s study of metal weaponry in the Ancient Near East from the origins until 1750 BCE. Our specimen, however, does not feature a tang: it was either not preserved or originally not there. As the state of preservation of the dagger is not good, we cannot be sure about the precise shape of the cross-section of the blade.

Although the P 2.C two-rivets daggers can be found in different regions of the Ancient Near East (Geoy Tepe, Tell Uqair, Tello, Hıdırlı), Gernez points out that the majority stems from Cyprus and the Levant. The contexts in Byblos, Hama, Moza, Ginosar, Vounous, Kalavasos offer a precise date to the MBA

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31 Compare Abu Arizeh 2015, 188, Fig. 20 with Al Hajji 2002, Pl. 3.14 A and Hausleiter 2015, 76, Fig. 6. I am indebted to Alina Zur for sending me PDFs of these references. For other, recently investigated burial evidence from Tayma’ see Hausleiter – Zur 2016 and Luciani 2016a, 11-13 and eadem 2016b, 25-27.

32 Fujii 2009.

33 Gernez 2008, 452, Fig. 2.139.
I (2000-1800 BCE)\textsuperscript{34}. The best comparison I could find actually comes from the Megiddo tombs\textsuperscript{33} but a contemporaneous Yemeni site offers also a possible, though less similar, parallel\textsuperscript{35}. All seem to point to the first half of the second millennium BCE as date for this type of double-riveted dagger.

Also several beads are part of the grave goods (Plate 2.12c). Not all have been examined yet, but marine shells of different species\textsuperscript{37} are the majority: beyond one cowrie shell (Makuri Annulus) [QU.B.90.F.1] are also Conus sp. specimens [QU.B.40.F.2 and QU.B.60.F.1], as well as specimens of the Dentalidae sp. [QU.B.61.F.1 and QU.B.61.F.2] and Cerithidae sp. [QU.B.51.F.2], all well attested both in Mada’in Salih\textsuperscript{38} and Tayma\textsuperscript{39}. The Carnelian bead [QU.B.72.F.3] may be compared with specimens from Tayma\textsuperscript{40}.

**Pottery repertoire**\textsuperscript{41} (Plate 2.13)

Just like in Area A, also the Area B pottery repertoire is very consistent. Because these deposits remained exposed and were looted, they contained the occasional small fragment of intrusive Qurayyah Painted Ware (e.g., Plate 2.8c), but the overwhelming majority of pottery – a confined quantity of small globular jars, pouring vessels or closed shapes – should be ascribed to a homogeneous Barbotine Pottery horizon and related undecorated Simple Ware vessels. While this assemblage features a remarkable inner affinity, the multiple variations in the decoration document for the first time an appreciable diversity. Besides the wavy line, white appliqué bands in relief (Plate 2.13 h, j) – i.e., the defining trait of Barbotine pottery –, we also have the same associated with appliqué pellets (Plate 2.13 f), or incised appliqué bands associated with incised decoration (Plate 2.13 i). Incised decoration is present also as deeply grooved wavy lines both alone or associated with applied pellets (Plate 2.13 g, e). Different shapes of decoration obtained through rows of applied pellets – occasionally of different sizes – (Plate 2.13 a-f), as well as their reddish, polished surfaces are a likely indication that these vessels were conceived as metal skeumorphs. Whether the here described variety in decoration types hints at different chronological phases of production and use requires further research and study. As is the case for QPW, also the Barbotine Pottery assemblage is made of different fabric types, at time almost kaolinic in colour and very fine in texture (e.g., Plate 2.13 g). All these aspects are currently under study.

The pottery of this cultural horizon does not seem to be made on the fast potter’s wheel. Most of the decorated ones are hand-made. Some undecorated open shapes, like bowls, might have been smoothed on a slow wheel.

Finally, to the B-B1 pottery assemblage belongs also a cooking pot (Plate 2.13 k). An identical, significantly larger piece that preserved the entire shape was found in the Area C building (see below), so that we may be sure that in fact cooking ware actually came from burial sites. As K. Kopetzky was able to show, these typical MBA cooking pots are found throughout the Levant and down to Middle Egypt\textsuperscript{42}. To this distribution map we now have to add Qurayyah. It is intriguing to find the most fitting comparison again stemming from Middle Bronze Age Megiddo\textsuperscript{43}, both from Area BB, where the megaron temples\textsuperscript{44} were brought to light and from two different burials\textsuperscript{45}. Both here and in Khirbet Kuftin\textsuperscript{46} and Ezrata\textsuperscript{47} this cooking pot type is attested in graves. This evidence combined with the new findings from Qurayyah’s Areas B and C point to the presence of burial or funerary rituals involving the use and deposition of cooking pots. These rituals seem to be attested from Northern Arabia to the Southern Levant. Analyses of associated faunal and floral remains may help us in clarifying the role of these vessels in funerary contexts.

Levantine comparisons for both the dagger, the cooking pot and for the Barbotine pottery and the malaco-fauna from findspots in Arabia all point to a date in the first half of the second millennium BCE for the chronology of these burials.

7. **Excavations in Area C**\textsuperscript{48}

(Plate 2.14-2.16c)

Exactly 30m to the west (south-west) of Area B we opened a further excavation, Area C, also 10m x 15m in extension (from SW 9965/9962 to SE 9965/9972 and from NW 9980/9962 to NE 9980/9972) (Plate 2.14-2.15a) on an area that equally clearly revealed the presence of stone architecture immediately underneath the surface.

The excavation brought to light a very elongated, rectangular building, C-B1, perfectly iso-oriented with B-B1 (SE-NE) with very similar overall dimensions, but not exactly identical to the latter in detail (Plate 2.15a). Besides the general similarity in shape, some differences characterize this building in comparison to B-B1. The floor level lies significantly higher than the one in Area B (at least one meter higher), and on the outside of the building an L-shaped

\textsuperscript{34} Gernez 2008, 458-459.
\textsuperscript{35} Guy - Engberg 1938, (MB II) Tomb 911D, Pl 122, no. 8.
\textsuperscript{36} 37 Giumlia-Mair et al. 2000.
\textsuperscript{37} Gernez 2008, 458-459.
\textsuperscript{39} Kopetzky 2010, 249-252.
\textsuperscript{40} Kopetzky 2010, 249-252.
\textsuperscript{41} Kopetzky 2010, 249-252.
\textsuperscript{42} Kopetzky 2010, 249-252.
\textsuperscript{43} Studer – Tardy 2015). Exact determination through a malacologist will ensue in the future.
\textsuperscript{44} Loud 1948, Pl. 7, Nos. 9-12 from Locus 4023 and Pl. 9, No. 19 from Locus 5161 = Megiddo Stratum XV.
\textsuperscript{45} Smith 1962, Pl. 17, No. 31.
\textsuperscript{46} Gonen 2001, 37, Fig. 23, No. 9 and 44, Fig. 27, No. 10.
\textsuperscript{47} Gonen 2001, 37, Fig. 23, No. 9 and 44, Fig. 27, No. 10.
\textsuperscript{48} Excavated by the Saudi team. Text elaborating reports by A. Alsaud.
small wall defining a small chamber has been excavated.

The southern, short wall of building C-B1 has not been uncovered yet so that the actual extension of the southern room of the building is not known so far. It is therefore not clear whether the division in two chambers is comparable to the one in building B-B1 or not. In fact, while the parallel walls SU 102 and SU 104 are on the continuation of respectively the eastern and western long walls of building C-B1 (Plate 2.14-2.15a), they do not have as deep foundations as the latter and consist only of a couple of layers. It is therefore likely that these walls were added secondarily to older ones and do not constitute the original subdivision in chambers of the building. As the excavation of the building is still on-going and no floor level has been reached yet, we cannot be more precise on the interpretation of this evidence. From this northern and more recent part of the building comes a crucible for copper-alloys.

In the southern and main part of building C-B1 a sequence of layers similar to the one observed in building B-B1 (Plate 1.2-1.15a), they do not have as deep foundations as the latter and consist only of a couple of layers. It is therefore likely that these walls were added secondarily to older ones and do not constitute the original subdivision in chambers of the building. As the excavation of the building is still on-going and no floor level has been reached yet, we cannot be more precise on the interpretation of this evidence. From this northern and more recent part of the building comes a crucible for copper-alloys.

While these human remains did not seem articulated – it is difficult to say whether this depended from successive disturbance due to the looting or secondary burial depositions. The burials were covered by a bedrock scales layer and lay on top of large capstone (?) slabs (Plate 2.15b). Because of their stratigraphic position underneath the human remains and their laying as if capsized it is not sure whether they were part of the original covering of the burials. Only completion of the excavation will clarify the question. Both from the internal debris and external deposits of the building stem several dozen small stone and shell beads and copper-alloys small spheres (Plate 2.16c).

8. Excavations in Area D*

(Plate 2.17a-2.18b, Plate 2.9 j, l-m)

A further 10m x 10m excavation, Area D, was opened some 80m further east (north-east) from Area A, within the so-called Residential Area (from SW 10102/10107 to SE 10102/10117 and from NW 10112/10107 to NE 10112/10117) (Plate 2.17a and 2.18a).

The goal in this case is to excavate and document a prevalently non-sloping, deep-reaching, multi-period stratigraphic sequence to be used as a reference for the entire site. This is especially important in view of the fact that exposure in the other areas seems mostly mono-phase (or at maximum with a secondary phase of use, as in Area A).

Area D has been investigated only for the last two weeks and solely the west half of the area was excavated up to now. However, this has already provided the evidence of a sequence.

Phase 1: Walls SUs 152, 153 and 154, detected directly under the modern surface build a structure with four areas. The upper interface of the SUs 157 and 158 and SU 156 must have been used as the last trodden floor of this building, even if no clearly recognisable floor was detected.

Phase 2: The deposits (SU 159, SU 157, SU 158 and SU 160) underlying this living surface, were all characterized by a consistent presence of ashes. Organic samples for radiocarbon determination have been retrieved. The excavation revealed in the NE corner the presence of an additional E-W wall (SU 162), that must be earlier that the N-S main wall SU 152 and its floor. Because wall SU 152 surely continues beyond the northern limits of our excavation and the general architecture of the building seems to be completed by the remains in the eastern part of the area (SU 155, still unexcavated), it is too early to propose an encompassing interpretation of these remains. Location in the Residential Area, size and general structure of the masonry all point to living quarters. The lower interface of the above mentioned SUs must be the last phase of use of wall SU 162 and the others associated with it (predecessor of SU 152, and 153?) even if, here too, no clear floor level was detected.

Phase 3: A yet earlier phase is constituted by the underlying deposits (SUs 163-166). SU 165 was again an accumulation very rich in ashes. It contained evidence of a small stone with circular indentation [QU.D.165.F.1], which is actually too small and too off-centre to be interpreted as door socket (see below under finds).

Phase 4: In the E half of the excavated area, digging stopped at this level. In the W part, removal of SU 165 has allowed uncovering a yet underlying phase of wall constructions (SUs 167, 168, 169, 173) that must belong to a not-yet-completely-investigated phase 4 of the local stratigraphy. In the architecture we recognise a threshold area (SU 169) with a door socket in the S and the ‘predecessor’ of wall SU 152 in the central part of Area D, SU 167 and the wall perpendicular to it, SU 168.
**Finds**

From the second-most recent of the phases excavated until now, came a riveted iron dagger [QU.D.159.F.1] (Plate 2.17b) along with two joining fragments of a small alabaster vessel [QU.D.159.F.3] (Plate 2.17c) and a small stone disc-shaped bead [QU.D.159.F.2]. Because the find-spot of the iron dagger (or large knife) was so superficial we are not entirely sure we can exclude it as sub-recent/modern. The alabaster vessel seems to compare quite closely to a similar find from Khuraibah/Dadan. The alabaster vessel was so superficial that we can exclude it as sub-recent/modern. The alabaster vessel seems to compare quite closely to a similar find from Khuraibah/Dadan.

The small stone with circular indentation [QU.D.165.F.1] has traces of a red pigment and the fact that also a stone sphere, possibly a weight [QU.D.165.F.4] as well as at least four dish-shaped beads [QU.D.165.F.5-7] (all of the above: Plate 2.18b) and a Tridacna shell with traces of bitumen (?) [QU.D.165.F.3] were found in the same layer may indicate that the stone was for shaping and finishing stone weights or jewellery. From this layer stems the sample that was analysed for radiometric dating (see below).

**Pottery repertory**

Diagnostic pottery in Area D is not abundant. The repertoire features Classical period coarse and fine pottery body sherds but rare diagnostics. No painted specimens of the Nabatean or Roman period have been found so far. A single fragment of a red slipped body sherd [QU.D.165.2], part of the base of a large and very flat plate (Plate 2.18b) may have to be interpreted either as Eastern Sigillata A or rather as an African Red Slip specimen. Its precise identification will be undertaken in the next campaign. Of course depending on the exact definition of the pottery class, its date may change significantly, that is from the Hellenistic down to the Late Roman and even into the Byzantine period. Comb-incised pottery is attested from the surface of the site and a single specimen [QU.D.157.1] comes from a SU in Area D. However, other diagnostics are rare in these still superficial deposits.

Interesting is to remark that both in Layer 2 deposits (SUs 158 and 159) and also in Layer 3 (SU 165) we find fragments of QPW pottery that are surely residual. In one case [QU.D.165.1] (Plate 2.9j) the painted specimen looks slightly different from the other QPW sherds uncovered so far, mainly from Area A. Like another specimen [QU.S.9045.2] that comes from the surface of the Fields area (Plate 2.9m), this fragment may belong to a later painted tradition in Qurayyah or more simply to not-yet-known variations within the QPW repertory. It is interesting that from the same general area, a complete vessel [QU.S.9045.1] (Plate 2.19 l) though featuring a bichrome painted decoration like so much of the standard QPW, displays a type of surface and a painting trait that do not correspond to the majority of the QPW assemblage. The meaning of these variants will be investigated in the future.

### 9. 14C radiometric dates

One of the explicit goals of this first campaign was to obtain samples to be submitted for radiometric dating. The data is summarised in the illustrations that follow and in Tables 1 and 2, below.

From younger to older we have one date from Area D, Phase 3 (Table 1, No. 1) pointing to the Hellenistic period. This would agree well with an identification of the single red-slipped sherd found so far [QU.D.165.2] as Eastern Sigillata A. However, because the analysed sample is a fragment of olive wood that may have been used for construction, we should not exclude that this was old wood reused in our Phase 3 of the stratigraphic sequence, and therefore not actually dating our deposits. More samples need to be tested here.

The next oldest samples are all from Area A. They were meant to both frame the time of activity of the Qurayyah Painted Ware (QPW) pottery kiln and its demise. The two overlapping dates for its use (Table 1, Nos. 4 and 5) are coherent with each other and point to an early Late Bronze Age (16th century calBCE) date for this pottery repertory.

Although these dates are significantly older than the usually accepted dates for QPW, they agree with the new calBCE dates for QPW from Tayma. Moreover, they are not only consistent with each other but also with the dates obtained for the human remains disposal, being stratigraphically after the kiln had been abandoned, and correctly turning out to be younger than the kiln ones. The age of the re-deposited bones is pinpointed to the 13th to 12th century calBCE (Table 1, Nos. 2 and 3). As we said before, these human remains disposals were associated with several dozen faience beads, well attested in this latter part of the Late Bronze age.

Furthermore, a single date from the human remains from Area B is again coherent with the entire picture because it is older than any of the above (17th and early 16th century calBCE, with a slight option of 18th century calBCE, Table 1, No. 6) and frames the finds to the Middle Bronze age, consistent with the dates of Barbotine pottery in Tayma, metal weapons and cooking pot ware compared to the ones found in the building B-B1 and discussed above.

Because we have some evidence of the QPW production following closely in time the Barbotine one, with possible overlaps and transitional exemplars, the two time-periods indicated by our set of dates, i.e., late Middle Bronze for Barbotine and early Late Bronze for QPW, seem to support this view. However, the details of the chronology of

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51 I am indebted to Sebastian Heath, Ze’ev Weiss (both ISAW, New York) and Marie-Odile Rouset (CNRS, Lyon) and Sabine Ladstätter (ÖAI, Vienna) for their different suggestions.

52 This hypothesis stems from the perceived similarity with Early Iron Age pottery from Area O in Tayma’ (see Hausleiter 2014). However, in view of the paucity of exemplars recovered until now, it is far from being proven.

both assemblages as well as that of the use of building B-B1 still need more encompassing evidence.

Table 1.

<table>
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<tr>
<th>No.</th>
<th>UGAMSS(^{54})</th>
<th>Sample ID</th>
<th>Material</th>
<th>(\delta^{13})C, (%)</th>
<th>14C age, yr BP</th>
<th>(\pm) pMC (\pm) (OxCal v4.2.4)</th>
<th>CalBCE date (\pm) (OxCal v4.2.4)</th>
<th>Deposits' sequence in Qurayyah</th>
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<td>QU.D.165.S.1</td>
<td>Charcoal (olea)</td>
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<td>(-22190)</td>
<td>(+25)</td>
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<td>68.81</td>
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</table>

Finally, from one palaeo-botanical sample from Area C, from the sand (SU 116) on top of burials, comes a further dated sample (Table 2, No. 7). Because it points to an Early Bronze (ca. 23rd-22nd century calBCE) date while the graves in Area C display the same Barbotine pottery repertory as the in Area B, radiocarbon-dated to a younger age, we have to evaluate different possible explanations. Either, in this case too, we have a significant old wood effect in the Area C sample, or else, on the contrary, notwithstanding their apparent discrepancy, both are to be retained and building C-B1 ended its use significantly earlier than B-B1, even if the pottery repertory is common. The right humerus of the adult sampled in B-B1 could be just one of the more recent depositions of a long-lasting burial tradition.

\(^{54}\) Center for Applied Isotope.  
\(^{55}\) I am indebted to Lorenzo Calibration for me.
No. Poznan 57 Sample ID (Area.SU) Material δ13C,‰ 14C age, years BP ± pMC ± (OxCal v4.2.4; CalBCE date)58 Deposits’ sequence in Qurayyah
7 Poz-7932 QU.C.116.S.1 Charcoal (olea) 3785 35 2340-2050 Area C: SU later than the Barbotine grave

Table 2

10. Environmental Research
Michele Dinies (DAI, Berlin) and Philipp Hoelzmann (FU-Berlin)

Knowledge about the natural environmental settings is essential for the understanding of land use systems: water and vegetation are prerequisite for human population and the local to regional geomorphology impacts. The past environmental settings of the Qurayyah region are uncharted up to now. During a short reconnaissance tour in December 2015 we visited different localities in the larger region of Qurayyah and the archaeological site itself. A small number of on-site and off-site archives were sampled in order to test their suitability for geochemical and palynological investigations. Additionally, a few first archaeo-botanical samples out of the ongoing archaeological excavations had been floated and analysed.

The few so far sampled and tested sites will be presented in what follows, starting with the off-site profile.

Sections
QU 15-4: Section of a yardang several km northwest of the core of the settlement of Qurayyah (N 28° 49.262’; E 36°02.922’).

The Wadi Ghubai is a large and deeply cut wadi that flows from southwest to northeast of Qurayyah. (Plate 2.19a). About 5.5 km northeast of the site, in the fading foothills of the Hijaz mountains, sediment remnants were sampled. These yardangs were supposed to represent a shallow palaeolake, following a typical sequence known from other arid regions: in more upstream positions wadi sediments are deposited, followed by large alluvial fans further downstream, which may end in probably groundwater-fed shallow lakes. Several sediment yardangs exhibit identical sediment sequence (Plate 2.19b and Plate 2.20a, Table 3): a hardened carbonate crust covers the yardang, followed below by greyish-greenish calcareous silt layers with numerous molluscs; basis distinct. The lower section comprises greyish, silty fine sands without molluscs. A hardened salt crust may indicate the transition into the weathered sandstone bedrock (the bedrock could not be reached). Neither pollen nor diatoms were preserved in the test samples. These findings, together with continuously high salt values of the ongoing geochemical analysis, point to an episodic flooding rather than a groundwater-fed shallow palaeolake.

QU 15-4: In the section observed stratigraphy below yardang level

<table>
<thead>
<tr>
<th>Depth (cm)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-40 cm</td>
<td>calcareous crust, weathered, therefore brownish-reddish outside, inside greyish</td>
</tr>
<tr>
<td>40-55 cm</td>
<td>grey-greenish, darker calcareous silt layer</td>
</tr>
<tr>
<td>55-130 cm</td>
<td>grey-greenish, calcareous silt layers with numerous molluscs; basis distinct</td>
</tr>
<tr>
<td>130-150 cm</td>
<td>light grey, silty fine sand, without molluscs</td>
</tr>
<tr>
<td>&gt;175 cm</td>
<td>greyish-whitish, calcareous salt crust with intercalating silty fine sand layers</td>
</tr>
<tr>
<td>&gt;175 cm</td>
<td>rust-stained, silty fine sand, partially with small dark (Manganese?) concretions and irregularly shaped calcareous salt crusts; bedrock not reached</td>
</tr>
</tbody>
</table>

Table 3

Large surfaces in the northern part of the site have been classified as Fields by older surveys58. Three sections were sampled there: two nearby sections (QU 15-2 and QU 15-3) exposed by a branch of the wadi crossing mainly the Fields area in the north-western part of the fenced archaeological site and one section in the centre of a visibly ‘enclosed field compound’ (QU 15-5).

56 This date was provided provided courtesy H. Kürschner, FU Berlin.
57 OxCal v4.2.4 Bronk Ramsey, (2013); r;5; IntCal13 atmospheric curve (Reimer et al. 2013). Calibration: Poznan Radiocarbon Laboratory.
58 Parr et al. 1970, Fig. 10 and see above.
QU 15-2: Fields area section exposed by wadi (28°47.662’N; 36°01.541’E [+- 3m]) and

QU 15-3: Fields area section exposed by wadi, with stone wall construction on top, localised

8 m south of QU 15-2. A salty silt sequence was deposited on the bedrock, with a hard crust covering the sandstone (Plate 2.20b and Table 4 and Table 5). The test samples were devoid of pollen and botanical macro-remains.

Table 4

<table>
<thead>
<tr>
<th>Stratigraphic Unit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4cm</td>
<td>Light-brown, recent calcisol (desert soil); stones, molluscs and scattered sherds on the surface</td>
</tr>
<tr>
<td>4-24cm</td>
<td>Lighter brown, hard, salty silt</td>
</tr>
<tr>
<td>24-84cm</td>
<td>Lighter brown, very hard, salty silt, partially with concretions</td>
</tr>
<tr>
<td>84-90cm</td>
<td>Whitish-brownish, hard (calcerous?) crust; partially extensively preserved on the sandstone bedrock</td>
</tr>
<tr>
<td>&gt;90cm</td>
<td>Sandstone (bedrock)</td>
</tr>
</tbody>
</table>

Table 5

<table>
<thead>
<tr>
<th>Stratigraphic Unit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-25cm</td>
<td>Stone wall</td>
</tr>
<tr>
<td>25-30cm</td>
<td>Porous calcerous silt layer</td>
</tr>
<tr>
<td>30-90cm</td>
<td>Lighter brown, hard, salty silt</td>
</tr>
<tr>
<td>90-165cm</td>
<td>Darker brown, wetter salty silt, partially with concretions</td>
</tr>
<tr>
<td>165-170cm</td>
<td>Whitish-brownish, hard (calcerous?) crust; partially extensively preserved on the sandstone bedrock</td>
</tr>
<tr>
<td>&gt;170cm</td>
<td>Sandstone (bedrock)</td>
</tr>
</tbody>
</table>

QU 15-5: Fields area section (28°47.249’N; 36’01.206’E). In the centre of an enclosed field compound, an area surrounded by stone settings forming a rectangular, a c. 1m x 1.5 m trench was dug. The last c. 40 cm were drilled by a hand auger. Wind-blown sand covered a light brown sequence with a distinct gypsum crystal layer about 60 cm below ground surface level. About 115 cm the probably weathered bedrock was reached (Plate 2.20b, Table 6). The test samples were devoid of pollen and botanical macro-remains.

Table 6

<table>
<thead>
<tr>
<th>Stratigraphic Unit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-18 cm</td>
<td>Wind-blown sand</td>
</tr>
<tr>
<td>18-60 cm</td>
<td>Light brown, calcerous silt</td>
</tr>
<tr>
<td>60 cm</td>
<td>Gypsum crystal layer</td>
</tr>
<tr>
<td>60-115 cm</td>
<td>Light brown-greyish silt</td>
</tr>
<tr>
<td>&gt;115 cm</td>
<td>Yellowish sediment (cf weathered bedrock/sandstone)</td>
</tr>
</tbody>
</table>

Table 7

Archaeo-botanical samples

Seven archaeo-botanical samples were taken out of the excavation Areas B and C. In Area B the sand layers SU 69, above and outside of building B-B1 and the fills inside the building SU 99 (sand with bedrock scales) and fill SU 96 were sampled (see above Fig. 26 with Area B matrix). In Area C a sequence was sampled in the southern corner of the building, above the layer SU 118 (see Fig. 30). The deepest, archaeo-botanical sampled layer is SU 116, lying directly on SU 118. The subsequently following layers above, SU 115 and SU 114 (split in SU 114B and above SU 114A), were sampled too. Only the 2 samples SU 115 and SU 116, layers of the collapsed building/grave of Area C, contained charcoal fragments large and well preserved enough for identification. Records of seeds and fruits are missing up to now. The

<table>
<thead>
<tr>
<th>Excavation SU</th>
<th>Weight in gr.</th>
<th>Description</th>
<th>Identification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SU 69</td>
<td>3.9</td>
<td>Many very small charred fragments</td>
<td>no identification possible</td>
</tr>
<tr>
<td>SU 96</td>
<td>0.44</td>
<td>Some small charcoal fragments</td>
<td>no identification possible</td>
</tr>
<tr>
<td>SU 99</td>
<td>0.40</td>
<td>2 small, charred fragments</td>
<td>cf Olea</td>
</tr>
<tr>
<td>SU 99</td>
<td>0.15</td>
<td>Several very small charred fragments</td>
<td>no identification possible</td>
</tr>
<tr>
<td>Area C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SU 114A</td>
<td>&lt;0.1</td>
<td>Few, very small charred fragments</td>
<td>no identification possible</td>
</tr>
<tr>
<td>SU 114B</td>
<td>0.1</td>
<td>Few, very small charred fragments</td>
<td>no identification possible</td>
</tr>
<tr>
<td>SU 115</td>
<td>1.15</td>
<td>1 charred fragment</td>
<td>Olea</td>
</tr>
<tr>
<td>SU 115</td>
<td>0.7</td>
<td>Several small charred fragments</td>
<td>no identification possible</td>
</tr>
<tr>
<td>SU 116</td>
<td>0.04</td>
<td>1 charred fragment</td>
<td>Chenopodiaceae</td>
</tr>
<tr>
<td>SU 116</td>
<td>0.86</td>
<td>9 charred fragments</td>
<td>Olea</td>
</tr>
<tr>
<td>SU 116</td>
<td>0.75</td>
<td>Several small charred fragments</td>
<td>no identification possible</td>
</tr>
</tbody>
</table>
results of the archaeo-botanical samples are summarized in Table 7.

While the findings of goosefoots (Chenopodiaceae) – a plant family widespread until today – could be expected, the olive charcoal fragments arouse our interest. In the southern Levant olive cultivation is documented since the Chalcolithic period, e.g. in Teleilat Ghassul in the Jordan Valley (about 6500-6300 cal BP/4500-4300 BCE) and in the pollen diagram from Ein Gedi (about 6300 cal BP/4300 BCE). Yet, the role of olive cultivation in the northern Arabian oases is nearly unknown up to now. Olive trees are part of the natural mountainous vegetation in the Hijaz. In Mada’in Salih very few olive charcoal fragments are recorded for the Roman and Nabatean Period up to now.

Olive charcoal samples of Qurayyah (SU 116) were dated to 2340-2050 BCE (see Table 2). The few first archaeo-botanical samples yielded only charcoal fragments, mostly to small or not well enough preserved for identification. Yet, a charcoal fragment of olive (Olea) dated to 2340-2050 BCE indicates a local presence of olive trees. Whether the olive charcoals document olive cultivation or the use of ‘wild’ olive trees has to be solved by further archaeo-botanical research in Qurayyah.

11. Conclusions

The first excavation campaign in Qurayyah has allowed us to clarify and establish a number of facts and therewith answer some long-standing questions about this important site. Investigations on the pottery kiln in Area A coupled with the geo-magnetic survey in its surroundings have proven the existence of a consistent (and durable?) Qurayyah Painted Ware ceramic production is situ. The cal 14C dates around the middle of the 2nd mill. BCE make it a clear early Late Bronze age and not Iron Age phenomenon. Also proven by these first analyses is the link between QPW and Barbotine production, something that pushes the pottery production activity further back into the Middle (?) Bronze Age. The details of construction and functioning of the kiln, on the contrary, still need to be investigated. This will be our goal for the coming campaign(s). While the QPW and associated Simple Ware pottery repertory seem rich in Area A, stemming as it does from a productive and not a living quarter, it will most likely not allow us to observe a durable diachronic development of assemblages.

12. References


Atlas 28 Part One

History of the Kingdom of Saudi Arabia, Paris, 211-216.


Liu, S. – Rehren, T. – Pernicka, E. – Hausleiter, A., 2015, Copper processing in the oases of Qurayyah 2015 First Season


Tebes J. M., 2014, The symbolic and social world of the Qurayyah pottery iconography, in J.
Plates
موقع قريّة بمنطقة تبوك (الموسم الأول 2015) 37/7 م، لوحة ٨٦ خريطة ٠٠ (١٩٨٠، Pl. 68، Map 5).

Satellite image with the localisation of the measured points within the area of the site of Qurayyah and in its immediate surroundings (B.-D. Teichert).

b. General plan of Qurayyah and detail plan of the Rock Plateau and Residential Area (from Parr et al. 1970, Fig. 10 and 11).
Plate 2.4

1. Location of the E-W transect survey area and the four excavation areas opened in 2015: Area A, Area B, Area C and Area D (D.M. Blattner, A. Intilia, B.-D. Teichert).


4. Bichrome-painted QPW pitcher [QU.S.9001.34] ø: 8cm; and appliqué-decorated simple ware body sherd [QU.S.9001.25], h.: 11.2cm both from the surface (Photos M. Adelhofer, Drawings M. Machel).
Plate 2.5

Qurayyah First Season

Qurayyah 2015 First Season

Plate 2.6


Plate 2.5

Site of Qurayyah in the first season of excavation.

Plate 2.6

a. Area A: Drone photo of the kiln SU 17 and the surrounding area from the north (Photo M. Malki)

b. Area A: Scattered human bones (SU 31) inside the kiln, seen from the north (Photo A. Intilia); Faience beads as found in situ [QU.A.31.F.18 to 32] (Photo A. Intilia); Additional beads re-strung as originally found together in situ [QU.A.31.F.87 to 96], total length: 10cm (Photo M. Adelhofer)
Plate 2.7

Qurayyah 2015 First Season

**a. Area A:** Slag, wasters and overfired simple ware and QPW pottery sherds from the kiln SU QU.A.1.W3 (Photo M. Adelhofer)

**b. Area A:** two halves [QU.A.1.F.1 and QU.A.6.F.2] of a slag (kiln wall?) incorporating a Barbotine pottery sherd (Photos M. Adelhofer)


Closed shapes of QPW pottery from Area A (a-b, d-e, g-h, l) and from the surface (f, i). (Photos M. Adelhofer, Drawings M. Machel). Scale 1:3

فخار مغلق من منطقة أ (أ-ب، د-هـ، ز-ح) والشففة من أرض الموقع ب، ج، والسطح و، ط

مخلوقات مصنوعة من خبث حديد ومواد محترقة وشففة فخار من الفرن.
Plate 2.10

Qurayyah 2015 First Season

Fig: 22 Open shapes of QPW pottery (a, d: Area A; b, c, e: from the surface); Cooking pots from Area A (f-h, i?); Painted (QPW?) pottery from Area D (j) and the surface (l-m); finger-painted and Barbotine sherd from Area A (k)
(Photos M. Adelhofer, Drawings M. Machel). Scale 1:3

Plate 2.9

Qurayyah 2015 First Season

Area B: Schematic plan of the excavation at the end of the 2015 campaign (M. Luciani, M. Adelhofer, D.M. Blattner)

 مجموعة فخار مفتوح يضم قدوراً من الملون والمزخرف بالإصبع وشقفة فخار باربوتين
Open shapes of QPW pottery (a, d: Area A; b, c, e: from the surface); Cooking pots from Area A (f-h, i?); Painted (QPW?) pottery from Area D (j) and the surface (l-m); finger-painted and Barbotine sherd from Area A (k)
(Photos M. Adelhofer, Drawings M. Machel). Scale 1:3
Plate 2.11

Qurayyah 2015 First Season

From the south-east

A. Drone photo of building B-B1 from the south-east (Photo M. Malki)

Fig. 26 – Area B: preliminary matrix of the 2015 excavations (M. Luciani, M. Adelhofer, D.M. Blattner)

Fig. 27 – Area B: copper-alloy dagger with double rivets [QU.B.87.F.1] (max length: 10.7cm, width: 3.1cm h: 0.2cm)

Plate 2.12

Qurayyah 2015 First Season

Qurayyah 2015 First Season

Fig. 28 – Area B: a. residual PPNB flint bowlet [QU.B.81.L.2], max length: 7cm, h: 2; b. Area B: copper-alloy dagger with double rivets [QU.B.87.F.1] (max length: 10.7cm, width: 3.1cm h: 0.2cm)

c. Area B: residual PPNB flint bowlet [QU.B.81.L.2], max length: 7cm, h: 2; d. Area B: a. residual PPNB flint bowlet [QU.B.81.L.2], max length: 7cm, h: 2; e. Carnelian: QU.B.72.F.3, ø: 0.7cm; (Photos M. Adelhofer)

b. The two superimposed niches in the S wall of building B-B1 from the north (Photo M. Malki)

b. Area B: the two superimposed niches in the S wall of building B-B1 from the north (Photo M. Malki)

b. Area B: copper-alloy dagger with double rivets [QU.B.87.F.1] (max length: 10.7cm, width: 3.1cm h: 0.2cm.)
Area C: Schematic plan of the excavation at the end of the 2015 campaign with localisation of the main findings (M. Malik, A. Intilia, D.M. Blattner)

Barbotine pottery (a-j) and cooking pot from Area B (Photos M. Adelhofer, Drawings M. Machel). Scale 1:3
Plate 2.15

Qurayyah 2015 First Season

C-B1

a. Area C: Barbotine Pottery vessel associated with human remains from building C-B1 (Photo M. Adelhofer)

b. Area C: two views of a complete vessel with handle from building C-B1 (Photo M. Adelhofer)

c. Area C: Copper-alloy, stone and shell beads from building C-B1 (Photo M. Adelhofer)

Plate 2.16

Qurayyah 2015 First Season

C-B1

a. Area B: Area C: Drone photo of building C-B1 from the south-east (Photo M. Malki)

b. Area C: Drone photo of capstones in building C-B1 from the south (Photo M. Malki)
Plate 2.17

Qurayyah 2015 First Season

Plate 2.18

Qurayyah 2015 First Season

a. Area D: Photomosaic of the excavation area from the south (Photo M. Luciani)

b. Area D: Stone with circular indentation [QU.D.165.F.1], ø: 15cm, stone spherical weight (?) [QU.D.165.F.4] and flat disk-shaped beads [QU.D.165.F.5-.7] on the left, and both sides of red slipped pottery (fragment of base of large, flat plate) [QU.D.165.2], max length: 10cm on the right (Photo M. Adelhofer)

c. Area D: alabaster vessel [QU.D.159.F.3] (Photo M. Adelhofer)

b. Area D: Schematic Plan of the excavation at the end of the 2015 campaign (M. Luciani, D.M. Blattner)

b. Area D: riveted iron dagger [QU.D.159.F.1] (Photo M. Adelhofer)

b. Area D: Photomosaic of the excavation area from the south (Photo M. Luciani)
Plate 2.20

أ. جرفان وادي غبي من الجنوب الغربي (حفرة QU 15-4)

Plate 2.19

ا. الموقع قريًة بمنطقة تبوك (الموسم الأول)

b. المقطع الطبقات في أثناء الحفريات

b. مزروب (صور 12) من الجنوب الغربي

b. Yardangs with sampled yardang in the foreground from the southwest (Photos M. Dinies)
المقالات المنشورة في هذا العدد من أعمال المؤلفين ما لم تشير الهيئة إلى غير ذلك.

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أ. سالم هذال القحطاني

أعمال الترجمة
أ. عايض بن عبدالهادي القحطاني

العدد الثامن والعشرون
صورة الغلاف: مجموعة خرز من الأصداف وحجارة وقطع نحاسية من موقع قرية بمنطقة تبوك (الموسم 1437هـ / 2015م)
حولية الآثار العربية السعودية

أطلال

العدد الثامن والعشرون

(١٤٤١هـ/٢٠٢٠م)

تصدر عن قطاع الآثار والمتاحف

بالهيئة العامة للسياحة والتراث الوطني
حولية الآثار العربية السعودية

العدد الثامن والعشرون

(1441هـ/2020م)